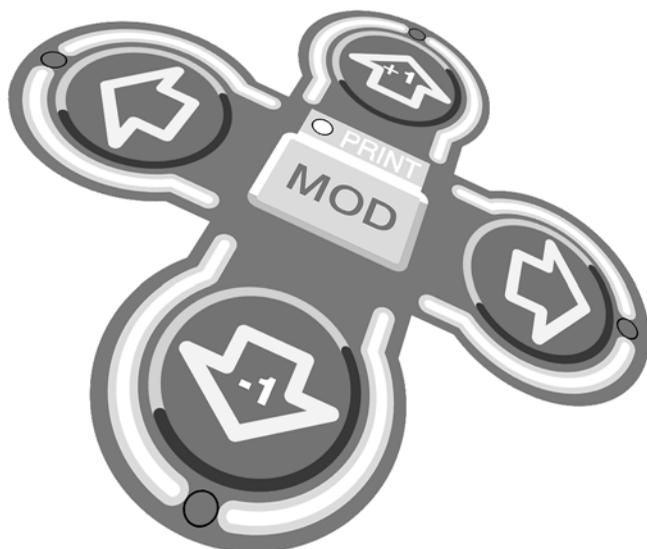


User manual
September

2003

Software
XBT-L1000 ver 4.30

Magelis range Graphic XBT-F / TXBT-F



WARNING

UNINTENTIONAL EQUIPMENT OPERATION

The application of this product requires expertise in the design and programming of control systems. Only persons with such expertise should be allowed to program, install, alter, and apply this product.

XBT-L100x V 3.6 and later software should only be used with hardware dated 98 25 and later.

Failure to follow this instruction can result in death, serious injury, or equipment damage.



General Contents

Man/machine dialog, application structure, application pages, alarm pages, help pages, control system, function keys, PLC/terminal dialog, starter kit.

Introduction

A

Application specifications, development with XBT-L1000 software, saving the application, transferring the application to the terminal.

**Application Development
With XBT-L1000**

B

PLC and terminal communications dialog principle, dialog tables, dialog cycle.

**PLC and Terminal
Communications Dialog**

C

Terminal keys and indicator lights, operating principle, page display, entering and modifying fields, alarms, alarm log, process control, key locking, printing, terminal configuration.

Operating the Terminal

D

Application specifications, page template architecture, creating the applications using XBT-L1000, transferring the application to the terminal, running the application.

**Application Development
Example**

E

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System messages

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Chapter A
Introduction



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1. Man/machine communications dialog using Graphic Magelis terminals

Terminals with keyboard

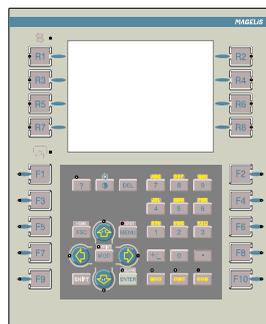
The main functions of the terminals are to:

- Display data from the control system
- Modify the control system parameters
- Control the system using discrete commands.

Various terminals are available:

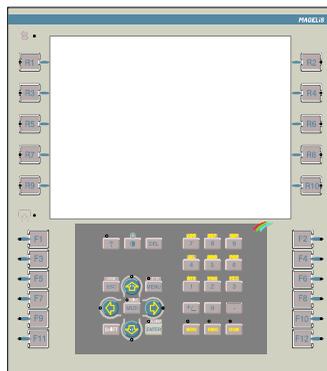
XBT-F 5"

Terminals with LCD screen.
STN Monochrome, 16 gray scale,
320x240 pixels.
10 static function keys.
8 dynamic function keys.
System and alphanumeric keys.
Downloadable protocols.
Printer output.

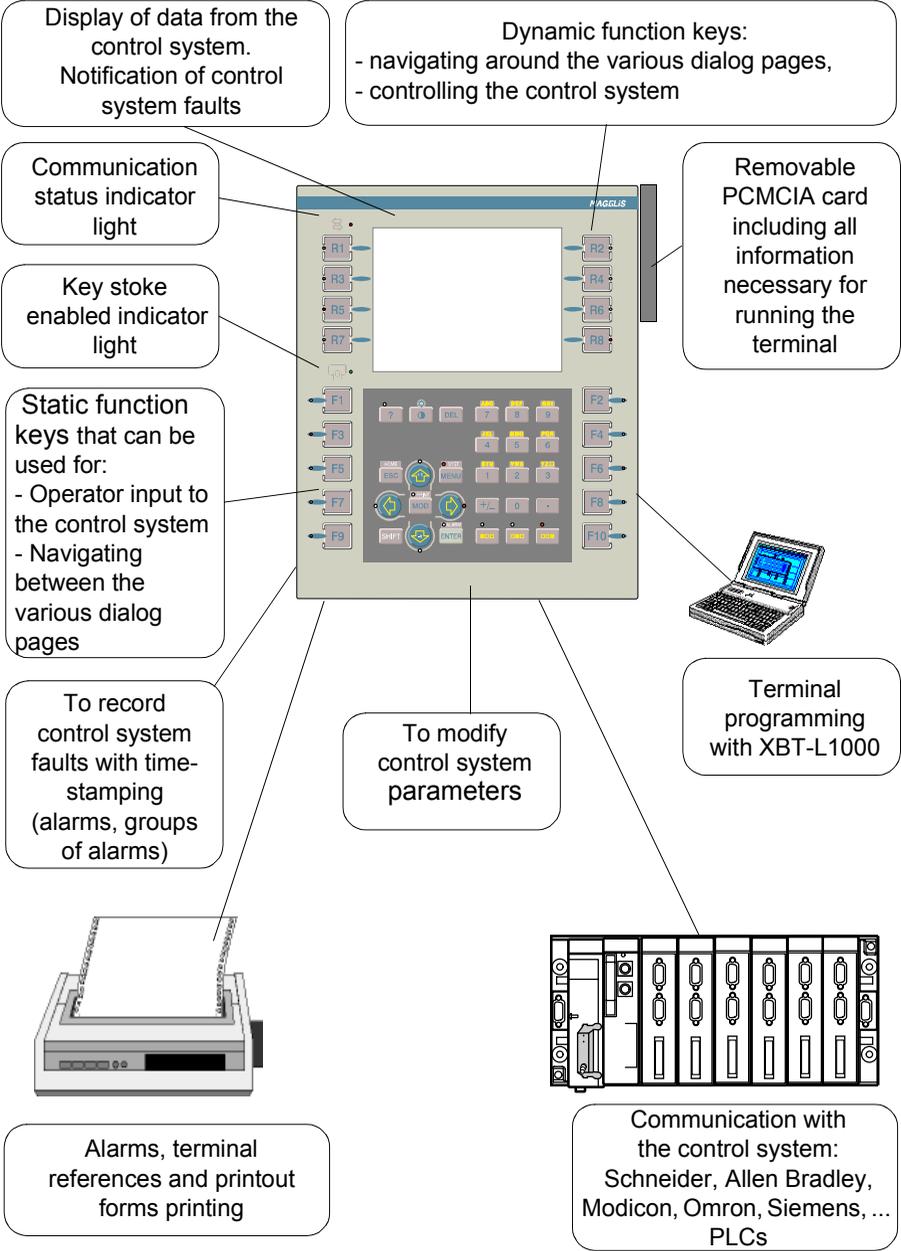


XBT-F 10"

Terminals with LCD screen.
STN Monochrome (9.5") or
TFT color (10.4"), 256 colors.
640x480 pixels.
12 static function keys.
10 dynamic function keys.
System and alphanumeric keys.
Downloadable protocols.
Printer output



1. Man/machine communications dialog using Graphic Magelis terminals



1. Man/machine communications dialog using Graphic Magelis terminals

Touchscreen terminals

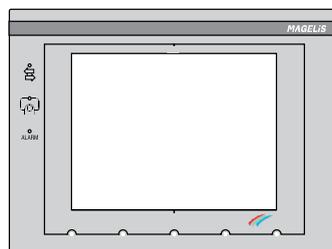
The main functions of the touchscreen terminals are to:

- Display data from the control system,
- Modify the control system parameters,
- Control the system using discrete commands.

Various terminals are available:

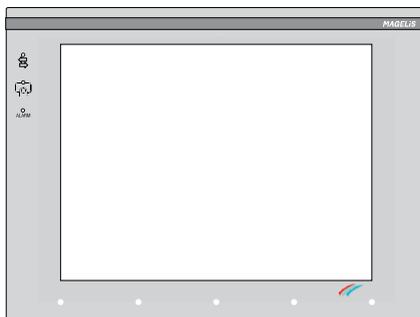
Touchscreen XBT-F 5"

Resistive matrix touchscreen pad.
6x8 touchscreen zones.
Terminals with LCD screen.
STN color, 256 colors, 320x240 pixels.
Downloadable protocols.
Printer output.



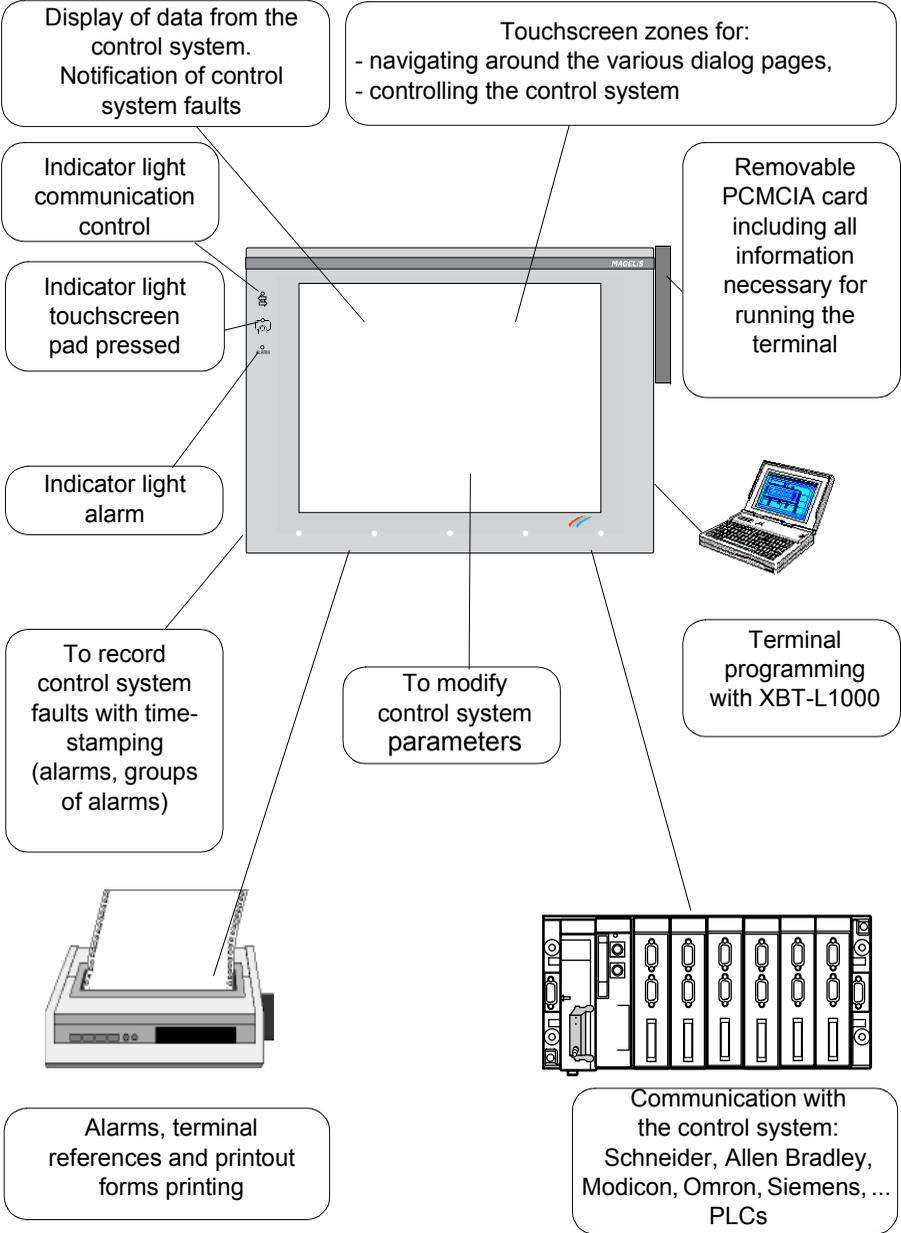
Touchscreen XBT-F 10"

Resistive matrix touchscreen pad.
10x13 touch screen zones.
Terminals with LCD screen.
TFT color, 256 colors,
(10.4" screen)
640x480 pixels.
Downloadable protocols.
Printer output.



A

1. Man/machine communications dialog using Graphic Magelis terminals



1. Man/machine communications dialog using Graphic Magelis terminals

A

Terminals with touch keys

The main functions of the terminals with tactile keys are to:

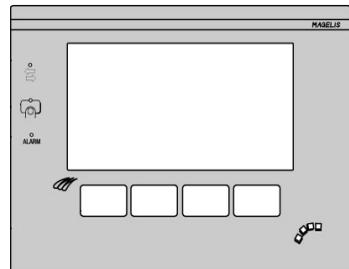
- Display data from the control system,
- Modify the control system parameters,
- Control the system using discrete commands.

Various terminals are available:

Tactile XBT-FC 5"

1 keys row

Resistive matrix tactile pad.
4x8 tactile zones.
4 tactile keys on 1 row at the bottom of the screen,
Terminals with LCD screen.
STN color, 256 colors, 320*240 pixels.
Downloadable protocols.
Printer output.



Tactile XBT-FC 10"

1 keys row

Resistive matrix tactile pad.
8x13 tactile zones.
8 tactile keys on 1 row at the bottom of the screen,
Terminals with LCD screen.
TFT color, 256 colors,
(10.4" screen)
640*480 pixels.
Downloadable protocols.
Printer output.



1. Man/machine communications dialog using Graphic Magelis terminals

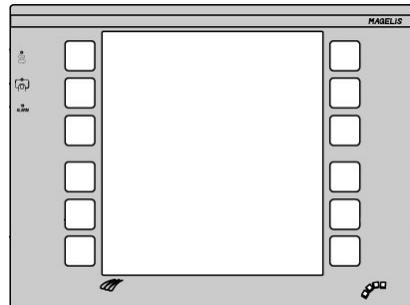
Tactile XBT-FC 10" 2 keys rows

Resistive matrix tactile pad.
6x13 tactile zones.
2x8 tactile keys on 2 rows at the bottom of the screen,
Terminals with LCD screen.
TFT color, 256 colors,
(10.4" screen),
640*480 pixels.
Downloadable protocols.
Printer output.



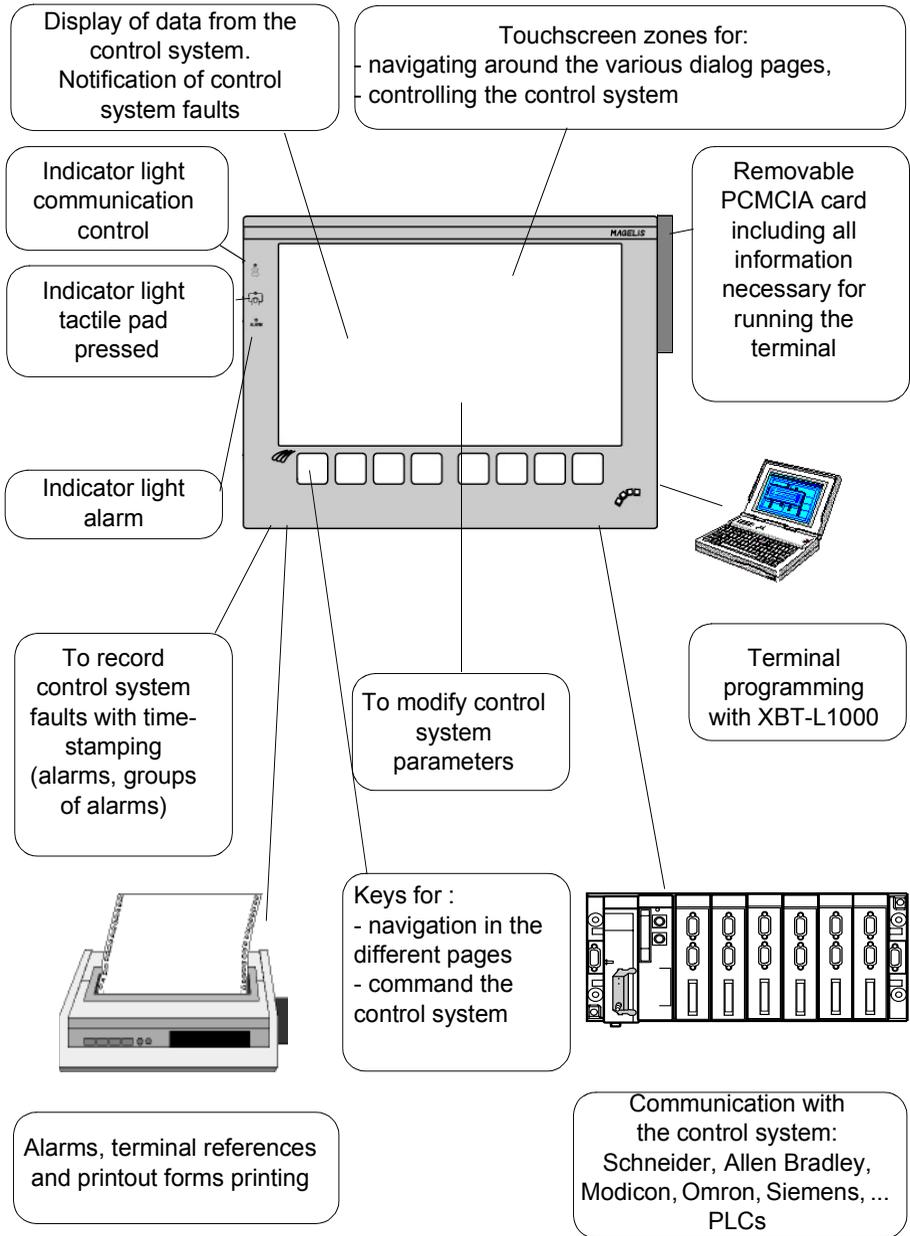
Tactile XBT-FC 10" 2 keys columns

Resistive matrix tactile pad.
10x9 tactile zones.
2x6 tactile keys on 2 columns, 12 keys in total,
Terminals with LCD screen.
TFT color, 256 colors,
(10.4" screen),
640*480 pixels.
Downloadable protocols.
Printer output.



1. Man/machine communications dialog using Graphic Magelis terminals

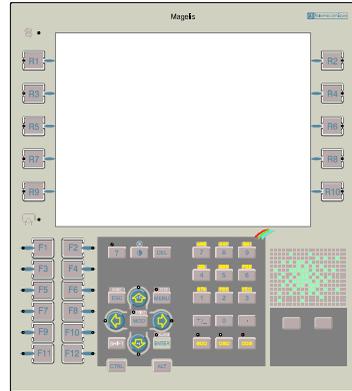
A



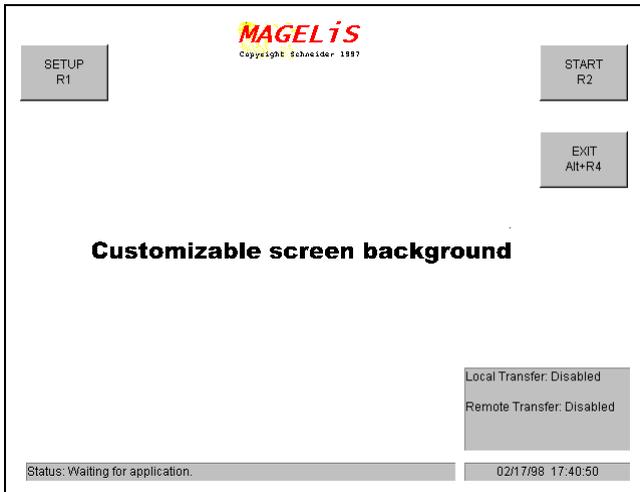
1. Man/machine communications dialog using Graphic Magelis terminals

TXBT Terminals

- Terminals with LCD color screen (640*480 pixels)
- (10.4" screen: TXBT-F024)
- 1.6 Gb hard disk
- Windows 95
- 12 static function keys
- 10 dynamic function keys
- System and alphanumeric keys
- Pointing device (except TXBT-F034)
- Downloadable protocols
- Printer output
- External keyboard connection
- Slots for 2 ISA bus cards



Application home screen



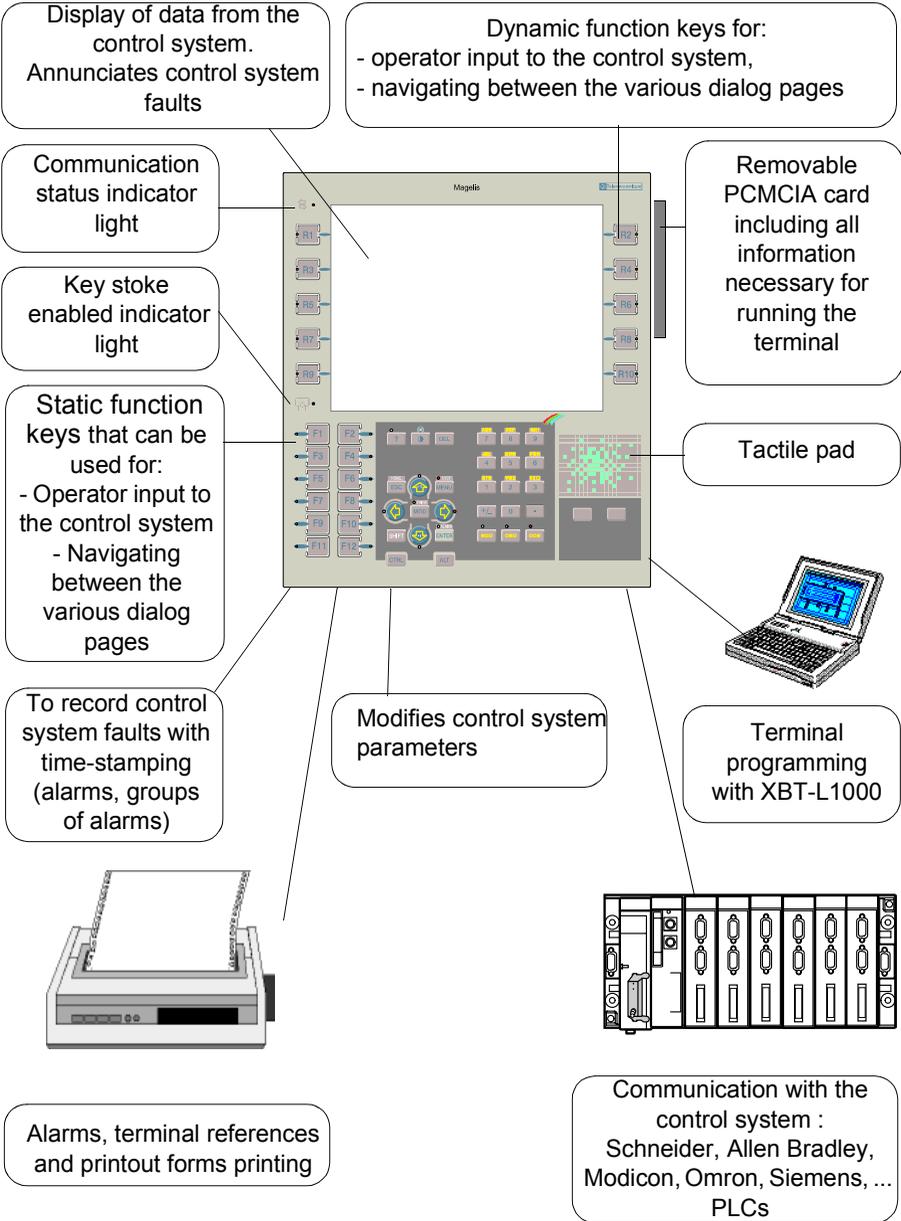
The functions possible from the home screen (using the dynamic keys) are:

- Startup of Graphic Magelis applications
- Access to Windows 95
- Closure of home screen
- Setup: terminal parameters setup

For more information refer to the TXBT documentation.

1. Man/machine communications dialog using Graphic Magelis terminals

A

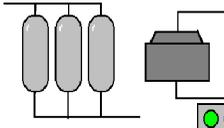


1. Man/machine communications dialog using Graphic Magelis terminals

The following application examples may be configured with the Graphic Magelis:

Production monitoring

Ex. 

R1	Automatic operation	End of lift of manipulator	R2
R3	Start hydraulic unit	Rotation of grip to right	R4
R5			R6
R7			R8



Preventive maintenance

Ex. 

R1	Counting with indication if threshold exceeded: Number of drillings 3137 Tool change at 4000	R2	
R3			R4
R5			R6
R7			R8



Process control

Ex. 

R1	Commands Pressurizing : P Start Cycle : SC Parameter modification Level 1 : 556 Limit n12 : 725	R4
R3		R6
R5		
R7		

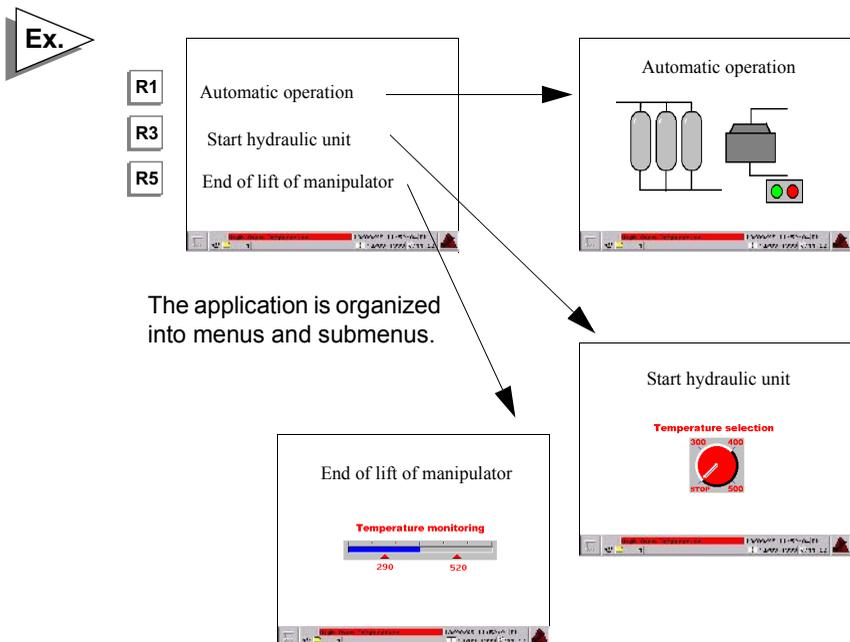


2. Structure of the applications

An application represents the entire dialog between the user and the automated process. An application is developed based on the user requirements:

- User Requirement Control System Interface
 - Process control
 - Production monitoring
 - Preventive maintenance
 - ...
- Operator Concerns
 - User interface
 - Level of involvement
 - ...
- Developer Concerns
 - Program structure
 - Data structure
 - Debugging
 - Updating

These characteristics determine that your application must be structured. An application consists of a series of pages, which form a tree structure as shown in the following example:



2. Structure of the applications

Each page may include the following:

- **Static / Dynamic alphanumeric text**

- **Variable fields used to:**

- Display the values indicating control system status (status of a bit, a single or double word, a floating point word, or an ASCII string); or
- Enter parameters for operating the control system (modification of bits, single or double words, floating point words, or an ASCII string).
The display format can be binary, decimal, hexadecimal, or alphanumeric.

- **Static dynamic graphic objects**

- **Dynamic function keys objects** allowing the user to display other pages directly, or command the process, or start a Windows 95 application (TXBT).

- A page is identified by **a number, and a name** (optional).
- Pages may be accessed by pressing the keypad function keys or the control system.
Pages are called up by :
 - pressing a physical function key for terminals with keyboard,
 - pressing a "virtual" function key called tactile zone for terminals with a tactile screen,
 - pressing a "virtual" function key called tactile zone or tactile key for terminals with tactile keys (XBT-FC),
- The arrow keys are used to navigate within a page. Navigation consists of selecting various input fields.
- Access to pages may be password protected.

2. Structure of the applications

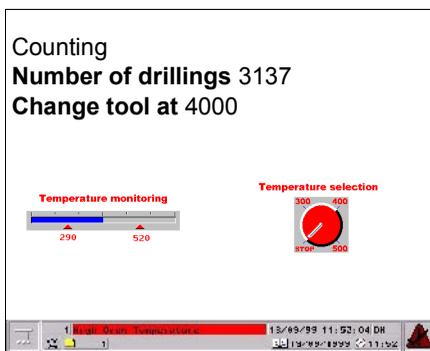
Creating pages

The various elements making up pages are defined using the XBT-L1000 programming software, and then saved in the terminal.

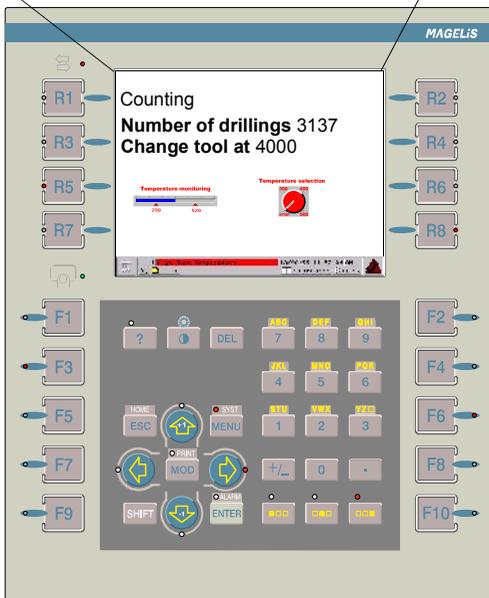
Application pages may be accessed by pressing a configured function key or using the control system variable to initiate a page change.

The development page has the same dimensions as the screen in the graphics display of the configuring software. This means that the appearance of the page being developed is exactly the same as the page being run on the XBT.

A



Page displayed by XBT-L1000 on the development PC



2. Structure of the applications

Pages Types

In operational phase, the terminal uses the system pages and the pages defined for the application.

System pages

Pre-configured by the terminal manufacturer provide:

- access to the list of pages, alarms, recipes and forms,
- access to alarm history,
- password entry,
- definition of the terminal parameters,
- definition of the protocol parameters,
- definition of the printer parameters,
- stop of printing in progress,
- access to the terminal adjustment function,
- printing of the terminal reference list.

An application can include several types of pages:

Application pages

Used to monitor system status, control, command, and control system parameter modification ([see § 3. Application pages, Page 20](#)).

Alarm pages

Used to display control system fault and the corrective actions indicating with display priority ([see § 4. Alarm pages, Page 26](#)).

Help pages

Used to display information associated with an application or alarm page ([see § 5. Help pages, Page 30](#)).

Form pages

Used to print out printout forms ([see § 6. Form pages, Page 31](#)).

Note

Form pages cannot be displayed on the terminal. They are used for printing only.

2. Structure of the applications

Model pages:

The designer has page models at his disposal. These are background pages containing text and static graphic objects that can be used as a starting point for application page development. Three types of page models can be configured:

- Application and recipe model page
- Alarm model page
- Help model page

From the basic models, the application developer can create new models using the default basic models.

During editing of the application, alarm, or help pages, the objects of the model will appear to be greyed out and cannot be modified.

General rules to follow when configuring an application:

- A model can be used by several pages, thus the application developer will not have to create several times common objects related to those pages.
- One and only one model is associated with each page.
- A dialog application may contain several models.
- Any given model can be associated with several different pages.
- A model type (application/alarm/help model) is associated with a page type (application/alarm/help page).

3. Application pages

The application pages represent the basic dialog architecture and are used to:

- Monitor the control system
- Perform operations on the control system
- Maintain the control system

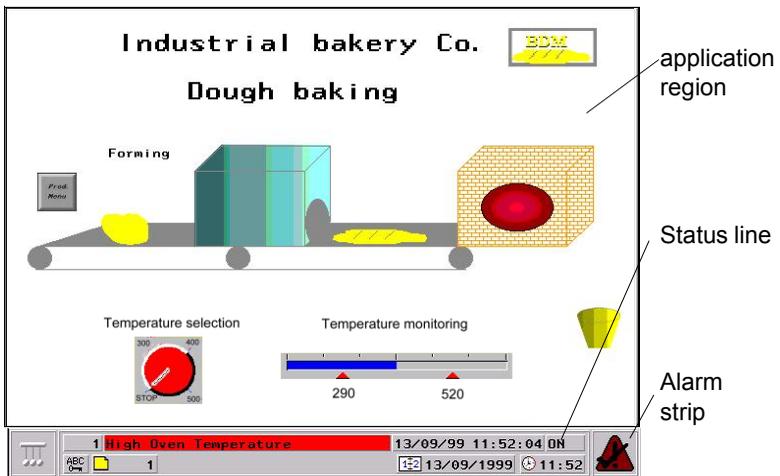
Structuring the pages

It is advisable to organize the application pages so that they reflect the various stages of the **control process**. The XBT-L1000 software allows you to do this.

Composition of the application pages

An application page consists of 3 parts:

- Application region,
- Status line,
- Alarm strip.



3. Application pages

The application region

It may contain the following :

- Static alphanumeric texts,
- Variable fields,
- Static graphic objects,
- Dynamic graphic objects,
- Dynamic function keys or touchscreen zone according to the terminal type,
- Optional alarm bar showing the last activated alarm.

Details concerning variable fields and dynamic graphic objects.

When creating an application with XBT-L1000, PLC variables are associated with the variable fields and the dynamic graphic objects.

For XBT-F

The accessible variables are single words, double words, floating words, word bits and ASCII strings.

Note

For the MODBUS and MODBUS PLUS protocols, other types of variables are managed, see the service instruction related to the protocols.

For TXBT

In the case of XWAY protocols, the accessible variables are:

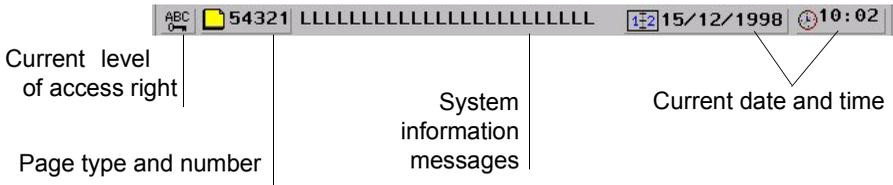
- Single words, double words, floating words, word bits,
- Local and remote input/output bit,
- double internal words,
- constant words,
- internal words
- internal words bit,
- internal bit,
- System bit,
- Step bit,
- Step macro bit,
- Step input step bit,
- Step macro output step bit,

In the case of a protocol other than XWAY, the accessible variables are single words, double words, floating words, and word bits.

3. Application pages

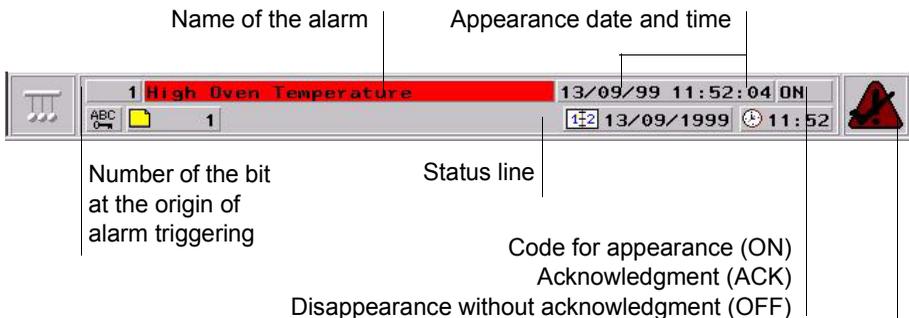
Status line

This status line appears by default in the page model and may be optional. When it is present, the status line is always on the last line of the display. It provides the user with contextual information and identifiers.



Alarm strip

The alarm strip is displayed by default in the page model. It can be moved or deleted. It mainly displays the message of the last alarm displayed not acknowledged by the operator.



- Absent:** no alarm
- Steady yellow :** alarm acknowledged (ACK) - Alarm at state ON
- Steady green:** alarm at state OFF (must be acknowledged if the characteristic of the alarm is to be acknowledged)
- Flashing red:** alarm at state ON

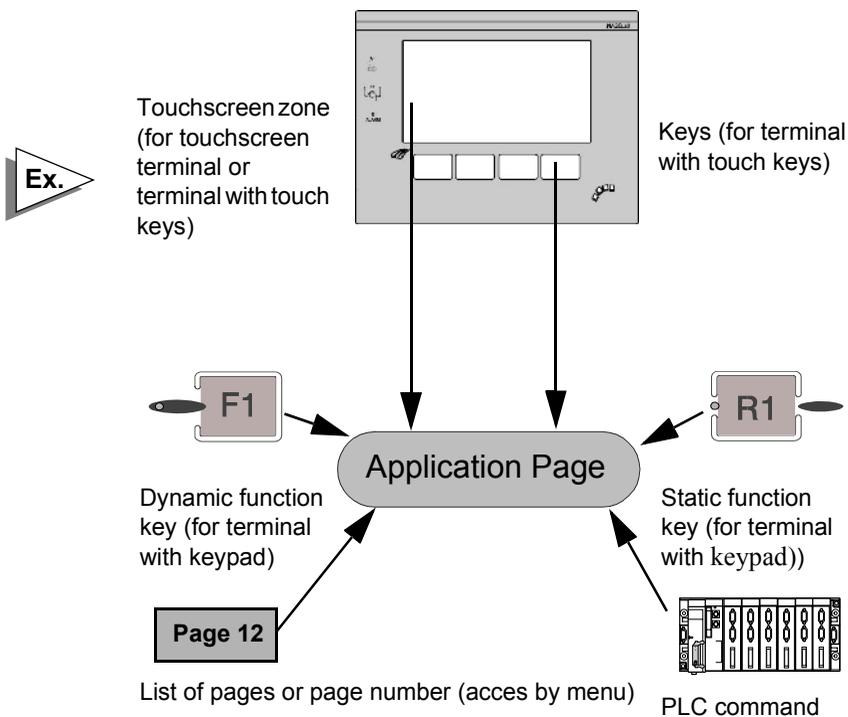
3. Application pages

Accessing the application pages

The application pages can be accessed by :

- Pressing a dynamic function key (when configured),
- Pressing a static function key (when configured),
- Selecting a page from the list of pages,
- Pressing a virtual key shown on a touch terminal screen,
- Pressing a virtual key shown on the screen or pressing a key in the case of a terminal with touch keys,
- Selecting the page number in the list of pages,
- A command from the PLC.

Depending on the selected configuration, certain application pages may only be accessible in a protected mode. Protected mode management is controlled by page access passwords.



3. Application pages

Displaying the alarm list

A list of active alarms may be accessed from any application page.



Access from terminals with keypad

An indicator light and the alarm symbol on the service line indicate that it is possible to access the list of alarms.

The list of alarms can be displayed by pressing the ALARM key (SHIFT+ENTER).



Access from touchscreen terminals

The list of alarms can be displayed by pressing this icon on the status line.

Getting help

The availability of help is indicated by the "?" key indicator light on the keypad. You can display the help page by pressing this key.

Press the ESC key to exit the help page and return to the page from which you asked for help.



Press the **ESC** key (or press the ? key again) or leave a one-minute time-out to exit the help page and return to the page from which you asked for help.



The help page on a touchscreen terminal can be accessed by pressing the help icon to call up the help page.



Help pages can be associated with application pages or alarm pages.

3. Application pages

Recipe pages

A recipe page is created from a page model used for a specific application.

It is mainly used to :

- “record” a process status at a given moment,
- manually adjust the setup parameters,
- locally store these values on the terminal,
- re-use the statuses stored,
- transfert to the PLC all the values in one single task.

The main advantage of a recipe page is that it can store up to 5000 variable values :

- in 1 to 125 recordings in the case of XBT-F,
- in a number of recordings limited by the capacity of the PCMCIA card, or the hard disk in the case of TXBT.

The recipe function avoids repetitive entries for the user.

A

4. Alarm pages

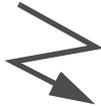
The purpose of the alarm pages is to display a control system's fault indications and a list of possible corrective actions. The advantage of an alarm page is to provide an event-related display. Each alarm page is associated with:

- a description of 32 characters maximum,
- one or several control system word bits. If one of the word bit is set to 1, the alarm is displayed. Control system bits can also be associated with the alarm page on a TXBT.



A sensor fault occurs. The bit associated with the sensor fault changes to 1 in the control system.

Sensor fault



**PRESSURE
SENSOR FAULT**

Alarm indication from an application page

- The status line indicates the last alarm.
- The alarm strip displays the message of the latest alarm activated (see "[Composition of the application pages](#)", Page 20).



(keyboard)



ALARM
(touchscreen)

- Alarm indicator light: The "Alarm" indicator light indicates the status of the alarm list to the operator at all times:
 - Off: the current list of alarms is empty.
 - On: the list contains alarms that have already been displayed.
 - Flashing: the list of alarms contains new alarms.
 - Flashing: the list of alarms contains the latest alarms since last display of the list of alarms by the operator.

4. Alarm pages

WARNING

UNINTENTIONAL EQUIPMENT OPERATION

The XBT does not support any type of processor nor machine control in association with alarms. It is the designer's responsibility to consider programming PLC logic to account for programmed alarms.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

A

Composition of the alarm pages

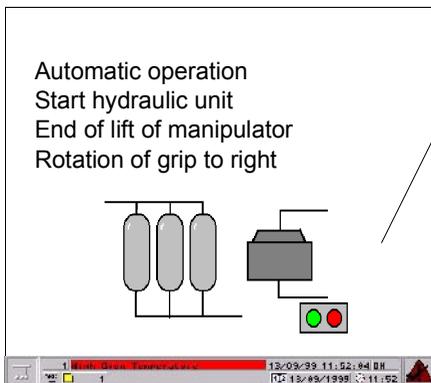
An alarm pages consists of 3 parts:

- Application region,
- An alarm strip,
- Status line.

Application region

The application region of an Alarm page can contain the same objects as an application page. (You cannot access the applications region of an alarm page using a function key).

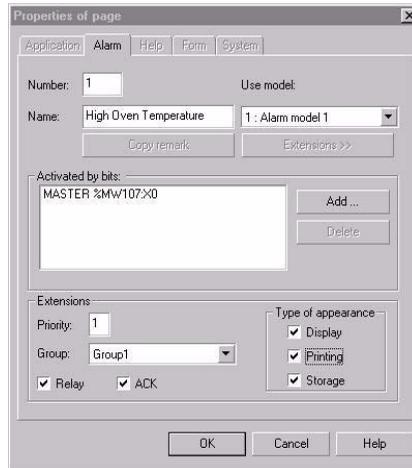
Example of an alarm page



Application region

4. Alarm pages

The XBT-L1000 software allows you to define the properties of the alarm pages



Status line

It is identical to the one displayed on the application pages (see § 3. [Application pages, Page 20](#)).

Alarm indicating

- It is possible to force the operator to acknowledge the alarms so that they can be erased from the list of active alarms; this is useful for transient alarms.
- The terminals have a relay output whose contact is closed when an alarm appears. This function can be configured for each alarm page.

Advantages of alarm pages

- It is possible to assign a priority to an alarm page (1 to 16, with 1 as the highest priority).
- It is possible to record (log) alarm pages to help control system troubleshooting.
- The alarms are time-stamped.
- Alarms may be configured to require an operator to acknowledge an alarm before continuing process operation; this is useful for transient alarms and troubleshooting.
- The terminals have a relay output whose contact can be closed when an alarm appears. This function can be configured for each alarm page.

Note

This relay opens upon a power loss. The relay's contacts are normally open (N.O).

4. Alarm pages

Group of alarms

A group of alarms is a set of alarms identified by different color attributes. Each defined group may have its own unique colors that indicate the status of the alarm. The alarm active, alarm cleared, and alarm acknowledged colors make the alarm's status easily recognized by the operator. There are 16 groups of alarms. Each group is identified by an 8-character name enabling rapid identification by the operator.

A

Getting help



The availability of help is indicated by the " ? " key indicator light on the keyboard. Press this key to display the help page. Press the ESC to exit the help page.

Printing



On keyboard terminals, accessing to the print function may be performed from the alarms list page or history alarms by means of PRINT key (SHIFT + MOD).



then



Whatever the page displayed, a command from the PLC allows the history and list alarms printing ([see chapter B, § 4. Configuring the communications dialog table, Page 13](#)).

5. Help pages

Help pages can be associated with an application page or with an alarm page. The help page associated with an application page can be used for:

- Information about elements of the page,
- Information about process control.

The help page associated with an application page can be used to provide operator information about control system faults and a list of corrective actions. A help page consists of three parts:

- Application region,
- An alarm strip,
- Status line.

Application region

It can include the following:

- Static alphanumeric texts,
- Static graphic object.

Status line

The status line is identical to the one displayed on the application pages (see "[Composition of the application pages](#)", Page 20).

Alarm strip

The alarm strip is identical to the one displayed on the application pages (see "[Composition of the application pages](#)", Page 20).

Screen HardcopiesTXBT

The SHIFT + PRINT keys enable you to print out screen hardcopies.



6. Form pages

The form pages are used for printing only.
They are used for creating measurement and production follow-up reports, labels, etc.

A form page can include:

- texts,
- alphanumeric variables,
- frames for designing tables,
- control codes specific to the printer used (bar codes printing, bold printing, etc.).

Printing form pages is performed by :

- operator's initiative from the form page menu,
- PLC command.

A

7. Managing the control system

The control system can be controlled from the terminals using the following functions:

- bit impulse command ([see chapter D, "Momentary contact command", Page 50](#)),
- bit toggle command ([see chapter D, "Push on/Push off toggle command", Page 51](#)),
- write a numerical value ([see chapter D, "Field entry", Page 33](#)),
- increment/decrement a numerical value ([see chapter D, "Field Characteristics", Page 34](#)),

8. Static and dynamic function keys

Static function keys

The static function keys are global and their configuration is defined for the entire application. They may be configured to perform the following functions:

- Access a page,
- bit command (via the dialog table).

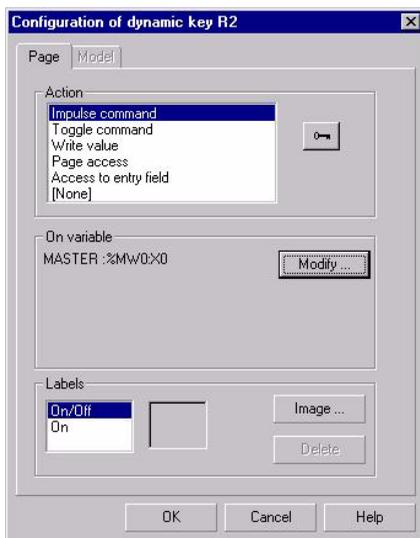
A

Dynamic function keys

The dynamic function keys are associated with a page. Their configuration and function can therefore change from one page to another. Dynamic function keys may be configured to perform the following functions:

- Access a page,
- Momentary contact command,
- "Push-on/push-off" toggle command,
- Selecting an entry field,
- Direct script of value,
- Startup of a Windows 95 application (TXBT only).

The function key's configuration is defined by means of the XBT-L1000 software, and may not be modified in run mode.



8. Static and dynamic function keys

The function keys for the touchscreen terminal application pages are replaced by touch icons. They are defined in the same manner as the dynamic function keys for the keypad terminals using the XBT-L1000 software and perform the same function:

- access to a page,
- bit control,
- positioning on an entry field.
- direct script of value

An icon is associated with each page access or switch to entry type dynamic key.

9. Variable adjustment of the PLC register reference value

TXBT

The TXBT can be used to adjust the register reference value of the connected PLC. Adjustment is available for the following communication protocols:

- UniTelway
- EthWay
- Modbus
- Fipway
- Fipio
- Modbus+

See [chapter D, § 12. Variables adjustment on the TXBT, Page 68](#), for additional information.

XBT

The adjustment page is used to display and modify the register reference values of the connected PLC. The page is directly created on the terminal by selecting the requested variables. Once created, the page is refreshed on a cyclic basis.

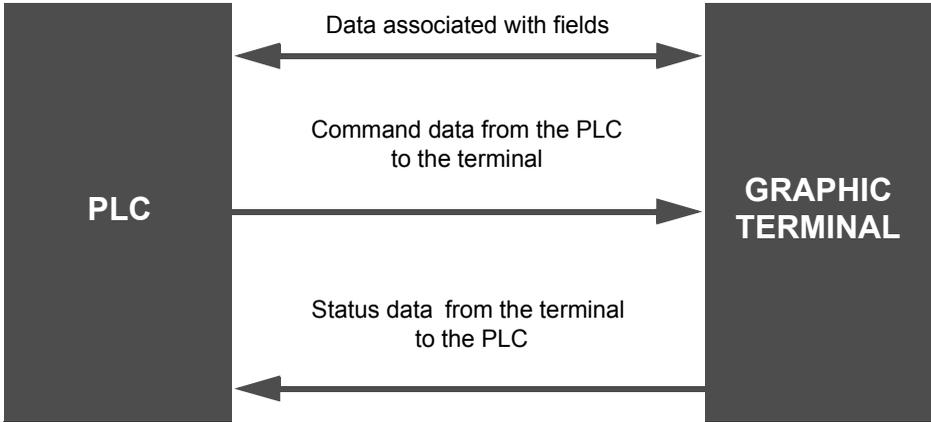
The page is locally stored on a PCMCIA card and can thus be re-used even if the terminal has been switched off.

Adjustment of the register reference value is available for all communication protocols.

For more informations, see [chapter D, § 13. Variables adjustment on the XBT, Page 72](#).

10. PLC/terminal communication dialog

The man/machine communication dialog between the terminal and the PLC consists of an exchange of data between the two devices. Various types of data can be exchanged.



WARNING

UNINTENTIONAL EQUIPMENT OPERATION

If communications between the XBT and PLC are lost, the operator's control over the machine may be lost partially or completely. It is the designer's responsibility to consider programming the PLC logic to account for this situation. One good technique is to monitor Wn+3 of the dialog table from the PLC table.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

Data associated with the fields

The exchange principle for the data associated with the fields depends on the protocol chosen as a function of the type of PLC. The variables read or written are the single words, double words and word bits.

10. PLC/terminal communication dialog

A

Master or client terminal

The terminal controls the following transfer exchange regardless of whether or not the terminal is defined as a master or slave:

- Updating of the fields (reading the values in the PLC),
- Entry and modification of fields (writing the values to the PLC).

No PLC communication program needs to be written.

Server or slave terminal

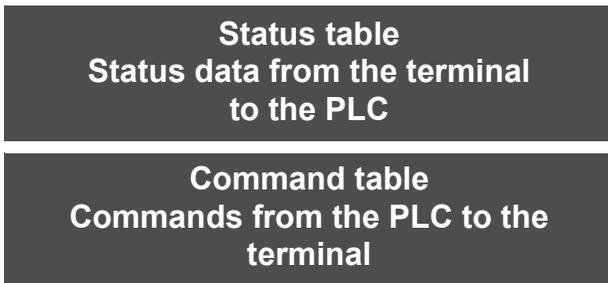
The PLC application is responsible for updating the displayed variables by constantly writing the values of the variables that have changed to the terminal.

Principle of terminal "command and status" exchanges

To simplify the communication dialog, the data is grouped together in a memory zone: **the dialog table located in the PLC.**

- Commands from the PLC to the terminal,
- Status data from the terminal to the PLC.

Consisting of "n" consecutive words (16-bit words), this table is divided into two parts.



10. PLC/terminal communication dialog

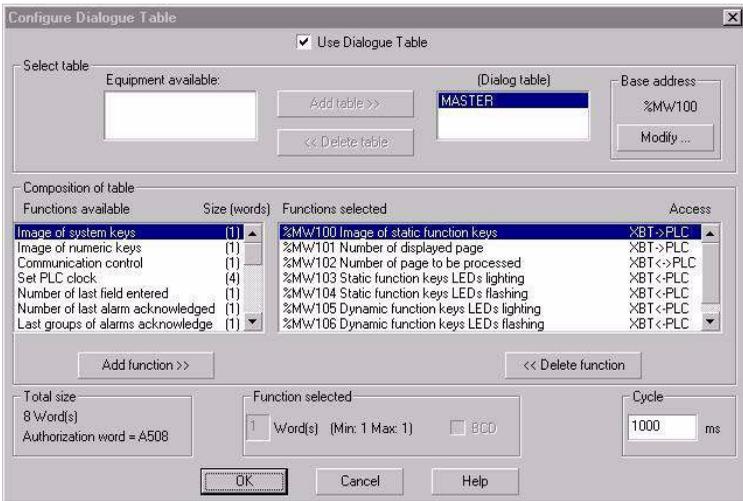
The number of words in the table depends on the status data and the commands you choose to process during the dialog. The XBT-L1000 software allows you to make this choice.

⚠ WARNING

UNINTENTIONAL EQUIPMENT OPERATION

The PLC memory zone allocated for the XBT dialog table must NOT be used for anything else. It is the designer's responsibility to properly program the PLC logic.

Failure to follow this instruction can result in death, serious injury, or equipment damage.



11. Loading of extension tasks when transferring the application

On a TXBT terminal, you can add functions on top of the basic XBT-F functions. These extra functions are called **extension tasks**.

The extension tasks supplied as standard for configuring a TXBT are as follows:

- The OLE Automation server (see TXBT manual),
- The Variables setting module,
- The Program diagnostic and dynamic display module.

A

12. Starter kit for the Graphic Magelis application

Development hardware kit

- 1 XBT-F 5", 9.5", or 10.4", TXBT 10.4".
- 1 serial port operating at 19200 bauds (speed required when transferring)
- 1 XBT-Z915 cable and 1 adaptor XBT-Z962 for XBT/PC exchanges and printing
- 1 printer, if necessary.

For the PC configuration, see release notes for XBT-L1000 V3.x software (document with XBT-L1000 software).

Development software kit

- XBT-L1000 V33 or later (graphic Magelis application development software)

The downloadable protocols depending on the type of PLC :

- For Télémécanique, April, Modicon, AEG PLCs, protocols are included in CD-ROM XBT-L1003 V3.x.
- For the others PLCs, protocols are included in the XBT-L1004 configuration kits or can be ordered separately.

Consult our catalogue.

For the required system, see release notes for XBT-L1000 V3.x software (document with XBT-L1000 software).

Operating hardware kit

- 1 Magelis/PLC cable (refer to the service instructions for the corresponding protocol),
- 1 XBT-Z915 cable for printing,
- 1 printer, if necessary,
- 1 TCCX CB 20002 cable supplied with the TXBTs.

Chapter B
Applications Development
With XBT-L1000



Contents

The purpose of this chapter is to present a method for implementing an application. It provides information on how to use the XBT-L1000 software. The XBT-L1000 software's menu, submenu, and tool palette structure gives you every latitude when developing your application. The software's on-line help and the instruction manual provides detailed information to assist you in using the XBT-L1000 software.

This chapter includes the following sections:

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1. Application requirements specification

The requirement specification is the starting point for developing the man/machine dialog application.

It must include all the user's requirements. To achieve this, it is recommended that the requirements be broken down according to certain criteria:

- the criteria linked to the users

- profile,
- Man/machine interface,
- Intervention level,
- ...

- the criteria linked to the control system

- Production monitoring,
- Controlling the control system,
- Preventive maintenance,
- Corrective maintenance,
- ...

- the criteria relative to developing the dialog application itself

- Program structure,
- Data structure,
- Debugging,
- Updating.

The specification requirements must indicate:

- Dialog architecture as seen by the end user (navigation, etc.),
- Volume of data to be exchanged between the PLC and the terminal,
- Type of data,
- Terminal/PLCs network architecture.

Use the specification requirements to validate the development.

2. Development method

Phase 0: Control system structure

From the control system structure, define:

- the communication protocol used by the terminal,
- the list of equipment items accessible to the terminal.

Phase 1: Commands from the terminal to the control system

For each command from the terminal to the control system, define the operator's action mode:

- static function key,
- dynamic function key (define the associated application page).

Phase 2: Commands from the control system to the terminal

Define all the actions performed from the control system to the terminal:

- page call-up by the PLC,
- display of LEDs,
- key locking,
- triggering of curve plotting, etc.

Phase 3: Design of pages

Based on the requirements, design all the pages mentioning for each of them:

- the purpose,
- the type (application, recipe, alarm, help, printout forms),
- the data to be processed.

Phase 4: Dialog table

Phases 0 to 3 are used to determine all the words - exclusive of any other words - which are necessary for the dialog table.

2. Development method

It is recommended to perform this operation before initiating the PLC program as any addition or cancellation of a word in the dialog table modifies its structure.

Phase 5: Model pages

Identify the data which are identical on each type of pages: application, help, alarm.

This data can be:

- text, frames, logos, drawings, etc.,
- variables (alphanumeric and/or graphic),
- the status line and/or the alarm strip (displayed by default).

It is recommended to use the model pages for:

- simplifying and clarifying the development,
- providing an easy-to-use man/machine interface by the creation of similar "environments",
- structuring the space available in the terminal memory.

B

Phase 6: Definition of application pages

Create the application pages and then define navigation. It can be performed via:

- dynamic function keys: for a navigation organized in menus,
- static function keys: for direct access to a page of the structure.

Provide the necessary controls for access to the pages and variables available for entry (see [chapter D, "Confidential mode, password management", Page 18](#), for all details). The zones protected by a password can be configured in specific menus.

NOTE

System pages linked with XBT-L1000 can be protected by a password, as the application pages.

2. Development method

Phase 7: Definition of alarm pages

- Define the equipment items of the control system structure which can be at the origin of alarm triggering.
- Define the size of the alarm tables for all these equipment items. A table includes 1 16-bit word minimum, i.e. 16 alarms maximum per word. Define as many words as necessary.
- Divide the alarms pages into groups according to the control system structure, technologies involved, etc. [see chapter D, "Alarm group", Page 41](#), for all details.
- Classify the alarms and assign a priority to each of the (1 to 16).
- For each alarm, define whether it must:
 - be printed (to keep a hard copy of the faults as soon as they are detected),
 - be recorded in the history (for sequential analysis of the faults: occurrence, cancellation, acknowledgement),
 - be displayed (some pages may not be displayed to the operator),
 - be necessarily acknowledged by the operator (ACK), before going on with the application operating,
 - trigger energizing of a relay associated with a horn, a lighting column, etc.

Phase 8: Definition of help

- Define the help pages. If necessary, the same help page can be associated with several application or alarm pages.
- Define the help windows for variables requiring a comment, an advice, an explanation, etc.

Phase 9: Translations

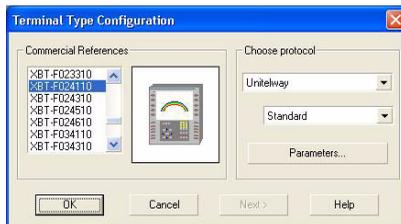
State the application languages (3 maximum) and translate the text objects. ([see § 6. Translation of the application, Page 52](#), and [see § 7. Import/Export, Page 54](#).)

3. Application development with the XBT-L1000 software

Creating the application

Select the **File/New** menu:

Terminal Type Configuration, Indicate the **type of terminal** :



B

Select and configure the **protocol (baud rate, format, etc.)**. This is the terminal to PLC communications protocol.

When creating an application, it includes by default:

- an empty application page (1: Application page 1),
- an application page model by default (1: Application Model 1),
- a recipe page model (2: Recipe model 2),
- an alarm page model by default (1: Alarm Model 1),
- a list of system pages in the language in which XBT-L1000 is installed.

NOTE

After the initial selection of the terminal, only compatible terminal and compatible protocol will be displayed in the Commercial References list.

When using " Unity " equipment, the kind of support must be specified in order to take advantage of the " Unity " variables syntax and links with " Unity " symbol files.

3. Application development with the XBT-L1000 software

Creating the equipment list

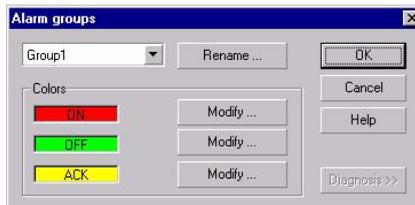
Select the **Configuration/Equipment symbols** menu.



The network address given to each piece of equipment depends on the **PLC protocol selected**. Define the list and addresses of equipment items addressed by the terminal.

Configuration of alarms displays

Select menu **Configuration/Alarms Groups**.



NOTE Each of the 16 groups can be reassigned.

3. Application development with the XBT-L1000 software

Loading the PL7, Concept or Unity Pro symbols file

(special case of Modicon TSX Micro, Premium and Quantum PLCs):

To create a symbols file in PL7

1. Open the variables editor.
2. Select the **File/Export** command.
3. Select the disk and/or directory in which the file is to be stored.
4. Enter a filename: for example Appli.**SCY**.
5. Select the "all types" export mode and validate.

To create a symbols file in Concept

1. Select the **File/Export** command.
2. Choose the target file format. Variables: Text delimited.
3. Choose the separator (by default: ";").
4. Click on **Ok**.
5. Select the **Drive** and/or **Folder** where the file will be stored.
6. Enter a filename: for example Appli.**TXT** and click on **Ok**.

To create a symbols file in Unity Pro :

1. Select " Variable " files in the browser
2. Select File/Exportation or right-click the file " Variables " :
" Exportation " context-sensitive menu
3. Select the disk and/or the directory where the file will be stored.
4. Enter the file name, for example : Appli.XSY and validate

Use the PL7, Concept or Unity Pro symbols file under XBT-L1000

1. Select the **Configuration/Equipment Symbols** command.
2. Choose the device corresponding to the variables file.
3. Click on "Advanced >>".
4. Click on "Add file...".
5. Select the directory in which the symbols are stored, then click on **Open**.

For a PL7, Concept or Unity Pro file, choose the same extension as that defined in concept software.

NOTE

The dialog application under XBT-L1000 must be updated each time the symbols file to be used is updated.

To do this, repeat operations 1 to 3, select the Variables file/Modify file command and then repeat operation 5.

This does not concern the TXBT:

Installation of XBT-L1003+ enables to update automatically PL7 or Concept symbols of variables, in case of evolution of the file of symbols.

Before using a Unity Pro file, the " Support Unity " must have been selected before in the window " Configuration/terminal type ".

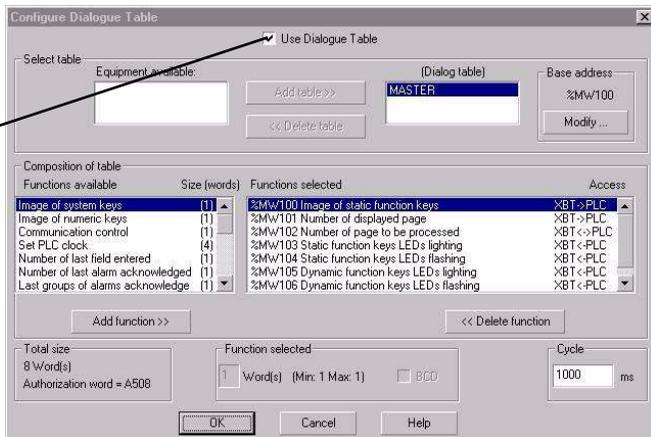
Linsk with symbols files can be monitored through mark ups or symbol

4. Configuring the communications dialog table

When you have defined the various pages, you will have to define the content of the communications dialog table. [chapter C](#) provides the information on the various bits and words in the dialog table.

Select the **Configure/Dialog table** menu.

Click the zone "use dialog table"



B

Base address

Indicate the address of the beginning of the table (address of the first word in the dialog table).

Composition of table

Add or delete the various elements to/from the table as needed. Use of the dialog table is optional in applications that do not use alarm pages. Alarm pages require the creation of an alarm table that is defined by the dialog table. For further information on the various dialog table components, consult the XBT-L1000 software on-line help or [chapter C](#) of this manual.

Cycle

The terminal's read/write period for the dialog table is used to optimize the terminal/PLC exchanges (see [chapter C](#), § 3. [PLC/terminal communication dialog cycle](#), [Page 30](#)).

Dialog table security

A word is used in the table for security purposes: the "Authorization" word. Using this word ensures PLC/terminal dialog security. When this word is not at the correct value, the terminal cannot write any word in the PLC and cannot execute any command.

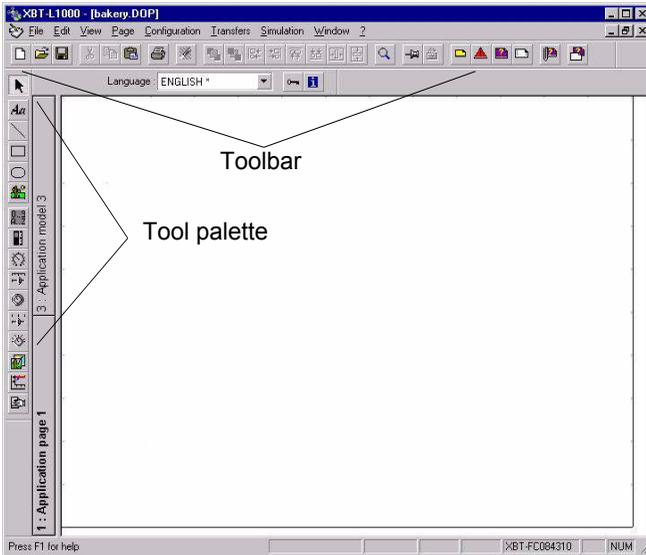
Alarm table

See [chapter D](#), § 5. [Alarms](#), [Page 38](#).

5. Creation of pages

The main window

The main window that you use to make up the various pages has the following structure.



Toolbar

The toolbar allows you to perform various software functions

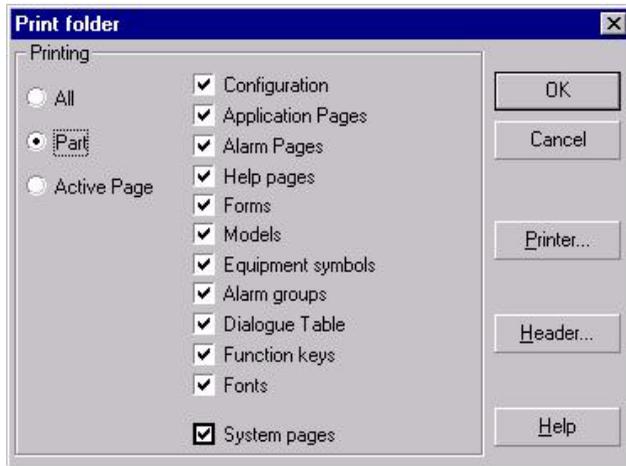


Example : create pages, cut/copy/paste objects or print.

5. Creation of pages

File printing

Select File/Print



This window to:

- print the full or partial file,
- print the active page.

B

5. Creation of pages

Position, alignment and grid



Drawing pin function

This function allows to lock the object position in the windows while allowing access to the object's properties.



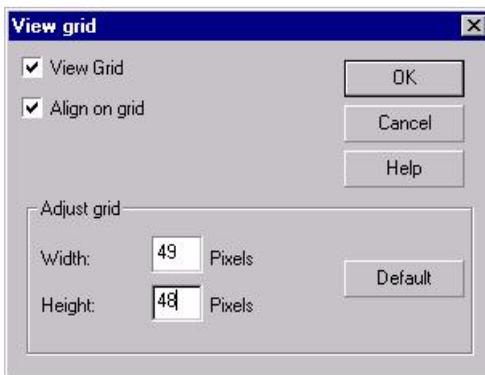
Alignment

Objects can be aligned
- at the left, at the right,
- at the top and at the bottom
with reference to the first object selected.

Grid

To easily place objects on the screen, a grid can be activated by "View/ Grid" menu. On its configuration window the grid can be masked and disabled.

The default grid dimensions are the size of the tactile zones of touch screen terminals.



Short cut keys

Arrows : move objects by using magnetic grid,
ALT + arrows : move object without magnetic grid,
SHIFT + arrows : dimension object by using magnetic grid,
ALT + SHIFT + arrows : dimension object without magnetic grid.

5. Creation of pages

Animating objects

Certain static objects (i.e., text, etc.) can be animated. Animation consists of making an object's color attributes change as a function of the value of an associated PLC variable. This variable must be declared when configuring the object (i.e., 40100). The basic principle consists of drawing up a list of possible values and, for each value, assigning a color to the animated object.

WARNING

UNINTENTIONAL EQUIPMENT OPERATION

Terminals with tactile keys : only one object must be placed under each tactile key to be sure that the object is selected.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

B

NOTE

Case of terminals with tactile keys :

- do not move the gray zone representing the tactile keys (loss of the reference),
- place only one object under each gray zone representing the tactile keys position,
- for positioning an object under a tactile key, put off the magnetic grid (select grid in the menu view).

Tool palette

To configure a tool onto a page, select the tool on the tool palette and drag the cursor to the desired application page location. Click on the mouse button, drag and highlight the desired object window size, and release the mouse button. To define an tool's properties, double click the object.

The next page presents the different objects:

- Static object: S
- Animated object: A
- Dynamic object: D (this object shows the change in a variable in alphanumeric form or a graph)
- Dynamic object M (this object allows the modification of a variable from an alphanumeric or graphic form.)

5. Creation of pages

Text



Text (S, A)

To provide qualitative information. A symbols library is available by using font XBTSYM1.

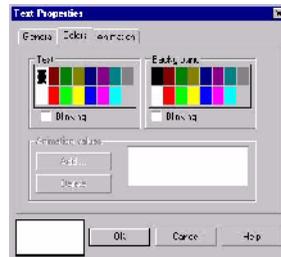


MAINTENANCE

1. Select the Text tool button.
2. Using the mouse, select the required location using the right mouse button.
3. Enter the text.
4. Confirm with ENTER.
5. Select the Edit/Text Properties menu (or click the right mouse button or press ALT ENTER).



6. Define the text properties (large character font, bold, color) and click OK to confirm



NOTE

A click on the Opaque background box allows configuration of the background color.

5. Creation of pages

Create graphics



Line (S, A)



Rectangle (S, A)



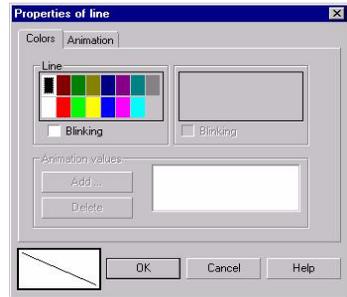
Ellipse (S, A)

Graphical representation of an application.

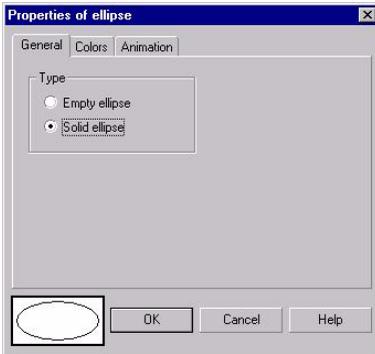


B

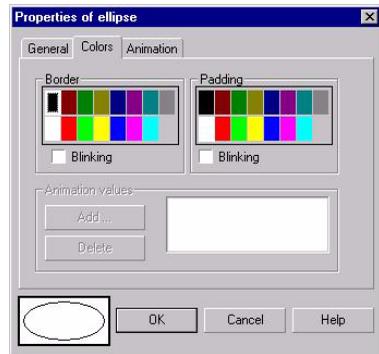
1. Select the tool button.
2. Using the mouse, define the object size.
3. Select the Edit/graphics Properties menu (or click the right mouse button or press ALT ENTER).



General properties of Ellipse



Colors properties of Ellipse



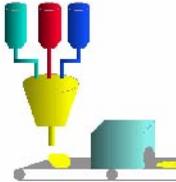
5. Creation of pages

Import images

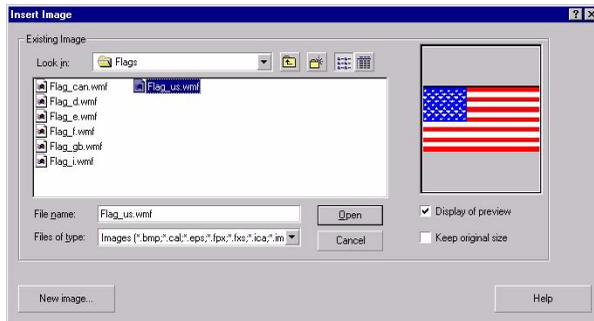


Bitmap
(S)

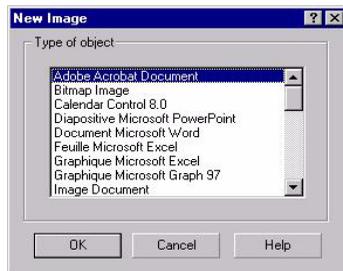
To insert file images for graphical representation of an application (BMP, WMF, PCX) (a symbols library is available in directory \XBT-L1000\SYMBOLS)



1. Select the BITMAP tool button.
2. Using the mouse, click and drag the mouse to create an image area. The Insert Image dialog box is displayed.
3. Select an existing image from the **Symbols** folder. Select **Open**, press **Enter**, or double-click to import an existing image.



4. Select the **New Image** button to open an application to import a new image. The list of applications are the programs loaded on the computer.
5. Select the program to create the image.
6. Under XBT L1000, the program selected is executed. Click out of the image window to end the program execution.



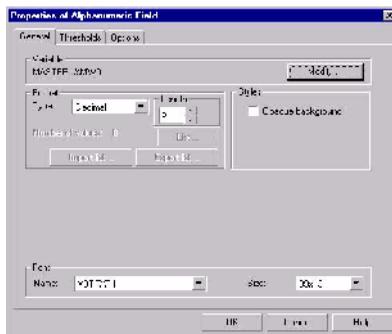
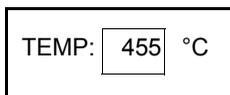
5. Creation of pages

Alphanumeric variable field



Alphanumeric variable field
(D,M)

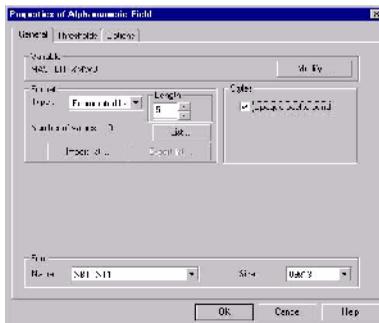
To display values reflecting the control system status. To enter values defining parameters for managing the the control system. Four limits with the possibility to filter the values entered by the operator (Min and Max thresholds only) and to display process overshoots (by changing color).



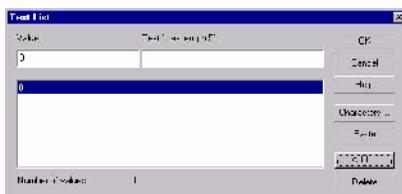
Numbered list

To display strings of text reflecting the control system status. To enter a select strings of text defining the parameters for managing the control system. Then each string is assigned to a value of the variable field.

1. Select the length of the string (number of characters) and click on "LIST" button.



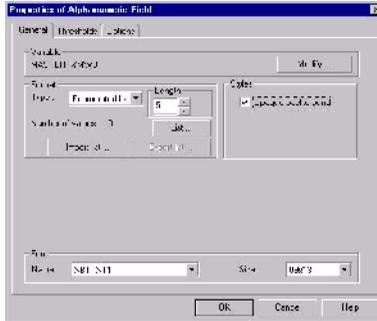
2. Introduce each string and its value associated. A maximum of 255 strings can be associated to the variable field.



5. Creation of pages

To modify colors of alphanumeric field:

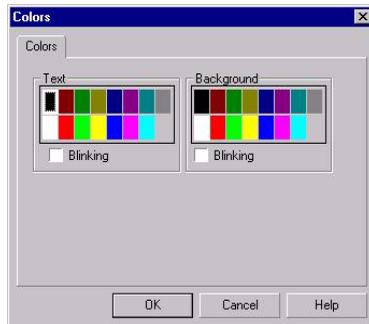
In the window Alphanumeric Field Properties, click the Opaque background box.



Select index threshold.

For each threshold interval defined, click on button "colors".

In the window "colors", select the text and background colors of the alphanumeric field.



It's possible to change the color of the text and the background by a right click on the field then by selecting "Colors".

5. Creation of pages

Bar-graph

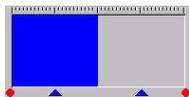


Bar-graph
(D)

To represent the control system data in a graphical form (i.e., tank level).

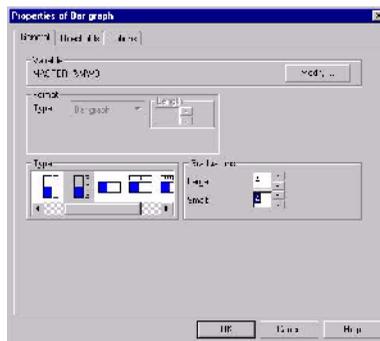
Characteristics:

- Vertical,
- Horizontal,
- Minimum, maximum, high and low limits.

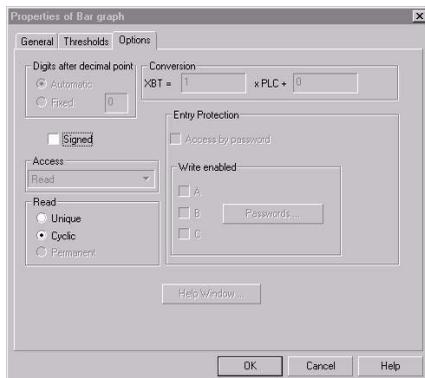


B

1. Select the Bar Graph tool button.
2. Using the mouse, define the object size.
3. Select the **Edit/Bar Graph Properties** menu (or right mouse click or double click).

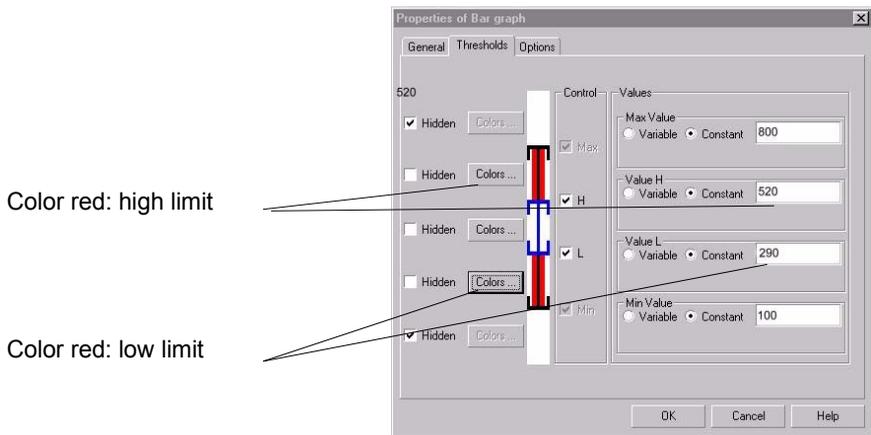


Select the type of bar graph (for example: vertical, large graduation). Assign the word %MW35 to the object using the **Modify** button. This word will contain the oven temperature value. Click **Ok**.



5. Creation of pages

Click **Options** and set the object to cyclic reading. The temperature must be between 290× C and 520× C. If the temperature is outside these limits the display will switch to blue. Click **Thresholds** to define a high threshold (H) of 520 and a low threshold (L) of 290 and click **Color** to define the colors.



Click **OK** to confirm. The bar graph is displayed but the graduations are not identified.

Using the **Text** tool, enter the values to allow the operator to identify the positions.

5. Creation of pages

Volume meter

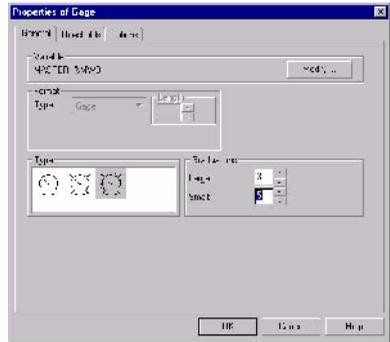


Volume meter
(D)

Provides a graphical representation of the control system data (i.e., power supply voltage control). Minimum, maximum, high and low limits.



1. Select the **Volume meter** tool button.
2. Using the mouse, select the required location.
3. Select the Edit Properties menu (or click the right mouse button or press ALT ENTER).
4. Select the type of the **Volume meter**.



B

Potentiometers



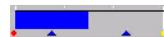
Linear potentiometer

To modify the control system variable, graphically (i.e., limit setting).

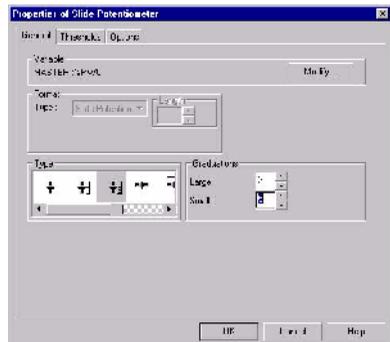


Rotary potentiometer
(D,M)

Minimum, maximum, high and low limits.



1. Select the **Linear slider potentiometer** tool button.
2. Using the mouse, select the required location.
3. Select the Edit Properties menu (or click the right mouse button or press ALT ENTER).
4. Select the type of the **Linear slider potentiometer**.



5. Creation of pages

Switches



Linear slider switch



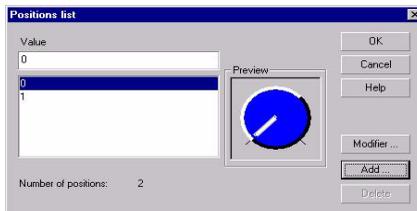
Rotary switch
(rotactor)(D,M)

To modify the control system variable, graphically (i.e., choice of a type of production using the rotary selector).



Rotactor,

1. Select the **Rotary switch** tool button.
2. Using the mouse, select the required location.
3. Select the Edit Properties menu (or click the right mouse button or press ALT ENTER).
4. Select the type of the **Rotary switch**
5. Assign the word %MW34 to the object using the **Modify** button, click **Ok**. This word will contain the value selected by means of the rotary selector.
6. Click **List** and, using the **Delete** or **Add** buttons, define the number of positions for the rotary selector and the value to be assigned in the word. Click **Ok**.



7. Using the **Color** button, define the color of the graduations and of the background.
8. Click **Ok twice** to confirm, the rotary selector will then be displayed but the graduations will not be identified.
9. Using the **Text** tool, enter the values to allow the operator to identify the positions.

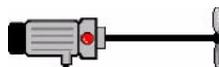
5. Creation of pages

Image box



Images box
(D,M)

To display images reflecting the control system status to select images defining parameters for managing the control system. According to the value of a variable.
Image file: BMP, WMF, PCX



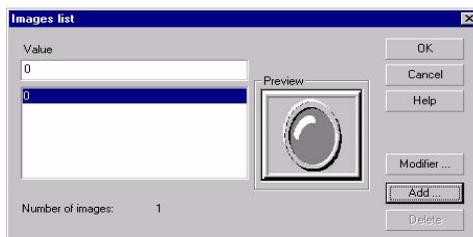
1. Select the Image box tool button.
2. Using the mouse, select the required location.
3. Select the Edit Properties menu (or click the right mouse button or press ALT ENTER).
4. Assign the word %MW34 to the object using the Modify button, click Ok.



This word will contain the value selected by means of the Image box.

Then, each image is assigned to a value of the variable fields by click on button "LIST".

A maximum of 16 images can be associated to the variable field



NOTE

If the value needed of the PLC variable associated to the field has not assigned an image, then the objet becomes invisible and transparent.

5. Creation of pages

Graphical curve

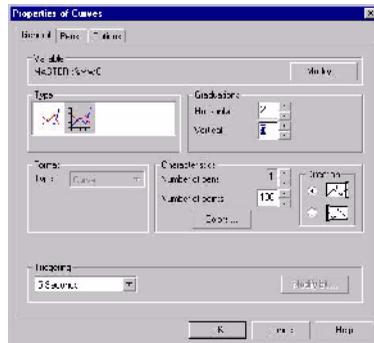


Graphical curve
(D)

To monitor control system data changes in real-time
(i.e., monitoring a temperature)

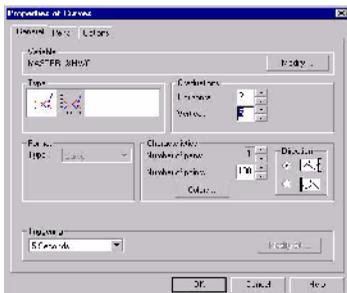


1. Select the **Graphical curve** tool button.
2. Using the mouse, select the required location.
3. Select the Edit Properties menu (or click the right mouse button or press ALT ENTER).
4. Assign the word %MW34 to the object using the **Modify** button, click **Ok**.
5. Select the type of **Graphical curve**.



5. Creation of pages

Main characteristics of curve objects



A curve object can display up to 4 different curve plottings. These plottings are called pens.

If the address of the object is %MwN (IEC syntax):

- the address of the first pen is %MwN
- the address of the second pen is %MwN+1
- the address of the third pen is %MwN+2
- the address of the fourth pen is %MwN+3

A new curve point is displayed:

- periodically every 5, 10 or 30 seconds or every 1.5 or 10 minutes,
- when a bit is uploaded in the dialog table ([See chapter C, § 2. Dialog table content, Page 9](#), index on “graph plottings performed” and “Activating graphs plotting”).

Duration of the curve window:

- the time displayed on the curve window depends on two parameters: Numbers of points and Time selected to display a new curve point periodically or bit in the dialog table.

Curve write starts:

- from the right: each new sampling moves the former values to the left, or,
- from the left: each new sampling moves the former values to the right.

Curve objects can be refreshed (Options tab):

- **on a cyclic basis**: at the specified sampling period but only when the page including the curve is displayed (there is not any plotting on the curve when it is displayed).
On the curve is reinitialised with each change of page.
- **on a permanent basis**: at the sampling period, including when the object is not displayed.
The terminal continuously refreshes the curve whichever page is displayed; the changes of pages have no effect.
- Whatever the mode, cyclic or permanent, the data concerning the curves is stored in Ram Access Memory **but are not saved** if there is a power cut.

This option generates permanent data interchange with the PLC and can entail an increase in the response times. For more details: [See chapter C, "Optimization for communication", Page 31](#).

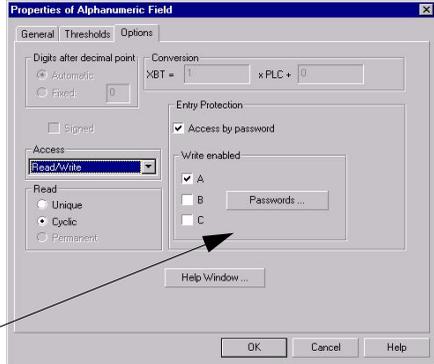
5. Creation of pages

Variable field characteristic

Protecting fields

Depending on the selected configuration, certain fields of the application page may not be write-accessed in confidential mode.

Access management for entry to a variable field is ensured by a system with several levels of protection. (see [chapter D, "Confidential mode, password management", Page 18](#)). The XBT-L1000 software can be used to define the various properties of the field.

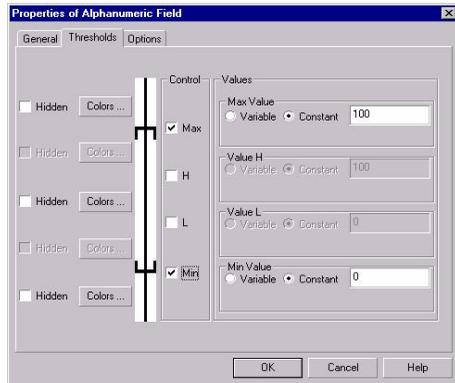


Variable limits

The value of a variable can be in one of five possible value zones:

- Value > Max
- $H < \text{Value} < \text{Max}$
- $L < \text{Value} < H$
- $\text{Min} < \text{Value} < L$
- Value < Min

For each of these zones, the object is given a particular color according to what was defined in XBT-L1000: variable color for alphanumeric objects, dial color for vumeters, etc.



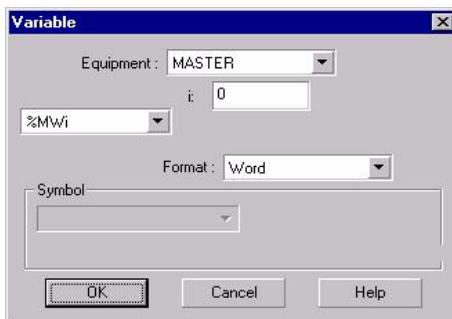
For more details, see [chapter D, "Field Characteristics", Page 34](#).

5. Creation of pages

PLC Variable

Select the field on XBT-L1000, press "ALT+ENTER" key or "Edit / field properties" menu, then "general" and "modify" button to assign the PLC variable to the field.

Click modify to define the PLC variable representing the content of the field and click **Ok** to confirm.

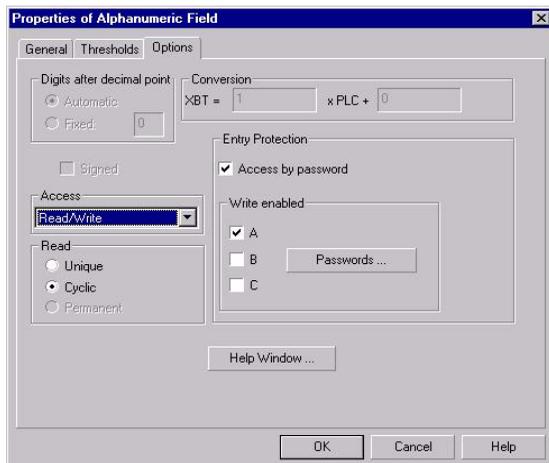


B

Access to the PLC

PLC variables can be accessed from the terminal fields by :

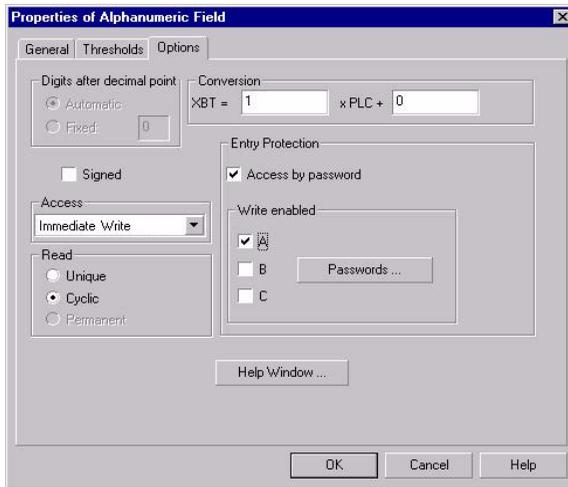
- Read : operator can not modify the value.
- Write : operator can modify the value.
- Read/Write : both cases above.



5. Creation of pages

Immediate write

Select the Options tab:



This entry mode is used by the operator to modify a field value in a continuous manner in order to:

- introduce continuous values (+1 and / or - 1),
- view the result of an action "in real time" (adjustment, positioning, etc.).

[See chapter D, "Immediate write", Page 37.](#)

5. Creation of pages

Function key objects



Static function keys

Static function keys can be defined for the application to be used as:

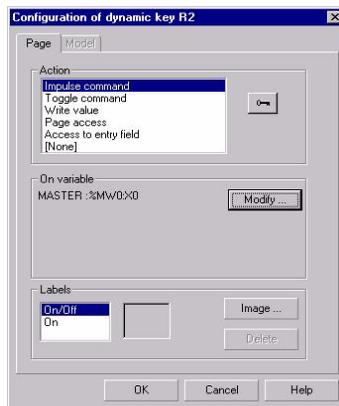
- Access to a page
- Momentary contact command
- "Toggle" command

Dynamic function keys

Dynamic function keys are associated with the page displayed.

They can have the following functions:

- Access to a page
- Momentary contact command
- "Toggle" command
- Writing values,
- Positioning on an entry field
- Running a Windows 95 executable program (TXBT only)



Touch zones

There are no static and dynamic function keys on touchscreen terminals. They are replaced by touch zones which have the same functions and properties as the dynamic function keys of the terminals with keyboard.

Both static and dynamic function keys are also programmed through configuration/function keys" menu.



Configuration

- click on the button,
- click and slide on the area to determine the location and the size of the touch zone. With the default grid you can create touch zones including the pitch suitable for the physical division of the touchscreen pad,
- double-click on this zone and enter the configuration parameters in the same way as for a dynamic function key of a terminal with keyboard.

5. Creation of pages

Parameters to be defined

Type of action.

For static function key (terminals with keyboard only).

- page access: select an application page,
- impulse or toggle command: assignment of a command bit in the dialogue table (see [chapter C](#)),
- running a Windows 95 application on a terminal (TXBT only definition of executable program path).

Dynamic function key (terminals with keyboard)

Touch zone (touch terminals)

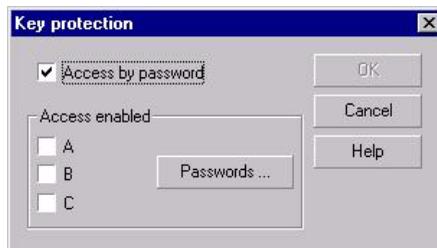
Touch key and zone (terminals with touch keys).

- page access: select an application page,
- impulse or toggle command: assignment of a command bit in the dialogue table (see [chapter C](#)) or elsewhere in the PLC for the dynamic function keys,
- running a Windows 95 application on a terminal (TXBT only definition of executable program path),
- writing values: transfer the value from a variable or a constant onto another variable. (see [chapter D](#), "[Value direct writing](#)", [Page 52](#)).

NOTE

A password can be associated to actions such as writing value, impulse command and toggle command.

When one of these actions is selected, click on the key  to open the window of the protection key.



5. Creation of pages

NOTE

A static or dynamic function key already configured is displayed by the software in inverse video when configuring new function key.

Recommendations concerning the use of function keys:

- The dynamic function key word bits can be distributed between all the installation's pieces of equipment without any restriction.

- The static function key word bits are grouped together and defined by the dialog table.

The communication dialog between the terminal and the equipment have better performances if static function key commands are used.

It is recommended to use static function keys for control functions, and dynamic function keys for moving around the pages and for entering data.

B

Label for the dynamic function keys

This allows you to associate a label with the function key.

- Page access: 1 label (an image)
- Momentary contact or "toggle" command: a label for each status of the associated bit (values 0 and 1, associated with two images representing a released and pressed pushbutton)
- Access to a variable field
- Direct writing

By default the size of these images is adapted to the size of the keys (so they can be positioned opposite each other).

Running a Windows 95 application on a TXBT terminal

The TXBT terminal enables you to run Windows 95 applications installed on the terminal (such as the calculator). If the Magelis application is running, it will continue in the background, with pages refreshed and alarms monitored.

Executable program path

This is the path (disk, directory/sub-directory) on the TXBT terminal and not the path on the PC on which XBT-L1000 is installed. If the executable program's location on the TXBT is changed, startup will not work.

Example: D:\WINDOWS95\CALC.EXE

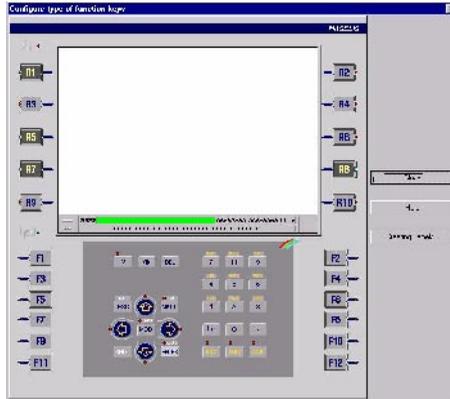
5. Creation of pages

Print labels of static function keys

This functionality allows to print the sheets of re-usable labels of static function keys.



Select "configuration/function keys" menu or specific tool palette key, then press "creating labels" button.



After that, a "*.DOC" existing file can be opened or a new file can be created.



In that case, XBT-L1000 will open WORD with the sheet of label corresponding to the current terminal programmed by XBT-L1000.

NOTE

Due to every printer having its own margins configuration, it is recommended to test on white sheets before using the sheets of labels.

New sheets of labels can be created by using WORD models (*.DOT) provided with XBT-L1000 software, apart from XBT-L1000 software. The sheets of labels printed will never be associated to the current XBT-L1000 application, thereby "configure type of function keys" window will not be updated.

5. Creation of pages

Model pages

The designer has page models at his disposal. These are background pages containing text and static / animated / dynamic graphic objects that can be used for several application, help or alarm pages.

Characteristics

- a dialog application can contain several models,
- one and only one model is associated with each page.

Select **Page/New Model**. Select the **Application, Alarm** or **Help** model type. Configure the model using the editor tools.

NOTE

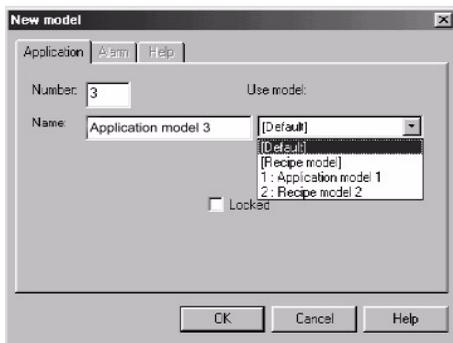


The model pages can be locked using the “lock icon” icon. This prevents unintentional modifications of pages.

In fact, each modification on the model page is passed on the application pages, help or alarm associated.

About XBT-FC terminals, do not modify or move the gray frame representing the tactile keys (loss of the reference).

Place only one modifiable object under each tactile key to be sure of the object selection.



5. Creation of pages

It is possible to change a model from a page by double-clicking on the "Application page" tab (for instance) or by selecting the **Page/Properties** menu.

An object or an object selection within a page can be moved:

- to the model associated with the page (provided that it is not locked),
- to a new model to be created.

Carry out the following operations:

- select the object(s),
- right click on the mouse or select the **Edit/Move** menu.

Application/Alarm/Help/Recipe pages

Creating the page architecture

The following are general rules:

- One and only one page model is associated with each page,
- An application can contain several page models,
- Any given model can be associated with several different pages,
- A model type (application/alarm/help) is associated with a page type (application/alarm/help). For example, each page type has its own model type.

Tool bar buttons:



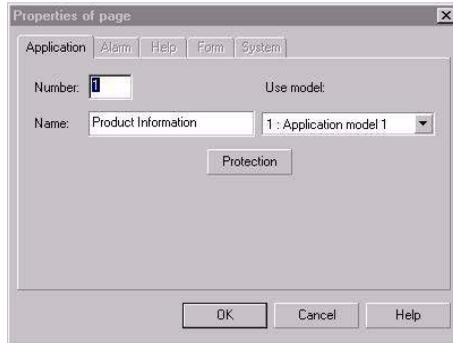
Keyboard shortcuts:

- F7 ( Application page)
- Caps + F7 ( Alarm page)
- Ctrl + F7 ( Help page)
- Ctrl + Caps + F7 ( Form page)

NOTE Its is possible to create a new page from the window Pages tree (see "[Tree structure control](#)", Page 50).

5. Creation of pages

Application page



Indicate:

- Name and/or number of the new page
- Page model to be used
- Password (protection) if necessary

The application pages correspond to the “usual” man-machine dialog during normal operation of the terminal.

B

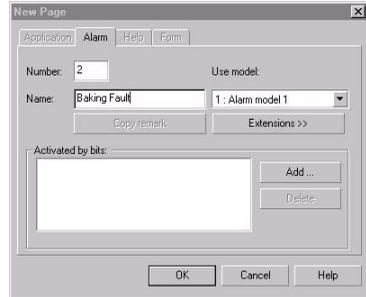
5. Creation of pages

Alarm page

The actual display of an alarm depends on the priority that has been assigned to it. Alarms occurring in the process are stored in the "Alarm list".

When configuring an alarm page, you must indicate:

- Name and/or number of the new page (the name of alarm page is the text displayed in the alarm bar),
- Alarm page model to be used.



Purpose of alarm pages

An alarm page is used to indicate:

- control system faults
- corrective actions

The advantage of the alarm page is the event-linked display. A control system word bit is associated with each alarm page. If the word bit is in state 1, the alarm is triggered.

Operation advantages

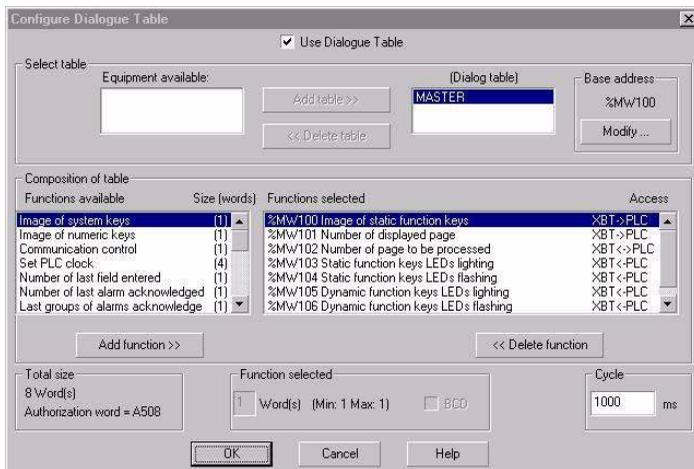
- When a fault appears, it is often the consequence of other faults. The terminal's priority system allows the most serious fault to be displayed first (for example, the fault which has been defined as the most hazardous for the control system).
- The occurrence of each fault is time-stamped.

Maintenance advantages

- The terminal store the occurrence of faults sequentially (log) thus making it possible to find the origin of the fault.
- Several alarms may therefore occur simultaneously in the process.

5. Creation of pages

NOTE To be able to trigger alarms from the PLC, the dialogue table (available from "configuration/dialogue table has to be activated and the word "alarm table" has also to be selected on the dialogue table (See chapter C, § 2. Dialog table content, Page 9).

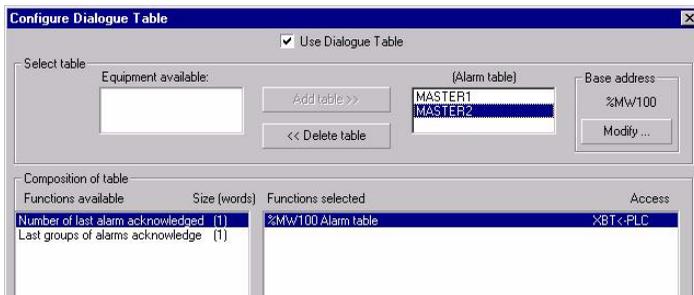


Alarm table

The terminal can access alarms of all equipment registered in the equipment list (Configuration/Symbols equipments).

For this :

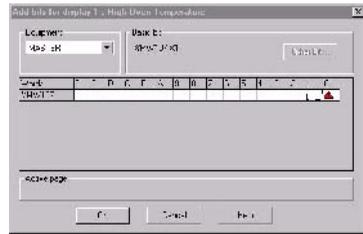
- Select the equipment and add the equipment table (Use the list zones at the top of the dialog table).



5. Creation of pages

On the XBTs

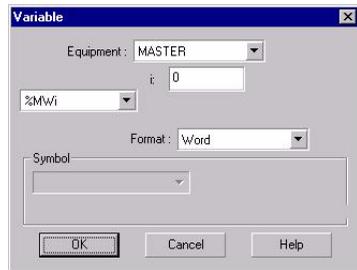
these alarm words are consecutive and make up the alarm table. In the event of an alarm, the rank of the word bit (in the dialog table) which triggered the alarm is displayed in the alarm strip (See chapter D, § 5. Alarms, Page 38).



On the TXBTs

this same principle exists, but it is also possible to assign any bits (internal bit, word bit, etc.)

- If using any other bit as an alarm bit, the field assigned to the "bit rank" in the alarm strip takes value 1.
- In the PLC\terminal exchanges, the bit is dealt with like a numerical field.
- The 2 types of operation can be used in the same application.



For further details on low alarms treated by the terminal, see chapter D, § 5. Alarms, Page 38.

The Extensions button is used to enter the characteristics specific to an alarm page (See chapter D, § 5. Alarms, Page 38) :

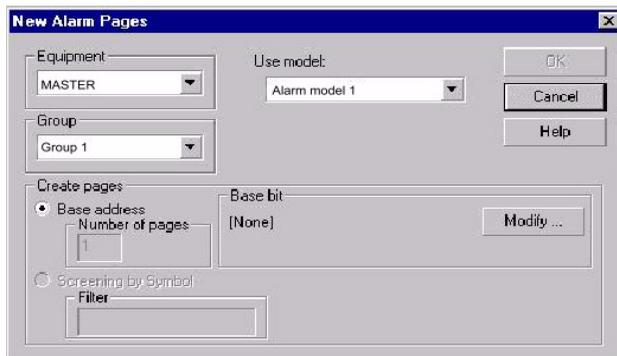
- Alarm page priority
- Assignment to a group of alarms
- Alarm relay action and operator acknowledgment
- Type of alarm page appearance

5. Creation of pages

First alarm generation

A new group of alarms can easily and quickly be created by selecting "new alarm pages" from "page" menu.

All the new alarms belong to the same equipment, same group, and have the same model of alarm.



Parameters to be defined:

- Address of bit from the dialogue table that will trigger the first alarm.
- Number of new alarm pages to be created (all of them will be consecutive with reference to the first one).
- A filter by the name of the symbol PLC database can be performed (see "[Loading the PL7, Concept or Unity Pro symbols file](#)", Page 11).

5. Creation of pages

Help page

Help pages typically include information on the operation being monitored or controlled. When configuring a help page, indicate:

- Name and/or number of the new page,
- Help page model to be used.

Associating a help page with a page:

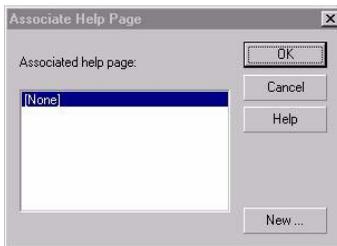


Select the **Page/Associate Help Page...** menu.

This menu allows you to:

- Associate an existing help page with the selected page,
- Associate a new help page with the selected page,
- Change the help page associated with the selected page.

The “New” button allows you to create a new help page.

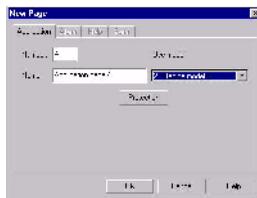


5. Creation of pages

Recipe page

A specific model of the application page can be used to create "recipe" pages.

To create a "recipe", a new application page as to be created and the recipe model as also to be associated to that page.



A recipe page represents a file including recordings of the control system setup parameters or variables used to perform a specific type of action.

For instance, an industrial bakery can produce:

- viennese bread and buns: chocolate-filled pastry, croissants, brioches,
- bread: farmhouse bread, whole-wheat bread, rye bread, sticks of French bread,
- tarts: strawberry tarts, lemon tarts.

To make bread corresponds to the selection of a recipe. To make rye bread corresponds to the selection of a recipe recording. This means that, following the example provided above, there are only 3 recipes (3 application pages with model of recipes associated to each page).

For the first recipe called "viennese bread and buns", there are 3 different recordings which contains a different set of values of the variable fields included on the first recipe page.

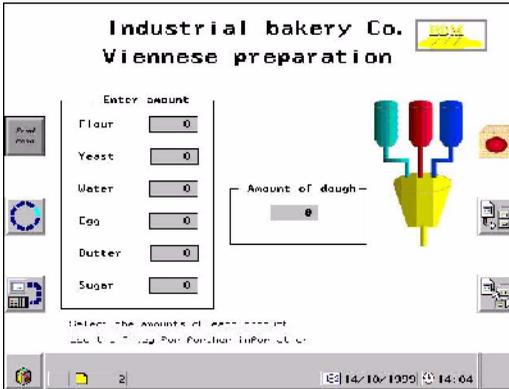
Then, for the second recipe called "bread", there are 4 recipes of the value of the values of the variable fields included on the second Recipe page.

Finally there are 2 recordings for the third recipe called "tarts".

B

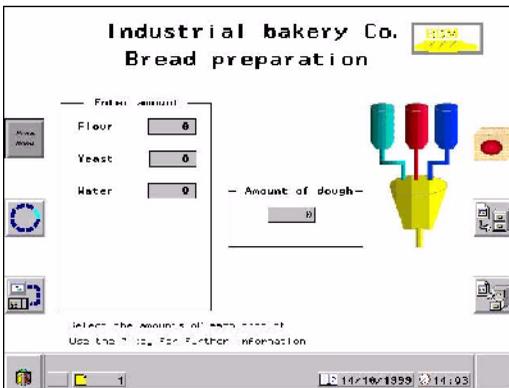
5. Creation of pages

Recipe 1



farmhouse bread
whole-wheat bread
rye bread
sticks of french bread
(records 1,2,3 and 4)

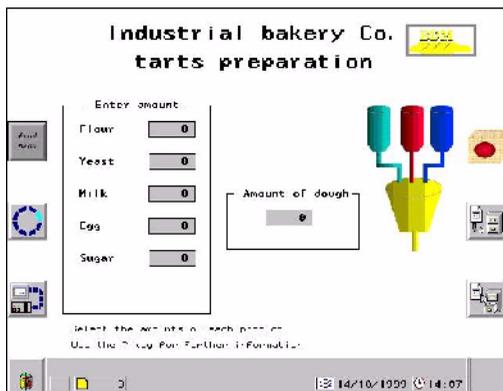
Recipe 2



chocolate-filled pastry
croissants
brioches
(records 1,2 and 3)

5. Creation of pages

Recipe 3



strawberry tarts
lemon tarts
(records 1 and 2)

The following four dynamic function keys or touch zones are available by default on the recipe page model:



- a key for freezing/unfreezing the display on the terminal,



- a key for storing the recording displayed on screen in the PCMCIA card,



- a key for restoring and displaying the recordings previously saved in the PCMCIA card,



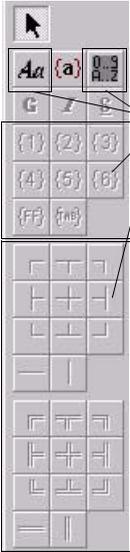
- a key for transferring the recording displayed to the control system.

All the application page objects can be used for the recipe pages. [see chapter D, § 14. Use the recipe pages, Page 76](#), to know how to proceed to make recordings, call them, call different recipe pages, the usage limitations and the maximum number of recordings.

5. Creation of pages

Configuring a form page

Select Page/New Page/Form.



Indicate the name and/or the number of the new page.

The form pages can include the following elements:

- text objects,
- semi-graphic characters,
- printer control codes.

Text objects are static texts and alphanumeric variable fields. These elements are intended for printing only (see [chapter C, § 2. Dialog table content, Page 9](#)).

Semi-graphic characters are used to create simple or double frames for highlighting printed data (table of values, etc.).

Clicking on the icon  places the characters after the cursor.

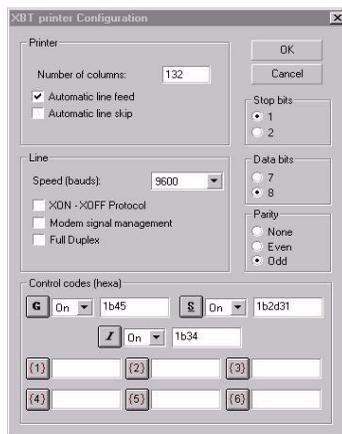
5. Creation of pages

The printer control codes {a} (ex : {1}, {2}, etc.) are used to define printer control sequences (printing of bar codes, bold characters, change of colors, etc.).

Select the  icon and place its position on the screen. The printed control codes ({1}, {2}, etc) are then introduced by clicking on its icon.

To configure each control code the menu "configuration / terminal parameters / printers" has to be selected.

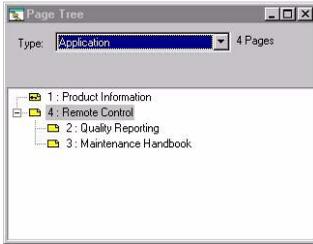
The control codes are introduced in hexadecimal format according to the printer manufacturer documentation.



B

5. Creation of pages

Tree structure control



.The software allows you to display the application's structure in a window. The pages are listed in increasing page number order. The Application and System pages have a tree structure. The alarm pages have a "flat" structure.

The page types are indicated by various icons. When the mouse pointer is positioned on an icon, a message is displayed indicating the type of page and its characteristics. The terminal keys allow you to move around the tree structure.



Examples:



Unprotected application page, with an associated help page.



Application page protected by a password, with an associated help page.



Alarm page with an associated help page.



Unprotected system page.



Alias page: representation of a protected application page which is associated with other pages

NOTE

A right click on one page of the tree structure allows creation of a new page of same type as the page selected.

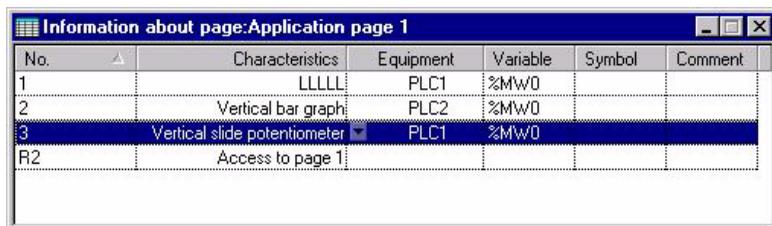
5. Creation of pages

Field information window

The software allows you to display the information regarding the main characteristics of the:

- variable fields,
- dynamic function keys,
- tactiles zones,

of the current page displayed.



The screenshot shows a window titled "Information about page: Application page 1". It contains a table with the following data:

No.	Characteristics	Equipment	Variable	Symbol	Comment
1	LLLLL	PLC1	%MW0		
2	Vertical bar graph	PLC2	%MW0		
3	Vertical slide potentiometer	PLC1	%MW0		
R2	Access to page 1				

The window is displayed by selected Window / Field information menu.

Clicking on the column heading sorts the entire table in ascending or descending order by the selected column. Double clicking on any other fields brings up the properties window of the object selected.

Symbols and comments of each field imported from PL7 or Concept are available in the window (see "Loading the PL7, Concept or Unity Pro symbols file", Page 11).

B

6. Translation of the application

Configuration/Application languages menu.



Add, delete or modify the application languages (3 maximum).



For each language (3 maximum), associate one of the 5 system languages available ([See chapter F, "1. XBT-F Specifications", Page 4.](#)) and select "close".

To translate the application, select the required language using the pull-down menu "Language" at the top of the window. Then, double-click on each text object and list-type alphanumeric field of the page to be translated. Repeat this last operation for all the fields of the pages to be translated.

NOTE

"Cyrillic translation": It is necessary to select " cyrillic " font available in the window of properties of the text zone (right click on the text zone, then select the option "text properties" before doing the text modification.

6. Translation of the application

NOTE If the application language selected is different from the reference language (language used on the creation of the application), it is not possible to add new values to the list proposed. To add new values, the reference language must be the language being currently used.

The length of the texts of the reference language (language used on the creation of the application) is not a limit for translating the application.

It is possible to translate system page texts into a language different from one of the five languages available under XBT-L1000.

Double click on each text zone available in the system pages to modify the text.

Another possibility is in exporting the text, including the system pages, and doing the modification from a spreadsheet ([see § 7. Import/Export, Page 54](#)).

B

7. Import/Export

Import/export texts

This function allows a quicker translation of the application.

The texts that can be imported or exported are:

- Static texts,
- Proposed lists,
- Name of pages (application, alarm, help and form) except model pages,
- System page texts (option available during export operation),
- Help windows,
- Alarm groups.

Procedure (This function requires a spreadsheet)

1. From the application XBT L1000

- Once the application is created in the reference language (language used on creation of the application), all other languages must be added before doing the export operation (See § 6. [Translation of the application, Page 52](#)).
- Select "Export text" in the "File" menu
- If necessary, click option "System pages" to export text of system pages (translation into a language not available in the list of the basis (Cyrillic translation for example).
- Save the file under the name you want (Transl.txt for example).

2. From the Spreadsheet

- Open the file exported from XBT L1000 (Transl.txt)
- **For a cyrillic translation**, Select the column with the text to translate (column B or C) and assign to the cells the True Type Cyrillic font (supplied with the XBT-L1000).
Special characters (top part of the font) of column B are replaced by cyrillic characters.
- Translate texts (column B or C).
- **For a cyrillic translation**, use an "on screen keyboard-type tool" (supplied with Windows 2000) or the "Font table" tool of Windows 95, 98 or NT.
- Save the file (Transl.txt) with "TXT" extension.

7. Import/Export

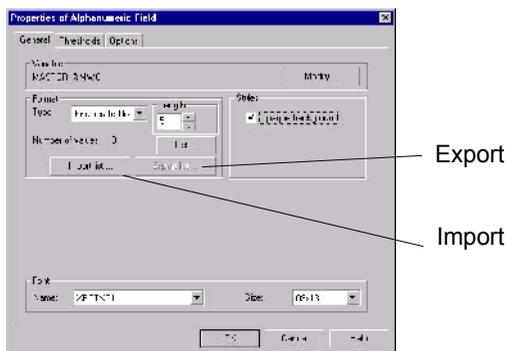
3. From the application XBT L1000

- **For a cyrillic translation**, change font for each text, each field of proposed list, and for texts of the application system pages.). Font changing in the properties of each field
- Select "Translation Import" in the "File" menu.
- Select the file and click on "Open".
- Configure terminal parameters so that the application uses the translated language by default.

B

Import/export numbered list

A numbered list can be imported and exported directly by a single operation from its properties window, [see "Import/export texts", Page 54.](#)



NOTE

File ".TXT" containing the numbered list texts can be opened with a spreadsheet. The first column contains the value of the variable field.

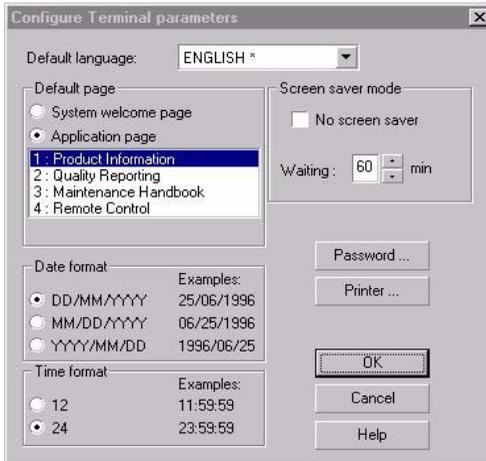
The following columns contain language texts.

Each one value of the variable field and its associated text can be added at the list.

After translation and/or adding of value / text, the proposed list is updated by clicking on "Import List".

8. Configuring the terminal parameters

Select the **Configuration/Terminal parameters** menu



Page number displayed by default at power up

The 2 possibilities are:

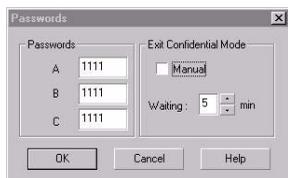
- An application page,
- A system title page.

[See chapter D, "Display at power up", Page 22.](#)

8. Configuring the terminal parameters

Passwords

The "Password" button allows you to configure three passwords A, B and C . Each password must consist of four alphanumeric characters. [See chapter D, "Confidential mode, password management", Page 18.](#)



Exit from the confidential mode can be either manual or automatic:

- manual: the operator explicitly requests an exit from the confidential mode,
- automatic: a timer which can be programmed to a value between 1 and 60 minutes is used by the terminal to automatically exit the confidential mode.

B

NOTE For the 5" touch screen terminals, the password must be only a decimal type.

Default language

The language to be used by the terminal (system messages).

Date format to be used:

- dd/mm/yyyy (for example, 25/06/1996)
- mm, dd, yyyy (for example, 06/25/1996)
- yyyy, mm, dd (for example, 1996/06/25)

Time format to be used

- 11 :59 :59
- 23 :59 :59

Printer setup

[See chapter D, § 10. Printing, Page 57.](#)

Stand by screen display

- to enable or disable the stand by screen display,
- to define the wait time before stand by screen display.

9. Saving the application

Select the File/Save menu :



10. Application simulation

Simulation enables the XBT-L1000 application designer to test the real effect of his application without requiring a complete hardware configuration. This function is accessible via the Simulation menu.

Items simulated:

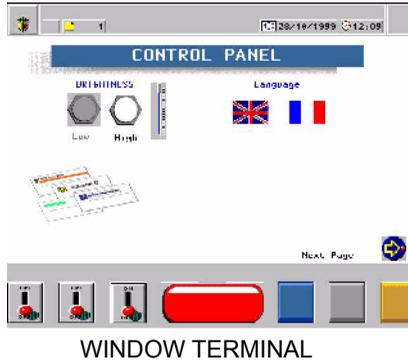
- Application and alarm pages,
- Page sequences,
- Variables input (with thresholds, etc.),
- Dialog table and alarms table.

NOTE

Help pages, keyboard LEDs, printouts, alarm relay and external application startup (TXBT-F) are not simulated. Monochrome screen terminals are simulated with the standard color palette.

The starting of the simulation opens 2 windows:

- the terminal simulation window,
- the PLC simulation window.



The window simulates the information on the terminal's screen. When this window is active, the PC keyboard simulates the terminal's keyboard.

NOTE

One left click of the mouse simulates a press on the touch screen.

10. Application simulation

Terminal simulation window

Key equivalents:

Terminal	PC
R1...	F1....
F1...	SHIFT F1...
HOME	HOME
ESC	ESC
SYST	PAGE UP
MENU	PAGE DOWN
MOD	INSERT
ALARM	END
ENTER	ENTER
Left, Right, Up, Down	Left, Right, Up, Down Arrow
+1	SHIFT + UP
-1	SHIFT + DOWN
DEL	DEL
Alphanumeric keypad	Alphanumeric keypad
?	?
shift +	shift +
+/-	+

10. Application simulation

PLC simulation window

Three tabs can be used to simulate:

- The displayed page variables (initially, a random value is allocated) by selecting each variable field cell, its value can be modified from the PC keyboard as it would have changed from the PLC.
- The alarm tables by clicking twice on each alarm bit, its state is changed from 0 to 1 and vice-versa.
- The dialog table. Refresh of this window can be inhibited, to enable input of a page change, etc. The way to modify the dialogue table variables is the same used to modify the displayed page variables.

B

11. Transferring the application and the protocol to the terminal

Loading of the application in the terminal can be done either by local transfer (direct connection with a cable between the computer and the terminal) or by remote transfer (connection via a Unitelway or Fipway network, between the computer and the terminal).

Local transfer

1. Install the terminal as shown in the service instructions.
2. Connect the terminal to the PC as shown in the service instructions (XBT-Z915 cable and adaptor XBT-Z962).
3. Turn the power on to the terminal.
4. Open the application to be loaded.
5. In XBT-L1000 select menu Transfers/Export towards terminal.

Remote transfer

Prior condition to fulfil before doing remote transfer on XBT-F and TXBT

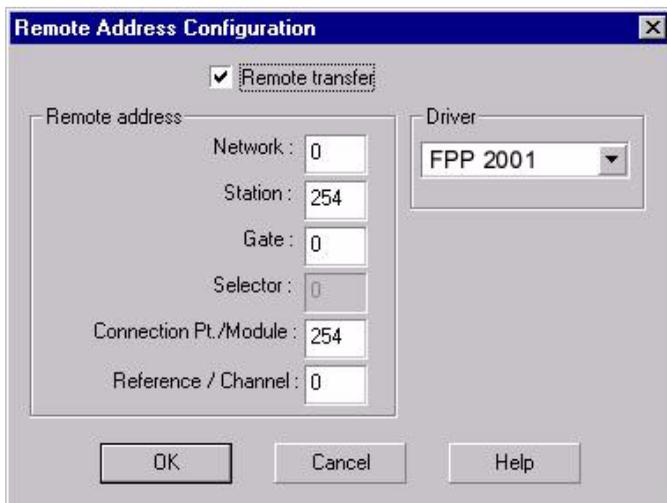
It is required that:

- Terminal is already configured with an application compatible with Unitelway or Fipway. The current application must have been loaded according to one of the following methods :
 - Local transfer.
 - Insertion of a PCMCIA card containing such application.
- A communication card Fipway must be installed in the computer for use of this protocol on the terminal. XBT-L1000 does not take into account the installation of software (library, drivers...) associated to the cards; therefore the installation must have been done previously.
- Terminal address is already configured on XBT-L1000 (Menu "Transfer/Remote" address). To get to address parameters click "remote transfer" box.

11. Transferring the application and the protocol to the terminal

Capture of the remote address

- Select menu Transfer/remote address
- Capture terminal XWAY address (5 levels)



B

Export operation

In the menu "Transfer", select "Export", then "towards terminal"

XBT-L1000 checks that the application you want to export is compatible with the XBT terminal which is connected your PC. XBT-L1000 also checks that the protocol installed is compatible with the connected terminal.

As XBT-L1000 controls the transfer, no particular operation needs to be done at the terminal.

XBT-L1000 displays a dialog window indicating transfer completion.

NOTE

Remote transfer is slower than a local transfer, particularly for Unitelway protocol.

It has the advantage of enabling modification of the dialogue application while the terminal is running.

12. Transferring the application and the protocol to a PCMCIA card

Import/export file

If a PCMCIA read/write card is available on a PC that has been loaded with the XBT-L1000 software, the application can be directly written on the card provided for the terminal. The Transfer/Import-export file menu is used to select the name of the PCMCIA unit.

Before performing an exportation to a PCMCIA card, it is necessary to define import/export file location (transfer menu, import/export file).

The application must be exported to the PCMCIA inside a directory called "appli". If it does not exist, the XBT-L1000 software will create this directory after performing "transfer menu / import / export file".

The name of the PCMCIA card as a hard PC unit is given automatically by the PC operating system (Windows 95, 98, NT).

In other cases (to a hard disk for example), the file name and its location can be different.

XBT-L1000 -> PCMCIA card export

To export the application, select the **Transfers/Export/ to import/export folder** menu. Insert PCMCIA card at the location provided on the terminal.

PCMCIA -> XBT-L1000 card import

To import the application, insert the PCMCIA card into the PC and then the **Transfers/Import/from import/export folder** menu.

Before, use the **Export/to import/export folder** function to select the hard unit from which to import the application.

13. Updating the application

When an application that has been saved under an earlier version of the XBT-L1000 software is opened using a later version, the user will be prompted to have the software update the application to the later version.

This operation is used to update new system page formats and enables the designer to incorporate the enhanced functions of the new version into the existing application. Therefore, It is strongly recommended that the user perform the update.

Note **The model pages for application, alarm and help pages are not updated automatically. Thus, the alarm strip and the status line may have been re-located, deleted or modified by the designer.**

Updating the model pages:

- 1. Perform the updating proposed by XBT-L1000.**
- 2. Create a new model for each type of page (application, alarm, help).**
- 3. Delete the required elements (alarm strip, status line) from the existing models.**
- 4. Cut/paste the elements required from the new models to the existing ones.**

Once updated, it is not possible anymore to open the application with the XBT-1000 version used to create the version (version n).



Chapter C
PLC and terminal
Communications
Dialog



Contents

This chapter includes the following sections:

1. PLC/terminal communications dialog principle _____	4
Data exchanged _____	4
Exchange principle for data associated with fields _____	6
Principle of the communications dialog table _____	7
2. Dialog table content _____	9
Notation convention for describing the table _____	9
Detailed description _____	13
3. PLC/terminal communication dialog cycle _____	30
Processing by the terminal _____	30
Optimization for communication _____	31
Optimized communication _____	32
Non-optimized communication _____	32

C

1. PLC/terminal communications dialog principle

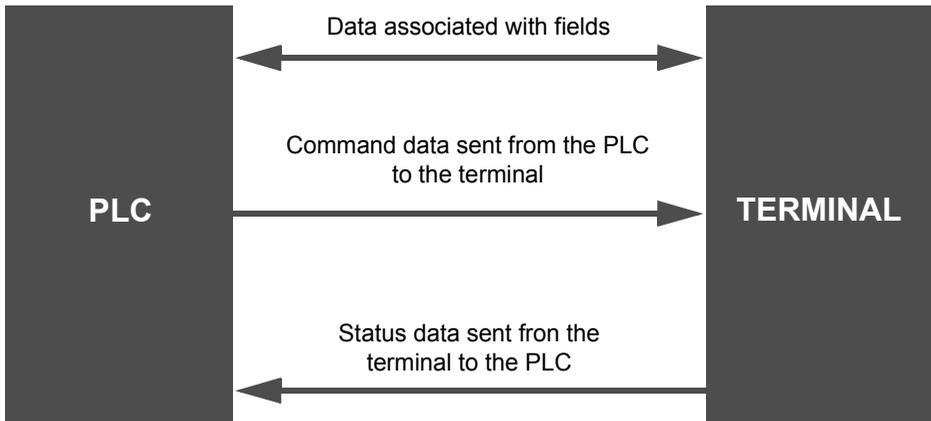
The communications dialog between the terminal and the PLC consists of an exchange of data between one or several devices.

In all communication situations, the following should be defined:

- Data to be exchanged,
- Communication protocol.

Data exchanged

Various types of data can be exchanged.



1. PLC/terminal communications dialog principle

Data associated with fields

These are variables which may be:

- displayed on the terminal,
- entered or modified on the terminal.

Command data sent by the PLC to the terminal

This concerns the following commands:

- Display an application or system page,
- Display an alarm page,
- Lock keys,
- Request to enter a variable field,
- Print command,
- Command of indicator lights associated with function keys,
- Clear log command,
- Set time-stamp command,
- Triggers graph plotting.
- etc.

Status data sent by the terminal to the PLC

This concerns the following status:

- Terminal status
 - confidential mode,
 - terminal configuration mode,
 - confirmation of entries by pressing the ENTER key,
 - cancelled entry by pressing the ESC key,
 - cancelled entry after a time-out,
 - print fault.
- Number of the displayed page,
- Number of the last field entered,
- Image of the keypad keys,
- Time-stamp status (date and time),
- Log occupancy rate as a percentage,
- Communication monitoring,
- Number of the last alarm acknowledged,
- Application signature,
- etc.

1. PLC/terminal communications dialog principle

Exchange principle for data associated with fields

The exchange principle for the data associated with the fields depends on the protocol chosen according to the type of PLC.

The variables read or written are bits, single words, double words and word bits.

The terminal can be master or slave on the bus but it is always considered as the client and the PLC(s) as the server(s).

This means that the terminal always initiate data interchange to:

- refresh the fields (reading of values in the PLC),
- enter and edit fields (writing of values in the PLC).

NOTE **No PLC communication program needs to be written.**

 WARNING
UNINTENTIONAL EQUIPMENT OPERATION
PLC memory zone allocated for the XBT dialog table must NOT be used for anything else. It is the designer's responsibility to program the PLC logic properly.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

1. PLC/terminal communications dialog principle

Principle of the communications dialog table

To simplify the communications dialog, all of the following are grouped together in a dialog table:

This table is located in one of the architecture PLCs and composed of n consecutive words (16-bit words).

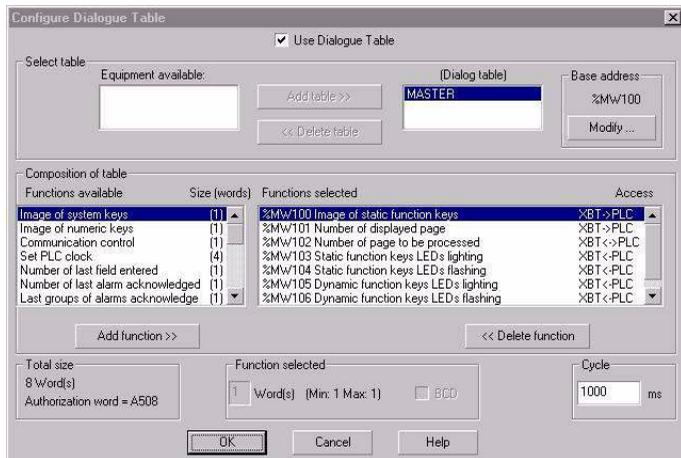
It includes two parts:

Status table
Status data sent by
the terminal to the PLC.

Command table
Commands sent by
the PLC to the terminal

The number of words in the table depends on the choice of status data and commands that are to be processed during the dialog.

The XBT-L1000 software allows you to configure the dialog table.



1. PLC/terminal communications dialog principle

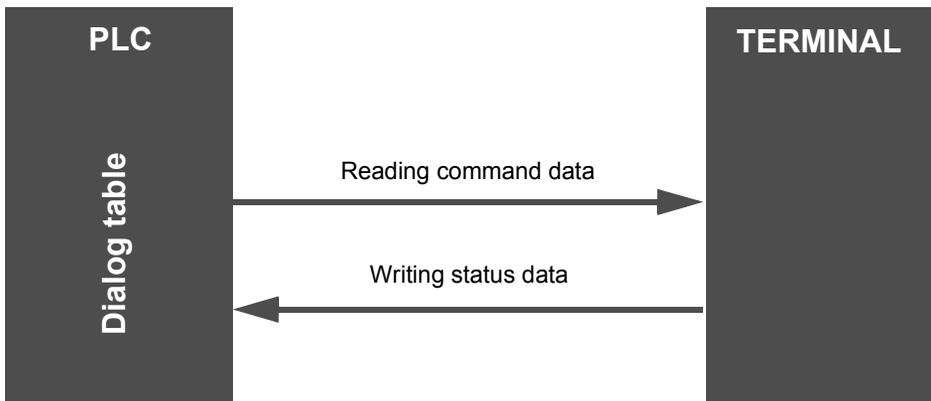
WARNING

UNINTENTIONAL EQUIPMENT OPERATION

PLC memory zone allocated for the XBT dialog table must NOT be used for anything else. It is the designer's responsibility to program the PLC logic properly.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

When configuring the dialog table, you must define the dialog table's start address (basic address). The dialog table is in the PLC. The terminal periodically reads and writes to the table in the PLC.



Secure use of the dialog table

A word is used in the table for security purposes: the "dialog table authorization" word.

The use of this word is a security for the PLC/terminal dialog. When this word is not set to the correct value in the PLC, the terminal does not write any word in the dialog table and does not execute any command.

This value is indicated by XBT-L1000. The PLC program must assign this value to the word "Dialog table authorization" so that the dialog table be processed by the terminal.

2. Dialog table content

The number of words in the table depends on the choice of states and commands that are to be processed during the dialog. You may add or delete items as you choose.

Notation convention for describing the table

%Mw n word of 16 bits with address n .

%Mw n , i : bit i of word n .

The address n is taken as the table's start address.

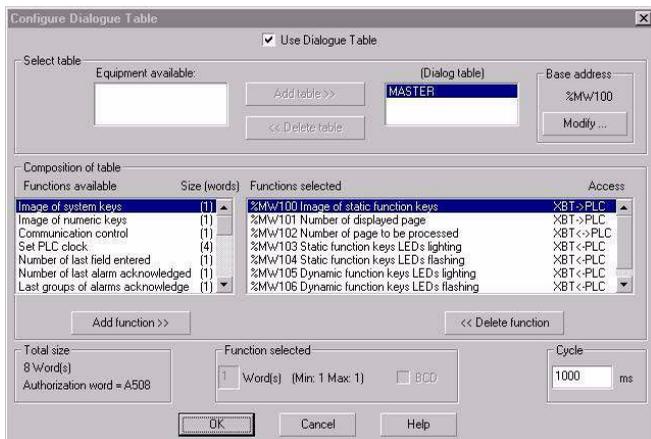
The table comprises a maximum of 135 words.

The description below gives the content of the various dialog table words; refer to the XBT-L1000 software's on-line help for further information on the various words.

NOTE

The word number is adapted in accordance with the words of the dialogue table used. The words are addressed in the order established in the "available functions".

Ex.



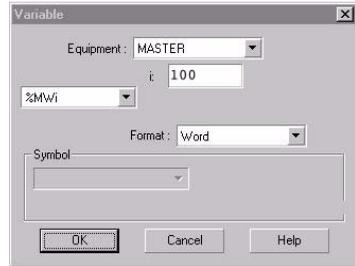
PLC <-- XBT: Terminal writes the corresponding word(s) in the PLC.
PLC --> XBT: Terminal reads the corresponding word(s) in the PLC.
PLC <--> XBT: Terminal and the PLC can modify the corresponding word(s) in the PLC.

2. Dialog table content

Select the **Configuration/Dialog table** menu.

Check the **Use dialog table** option.

Click **Modify** to change the address of the beginning of table %MW100.



In the **Function selections** list, delete or add the functions required by the application by means of the **Add Function** or **Delete Function** buttons to obtain the following list:

Functions selected	Access
%MW100 Image of static function keys	XBT->PLC
%MW101 Image of system keys	XBT->PLC
%MW102 Image of numeric keys	XBT->PLC
%MW103 Static function keys LEDs lighting	XBT<-PLC
%MW104 Static function keys LEDs flashing	XBT<-PLC
%MW105 Dynamic function keys LEDs lighting	XBT<-PLC
%MW106 Dynamic function keys LEDs flashing	XBT<-PLC

Once creation is completed, save the application using the **File/ Save** menu.

2. Dialog table content

Word	Functions	Exchange	Page
%MWn+0	Image of static function keys	PLC <- XBT	C13
%MWn+1	Image of system keys	PLC <- XBT	C13
%MWn+2	Image of numeric keys	PLC <- XBT	C13
%MWn+3	Communication control	PLC <- XBT	C14
%MWn+4 to %MWn+7	Set PLC clock	PLC <- XBT	C14
%MWn+8	Number of displayed page	PLC <- XBT	C15
%MWn+9	Number of last field entered	PLC <- XBT	C15
%MWn+10	Number of last alarm acknowledged	PLC <- XBT	C15
%MWn+11	Last groups of alarms acknowledged	PLC <- XBT	C15
%MWn+12	Report	PLC <- XBT	C17
%MWn+13	Log filling rate	PLC <- XBT	C17
%MWn+14	Graph plottings performed	PLC <- XBT	C17
%MWn+15	Application checksum	PLC <- XBT	C17
%MWn+16	Number of page to be processed	PLC<->XBT	C18
%MWn+17	Number of field to be entered	PLC<->XBT	C21
%MWn+18	Print command	PLC<->XBT	C23
%MWn+19	Activating graphs plotting	PLC -> XBT	C24
%MWn+20	Table write authorization	PLC -> XBT	C24
%MWn+21	Recipe transfer not allowed	PLC -> XBT	C25
%MWn+22	Clear Log	PLC -> XBT	C25

C

2. Dialog table content

Word	Functions	Exchange	Page
%MWn+23	Static function keys LEDs lighting.	PLC -> XBT	C26
%MWn+24	Static function keys LEDs flashing.	PLC -> XBT	C26
%MWn+25	Dynamic function keys LEDs lighting.	PLC -> XBT	C26
%MWn+26	Dynamic function keys LEDs flashing.	PLC -> XBT	C26
%MWn+27	Static function keys locking	PLC -> XBT	C26
%MWn+28	System keys locking	PLC -> XBT	C27
%MWn+29	Numeric keys locking	PLC -> XBT	C27
%MWn+30 to %MWn+90	Alarm table	PLC -> XBT	C28
%MWn+91 to %MWn+94	Set terminal clock	PLC -> XBT	C29
%MWn+95 to %MWn+134	Free format print table (40 words maxi)	PLC -> XBT	C29

2. Dialog table content

Detailed description

%MWn+0 : Image of static function keys

Images of the keypad keys sent to the PLC.

Bit at 1 = key pressed.

	Bit 11		Bit 0
%MWn+0	F12		F1

%MWn+1 : Image of system keys

%MWn+2 : Image of numeric keys

%MWn+1 : system keys	%MWn+2 : numeric keys
Bit 0 : Up arrow	Bit 0 : 0
Bit 1 : Down arrow	Bit 1 : 1
Bit 2 : Right arrow	Bit 2 : 2
Bit 3 : Left arrow	Bit 3 : 3
Bit 4 : MOD	Bit 4 : 4
Bit 5 : PRINT	Bit 5 : 5
Bit 6 : MENU	Bit 6 : 6
Bit 7 : SYST	Bit 7 : 7
Bit 8 : ALARM	Bit 8 : 8
Bit 9 : ESC	Bit 9 : 9
Bit 10 : HOME	Bit 10 : .
Bit 11 : +1	Bit 11 : +/-
Bit 12 : -1	Bit 12 : DEL
Bit 13 : ENTER	Bit 13 : ?
Bit 14 : Reserved	Bit 14 : Ctrl (1)
Bit 15 : Action on tactile pad/ keyboard (2)	Bit 15 : Alt (1)

NOTE

There are no images of the dynamic function and alphanumeric keys. For keys description, [See chapter F, "1. XBT-F Specifications", Page 4..](#)

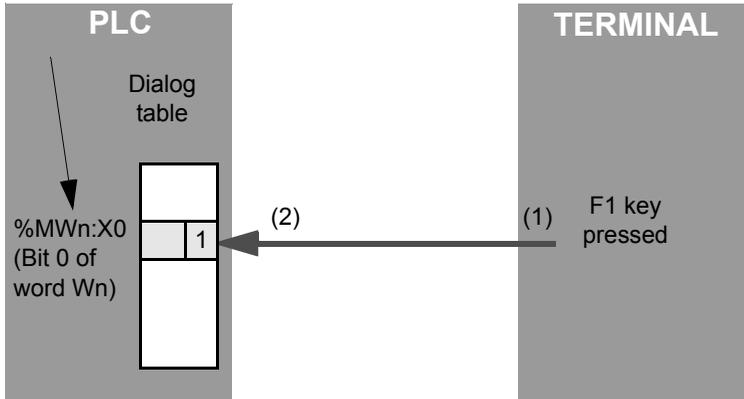
(1) Only for TXBT terminals

(2) Whenever the tactile pad or keyboard are locked , this bit is recorded.

2. Dialog table content



Indication to the PLC that the F1 key is pressed



WARNING

UNINTENTIONAL EQUIPMENT OPERATION

If communications between the XBT and PLC are lost, the operator's control over the machine may be completely or partially lost. It is the designer's responsibility to consider programming the PLC logic to account for this situation. An effective method is to use Wn+3 of the dialog table to control the communication.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

%MWn+3 : Communication control

Word incremented by 1 at each processing cycle and used by the PLC application to monitor the terminal for proper operation.

%MWn+4 to %MWn+7 : Set PLC clock

order of bits	15	8	7	0
%MWn+4	Seconds		Day of the week	
%MWn+5	Hours		Minutes	
%MWn+6	Month		Day of the month	
%MWn+7	Century		Year	

2. Dialog table content

The terminal writes the time and date in the PLC with the dialog table cycle. There are 2 possible coding formats: Hexadecimal or BCD (choice made using XBT-L1000).

Day of the week: Monday = 1... Sunday = 7.

%MWn+8: Number of displayed page

See %MWn+16: Number of the page to be processed.

This word contains the page number displayed on the terminal.

When the terminal displays a system page the word “number of the displayed page “ includes:

- in signed decimal: - 16 - N
- in non signed decimal: 65520 - N
- in hexadecimal: H'FFFO' - N

N : System page number founded in pages tree structure for XBT-L1000.

%MWn+9: Number of last field entered

See %MWn+17: Number of the field to be entered.

This word includes the number of the last field entered on the terminal and sent to the PLC. The entry logics is the following:

MSB

LSB

field number in model page	field number in application page
----------------------------	----------------------------------

The field number is provided by XBT-L1000: Display/Field Number menu.

%MWn+10: Number of last alarm acknowledged

%MWn+11: Last groups of alarms acknowledged

See: %MWn+30 to %MWn+90, Table of alarms.

These two words are written together by the terminal when the operator acknowledges:

- a single alarm,
- a group of alarms,
- all the active alarms.

C

2. Dialog table content

%MWn+10 : Number of the last alarm acknowledged, coded 1 to 1024.

%MWn+11 : Last group of alarms acknowledged with 1 bit per group of alarms (bit 0 = group 1 ...).

Bit 15		Bit 1	Bit 0
G16		G2	G1

The same alarm can be triggered by several bits which may belong to different PLCs equipment.(see [chapter D, § 7. Process control using function keys, Page 50](#) and [see chapter B, "Alarm table", Page 41](#)).

The terminal stores the origin of the alarm so that the data related to alarm acknowledgement by the operator can be sent to the proper PLCs. Depending on the type of acknowledgement, the terminal writes the following values at next cycle:

Acknowledgement of a single alarm: ENTER or icon ACK for **touchscreen terminals** :

%MWn+10: Number of the last alarm acknowledged = N°. from 1 to 1024.

%MWn+11: Last group of alarms acknowledged with 1 bit per group of alarms = H'FFFF'.

example: acknowledgement of alarm 5:

%MWn+10 = 5

%mWn+11 = H'FFFF'

Acknowledgement of a group of alarms: ACKALL :

%MWn+10: Number of the last alarm acknowledged = H'FFFF'. Only one group of alarms is selected in the list of alarms.

%MWn+11: Last group of alarms acknowledged with 1 bit per group of alarms = the bit corresponding to the group of alarms acknowledged it set to 0.

example: acknowledgement of group of alarms 2:

%MWn+10 = H'FFFF'

%mWn+11 = H'FFFD'

2. Dialog table content

NOTE All the active alarms of a group must be triggered by the same PLC to increase the performance levels.

Acknowledgement of all the active alarms: ACKALL :

All the groups of alarms are selected from the list of alarms.

%MWn+10: Number of the last alarm acknowledged = H'FFFF'. Only one group of alarms is selected in the list of alarms.

%MWn+11: Last group of alarms acknowledged with 1 bit per group of alarms = H'0000'

%MWn+12: Report

Bit 0: Confidential mode (Password selected A and/or B and/or C)

Bit 1: Reserved

Bit 2: ENTER on entry

Bit 3: ESC on entry

Bit 4: End of entry on TIME-OUT (1 min)

Bit 5: Printing in progress

Bit 6: Printing fault

Bit 7: Printing stopped

Bit 8: Recipe transfer in progress

Bit 9: Recipe transfer error

Bit 10: Terminal in stand-by

Bits 11 to 15: Reserved

%MWn+13: Log filling rate

See %MWn+22: clear history.

Alarm history filling rate on the terminal as a percentage, sent to the PLC.

%MWn+14: Graphs plottings performed

See word %MWn+19: Graph plotting activation.

%MWn+15: Application checksum

The word includes a check sum calculated on the dialog application and which characterises each application version.

2. Dialog table content

%MWn+16: Number of page to be processed

See also %MWn+8: Number of the displayed page.

The word %MWn+16 has two functions:

- pages display,
- special command.

Page display:

When the PLC wants to display a page, it indicates its number in word %MWn+16: Number of the page to be processed in compliance with the following:

- from 1 to 64999 for the application pages,
- one of the following values for the system pages:
 - in signed decimal: - 16 - N
 - in non signed decimal: 65520 - N
 - in hexadecimal: H'FFF0' - N

N : System page number founded in pages tree structure for XBT-L1000.

When the display command is executed:

- %MWn+16 = H'FFFF,
- %MWn+8: includes the number of the page displayed in compliance with the above mentioned rules.

WARNING

UNINTENTIONAL EQUIPMENT OPERATION

The PLC application must check the content of word %MWn+16 (value H"FFFF") to ensure that the command has been processed and check the number of the displayed page to ensure that the command has been correctly executed.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

2. Dialog table content

Characteristic : Stand by screen display control

This word allows the PLC to put on or off the stand by screen display mode:

- For the stand by screen display, the system page 520 must be called, 65000 in the word number of page to treat.
- To put off the stand by screen display, the system page 0 must be called, 65520 in the word number of page to treat. This action puts off the stand by screen display mode and display the last page on the screen before the stand by screen display.

Special command:

If we put the following values in the word %MWn+16, we obtain the result below:

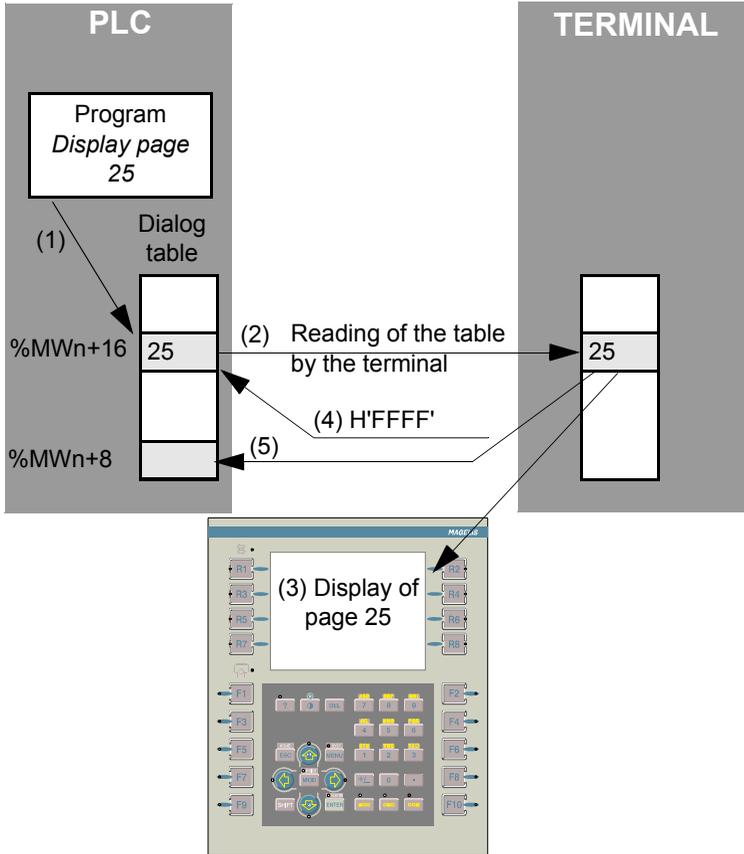
Value %MWn+16		Function
FDE8	65000	moving to stand by screen
FFF0	65520	exit from stand by screen
FFF1	65521	brightness max
FFF2	65522	brightness min

C

2. Dialog table content



Display of page 25 by the PLC



(1) The PLC writes in the dialog table the number of the page to display, 25.

(2) The terminal periodically reads the dialog table in the PLC and (3) displays the required page.

Once the command has been processed, (4) the terminal writes 'H'FFFF' in the word "Number of the page to be processed" and (5) the number of the displayed page in the word "Number of the displayed page".

2. Dialog table content

%MWn+17 : Number of field to be entered

See also %MWn+9 : Number of the last field entered, %MWn+12: Report. The entry fields are managed by means of 3 words which inform the application of the operator actions:

- %MWn+9 : Number of the last field entered
- %MWn +12 : Report
- %MWn +17 : Number of the field to be entered

MSB

LSB

field number in model page	field number in application page
----------------------------	----------------------------------

XBT-L1000 gives the number of field.

 WARNING
UNINTENTIONAL EQUIPMENT OPERATION
The PLC program must check that the page displayed is correct before requesting an entry.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

C

PLC request for entry

When the PLC requests an entry in a field, it indicates the number of the field in word %MWn+17: Number of the field to be entered.

The terminal indicates reception of the entry request by resetting the report bits 2, 3, 4 (%MWn+12).

If the entry field exists, the end of entry is indicated by %MWn+17 = Number of the field to be entered 'H'FFFF'.

- When the entry is confirmed by ENTER, %MWn+9 "Number of the last field entered" contains the number of the field entered.
- When the entry is cancelled by pressing ESC or due to a Time-Out, no modifications will be made.

The terminal sets one of the 3 status bits according to how the entry was ended (Time-Out, ESC, ENTER).

If the requested field cannot be entered: (unknown field, etc.), the end of the entry is given by 3 informations:

2. Dialog table content

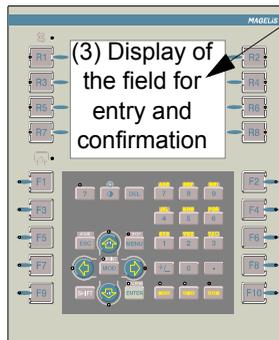
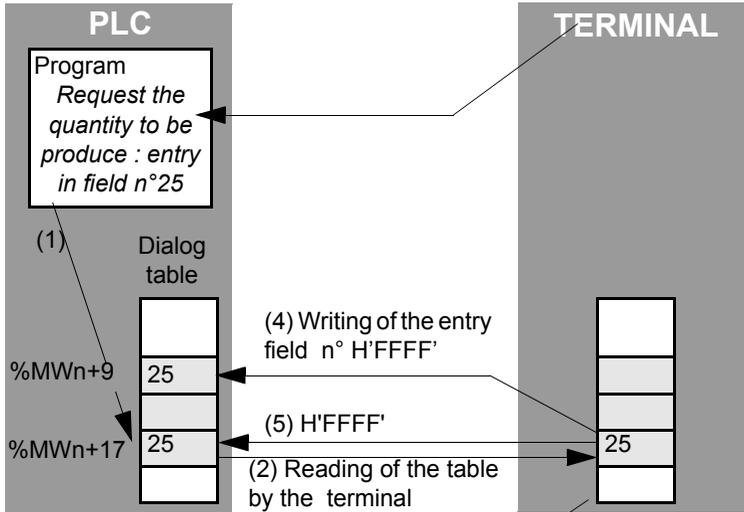
- %MWn+17: Number of the field to be entered = H'FFFF'.
- The 3 status bits (Time-Out, ESC, ENTER) remain at zero.
- The number of the last entry field is reset.

Operator request for entry

The status word and the number of the last entry field are updated in the case of an operator request.

Request by the PLC for a quantity to be produced. The value is entered in field number 25

Ex.



- (1) PLC writes in the dialog table, the number of the field to be entered.
- (2) The terminal periodically reads the dialog table in the PLC and (3) sets the required field to entry mode. Once the entry has been configured by the operator, the number of the field entered is sent to the PLC (4) and the words "Field to be entered" and "Report" are updated(5).

2. Dialog table content

%MWn+18 : Print command

15	8	7	0
Print code	Length of the print table		

The "print command" word is written by the PLC.

A code is associated with each type of possible printing (MSB).

- Free format printout: H'01xx' (xx = table length in hexadecimal),
- History printout: H'02xx',
- Form printout: H'04xx'.

For **form printout**, xx represents the number of the form to be printed.

Free format printing consists of sending on the initiative of the PLC, the data contained in the free format printing table, located at the end of the dialog table (%MWn+95 and following), in the least significant byte, the **length in bytes** of information to be printed (80 bytes maximum).

The word %MWn+18 "Print command" is written to H'FFFF' by the terminal to indicate the end of the print command (see bits 5, 6, 7, of %MWn+12 "Report").

%MWn+18: H'010A' printing of 10 bytes in the printing table .



%MWn+18: H'010A' printing of 10 bytes in the printing table .

2. Dialog table content

%MWn+19 : Activating graphs plotting

See also %MWn+14: Graph plotting performed.

The terminals can monitor the change of a control system data in real time (example: monitoring of an analog value). A curve has 1 to 4 pens with different colors.

The PLC can activate the recording of values and the 4 plottings of a graph simultaneously on a bit rising edge of word %MWn+19. The user can assign one of 16 bits of word %MWn+19 to a curve. He can thus activate 16 graphs (1 word = 16 bits). The bit of word %MWn+14 with the same order (graph plotting performed) is set to 1 when the graph is plotted (1 to 4 pens).

Word %MWn+14 (graph plotting performed) is used to inform the PLC of the result of the command (one graph = 1 word bit).

%MWn+20 : Table write authorization

This word serves as a security for the PLC/terminal dialog. When this word is not at the correct value, the terminal cannot write any words in the PLC and cannot execute any commands.

This is the case for adjustment pages as PLC variables can always be read and written.

Order of bit	15	8	7	0
	H' A5'		Dialog table lengh	

The value of this word is indicated (in Hexadecimal) in the dialog table configuration by XBT-L1000.

Example: For a table that is 20 words long, the PLC must write H'A514' in the authorization word.

A5 = authorization, 14 = number of words in the dialog table (in Hexadecimal).



For a table that is 20 words long, the PLC must write H'A514' in the authorization word.

A5 = authorization, 14 = number of words in the dialog table (in Hexadecimal).

2. Dialog table content

%MWn+21: Recipe transfer not allowed

See also %MWn+8: Number of the displayed page and %MWn+12: Report.

The transfer of configuration parameters from the terminal to the process is a critical operation which must only be performed when the PLC is ready to receive these parameters.

When word %MWn+21 "Recipe transfer not allowed" is set to 0 in the dialog table, the recipe transfer is enabled.

If it is set to 1, transfer is inhibited.

WARNING

UNINTENTIONAL EQUIPMENT OPERATION

A transfer in progress cannot be interrupted by a change in the status of word %MWn+21 "Recipe transfer not allowed".

Failure to follow this instruction can result in death, serious injury, or equipment damage.

During a transfer, the recipe page is displayed on the terminal screen. The PLC can thus identify the recipe being transferred using word %MWn+8.

Bits 8 "Recipe transfer in progress" and 9 "Recipe transfer error" of word %MWn+12 "Report" indicate to the PLC that the transfer is in progress. The PLC can then be synchronised on the end of transfer (bit 8 "Recipe transfer in progress" is set to 0) to restart the process with the new parameters.

Bit 9 "Recipe transfer error" of word %MWn+12 "Report" indicates an error during transfer.

%MWn+22: Clear log

See also %MWn+13: Log filling rate.

The PLC must write 'H'00FF' in word %MWn+22 to clear the log.

- The terminal clears the log and resets the log filling rate word %MWn+13.
- The PLC must then reset the clear log command %MWn+22.

2. Dialog table content

%MWn+23 : Static function keys LEDs lighting

	Bit 11		Bit 0
%MWn+23	F12		F1

%MWn+24 : Static function keys LEDs flashing.

	Bit 11		Bit 0
%MWn+24	F12		F1

%MWn+25 : Dynamic function keys LEDs lighting.

	Bit 9		Bit 0
%MWn+25	R10		R1

%MWn+26 : Dynamic function keys LEDs flashing.

	Bit 9		Bit 0
%MWn+26	R10		R1

If for the same key, the lighting and flashing bit are at 1, the indicator is flashing.

%MWn+27 : Static function keys locking

	Bit 11		Bit 0
%MWn+27	F12		F1

2. Dialog table content

%MWn+28 : System keys locking

%MWn+29 : Numeric keys locking

%MWn+28 : system keys	%MWn+29 : numeric keys
Bit 0 : Up arrow	Bit 0 : 0
Bit 1 : Down arrow	Bit 1 : 1
Bit 2 : Right arrow	Bit 2 : 2
Bit 3 : Left arrow	Bit 3 : 3
Bit 4 : MOD	Bit 4 : 4
Bit 5 : PRINT	Bit 5 : 5
Bit 6 : MENU	Bit 6 : 6
Bit 7 : SYST	Bit 7 : 7
Bit 8 : ALARM	Bit 8 : 8
Bit 9 : ESC	Bit 9 : 9
Bit 10 : HOME	Bit 10 : .
Bit 11 : +1	Bit 11 : +/-
Bit 12 : -1	Bit 12 : DEL
Bit 13 : ENTER	Bit 13 : ?
Bit 14 : Reserved	
Bit 15 : Total lock of tactile pad/ keyboard	

NOTE

If the PLC locks the arrow keys, the terminal automatically switches off the indicator lights on those keys to indicate they are no longer active. The dynamic function and alphanumeric keys cannot be locked.

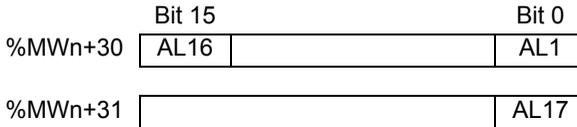
2. Dialog table content

%MWn+30 to %MWn+90 : Alarm table

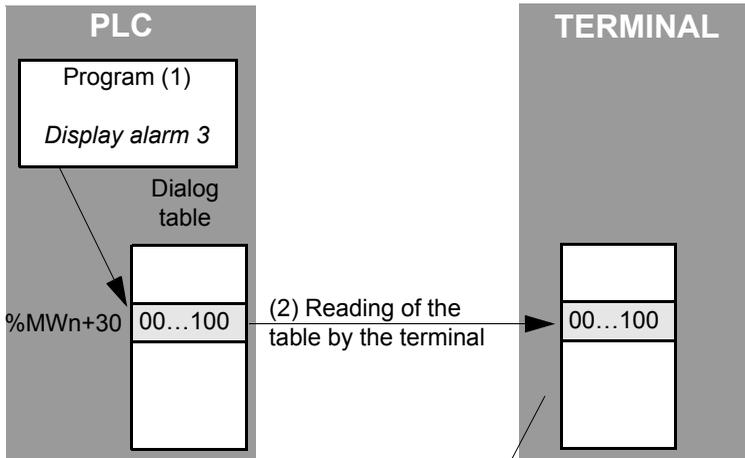
See also %MWn+10: number of the last alarm acknowledged (32 words maximum on XBT, 64 words maximum on TXBT).

%MWn+11: Last group of alarms acknowledged.

The display of alarm is commanded by the PLC by setting a word bit to 1.



Activation of alarm n° 3



(1) The PLC writes a 1 to bit 2 of %MWn+30 in the dialog table. (2) The terminal periodically reads the PLC's dialog table and (3) indicates the alarm in the alarm bar.

(3) Alarm (3) displayed on the alarm bar

See chapter B, "Alarm table", Page 41.

2. Dialog table content

%MWn+91 à %MWn+94 : Mise à l'heure du terminal

Order of bits	15	8	7	0
%MWn+91	Seconds		Day of the week	
%MWn+92	Hours		Minutes	
%MWn+93	Month		Day of the month	
%MWn+94	Century		Year	

Whenever one of these words is modified, the terminal is set to the date and time given in this table.

There are 2 possible coding formats: Hexadecimal or BCD (choice made using XBT-L1000).

Day of the week: Monday = 1 ... Sunday = 7.

%MWn+95 to %MWn+134 : Free format print table (40 words max)

See %MWn+18 : print command.

This table is used by the PLC to transfer a character string (80 maximum) to the equipment item (printer, etc.) connected to the terminal.

C

3. PLC/terminal communication dialog cycle

Processing by the terminal

Five types of transactions are carried out by the terminal, either intermittently or in a processing cycle:

Dialog table cycle

This comprises reading and writing by the terminal of the parameters selected from the dialog table, including the alarms table, at intervals specified in XBT-L1000.

Permanent variables refresh cycle

At intervals specified in XBT-L1000. (See [chapter B, "Graphical curve", Page 28.](#))

Displayed page variables refresh cycle

Single reading of variables when calling up a new page

Immediate writing of variable

when the function key is pressed or a value entered.

3. PLC/terminal communication dialog cycle

Optimization for communication

The following recommendations enable terminal/PLC communications to be optimized, thus improving operator dialog response times. They apply, regardless of the communication protocol used.

- make a careful allocation of the variables to single, cyclic or permanent reading, according to how they are used by the terminal,
- use contiguous addresses for the cyclic reading of variables on a page,
- use contiguous addresses for the single reading of variables on a page,
- do not overload the dialog table with words not needed by the application,
- adjust the dialog table period according to the traffic generated by the dialog application on the one hand and the other equipment items of the control system structure on the other hand.

NOTE **The operator actions are processed immediately, independent of the value of the dialog table period.**

A very short dialogue cycle can slow down :

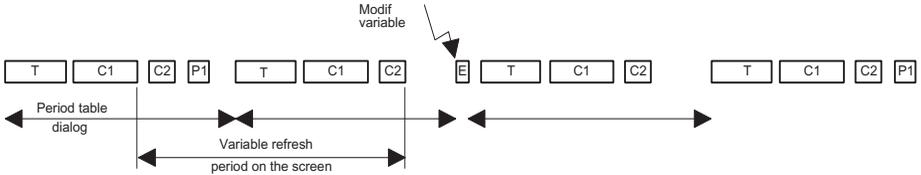
- variables refresh,
- new page display.

As a rule, only the words which are useful for the application should be selected to optimize communication.

C

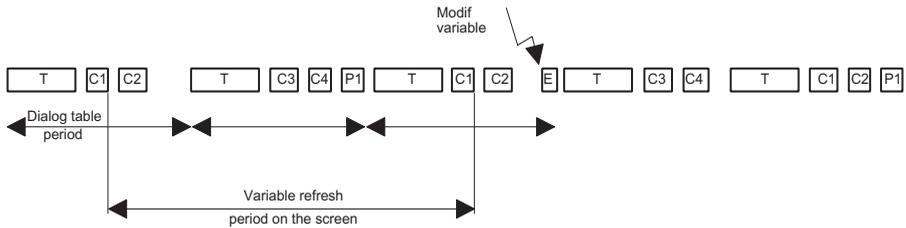
3. PLC/terminal communication dialog cycle

Optimized communication



Non-optimized communication

(Dialog table period too short, variables too widely scattered for page animation).



Keys :



dialog table read/write



cyclic reading of n consecutive variables for animating the displayed page



permanent reading of n consecutive variables for recording a curve



immediate writing of a variable

Chapter D

Operating the terminal

D



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1. Keys and indicator lights

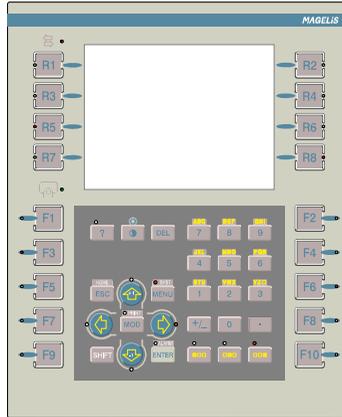
This section describes the function of the terminal's various keys. Each key function is described in the following paragraphs, and the corresponding keys are indicated.

NOTE

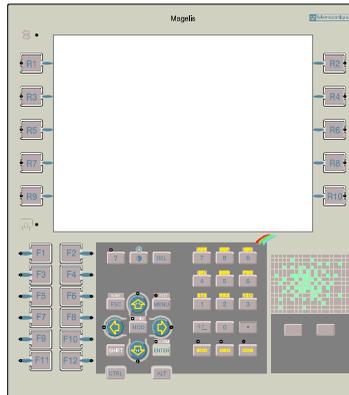
Some functions (example: SYST) can be accessed by simultaneously pressing SHIFT and the associated key (example: SHIFT + MENU => SYST)



XBT



TXBT



1. Keys and indicator lights

Touchscreen terminals

Touchscreen terminals do not have a keypad.

Regarding to the Touchscreen with touch keys, the keys run the same way as the touch zone. Those keys give a "mechanical feeling" that isn't felt on the tactile zone (manipulation with gloves).

For each key of terminals with keyboard an equivalent will be given for touchscreen terminals.



Pressing this touch zone called the **service touch** icon provides access to a context "keyboard". Depending on the presence of some functions, the "keyboard" may or may not display the corresponding "buttons".

Keys and indicator lights	Functions of the keys and indicator lights
	<p>ENTER: To confirm a choice or an entry, acknowledge an alarm. Press the ENTER touch icon on the touchscreen terminal to access this function.</p>
	<p>Acknowledge an alarm on touchscreen terminals.</p>
	<p>MOD: Switch to entry mode on all the applicable fields or graphic objects (not existing on touchscreen terminals).</p>
	<p>ESC: To cancel an entry, or suspend or stop an action in progress. To display the preceding pages successively. To exit from alarm display. Press the service and ESC touch icons to access this function on touchscreen terminals.</p>
	<p>SHIFT: To access a key's second function. No equivalent touch icon is available on touchscreen terminals.</p>
	<p>MENU: To access a menu that contains the run-time functions that cannot be accessed directly by means of a key:</p> <ul style="list-style-type: none">- application page selection,- the "secondary" run-time functions. <p>Press the service and MENU touch icon to access this function.</p>

1. Keys and indicator lights

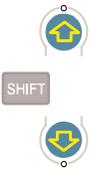
Keys and indicator lights	Functions of the keys and indicator lights
 	<p>HOME: To return to the page displayed when the terminal is switched on.</p> <p>Press the service and HOME touch icons to access this function on touchscreen terminals.</p>
 	<p>SYST: To access the system pages that contains the maintenance configuration functions.</p> <p>Status of the indicator lights associated with the SYST key:</p> <ul style="list-style-type: none">- Off: the terminal is in running mode.- On: the terminal is in confidential mode.- Flashing: PC <-> XBT transfer in progress or no application in the terminal. <p>Press the service and SYST touch icons to access this function on touchscreen terminals.</p>
  <p>For touchscreen terminal</p>  ALARM	<p>ALARM: To display the alarms</p> <p>Status of the indicator light associated with the key:</p> <ul style="list-style-type: none">- Off: the current list of alarms is empty.- On: the list contains alarms that have already been displayed.- Flashing: the list of alarms contains new alarms. <p>Press the service and ALARM touch icons to access this function on touchscreen terminals.</p>
 	<p>PRINT: Print command.</p> <p>Status of the indicator lights associated with each key:</p> <ul style="list-style-type: none">- Off: no printing possible- On: printing possible (list of alarms, etc.)- Flashing: printing error. <p>Press the service and PRINT touch icons to access this function on touchscreen terminals.</p>

1. Keys and indicator lights

Keys and indicator lights	Functions of the keys and indicator lights
 	<p>The left and right arrow keys are used to:</p> <ul style="list-style-type: none"> - To select an object in a page. - To move during an entry in an alphanumeric field. - To change the cursor position on a switch or a potentiometer. <p>Status of the indicator lights associated with each key:</p> <ul style="list-style-type: none"> - Off: key inactive. - On: indicates the possibility of moving around in a page from field to field. - Flashing: indicates the possibility of moving around in the selected alphanumeric variable field or of changing a cursor position.
 	<p>The up/down arrow keys are used to:</p> <ul style="list-style-type: none"> - To move around in a page. - To select a value in a list of values. - To change the cursor position of a switch or a potentiometer. <p>Status of the indicator lights associated with each key:</p> <ul style="list-style-type: none"> - Off: key inactive. - On: indicates the possibility of moving around in a page from field to field. - Flashing: indicates the possibility of moving around in the selected alphanumeric variable field, changing the cursor position or selecting a value in a list. <p>For touchscreen terminals, press the object icon to select an object in a page. If data entry or cursor moving is valid for the object, touch icons corresponding to the object context are displayed (for example: a numeric pad for entering a numerical value, increment/decrement arrows for a potentiometer, etc.).</p>
	<p>Communication indicator light</p> <ul style="list-style-type: none"> - On: no cable or incorrect wiring, - Off: cable correct, no exchange with the PLC, - Flashing: exchanges with the PLC.
	<p>Keypad indicator light</p> <ul style="list-style-type: none"> - Off: no keys pressed, on the keypad or on the touchscreen pad. - On, green: when pressing any key or a touch zone. - On, red: the terminal is in standby mode. Press any key or the touchscreen pad to exit this mode. Press any key or the tactile pad to exit this mode.

1. Keys and indicator lights

Keys and indicator lights	Functions of the keys and indicator lights
---------------------------	--



Entering data in the various fields

The up/down arrow keys combined with the SHIFT key are used to increment or decrement the value in a variable field if the "access" parameter of the object entered has been configured to immediate write (or immediate read/write). The value is entered in the control system each time the SHIFT + arrow up/down key is pressed.

Status of the indicator lights associated with each key:

- Off: key inactive.
- Flashing: indicates the possibility of modifying the value of each digit.



To delete the character to the left of the cursor

Alphanumeric entry keys



To reverse the sign of the variable field being entered

Decimal point

Combined with the alphanumeric keys, these keys give access to the capital character situated on the left, in the middle, on the right of the group of letters.

Combined with SHIFT and the alphanumeric keys, these keys give access to the small letter situated on the left, in the middle, on the right of the group of letters.

The indicator lights indicate if letter entry is possible.



1. Keys and indicator lights

Keys and indicator lights	Functions of the keys and indicator lights
---------------------------	--



Contrast and brightness adjustment

Contrast adjustment: press and hold the adjustment key and make the adjustment by means of the up and down arrow keys.

NOTE : The contrast cannot be adjusted on the XBT-F10" color and TXBT 10" color terminals.

Brightness adjustment: press and hold the SHIFT key and the adjustment key, and make the adjustment by means of the up and down arrow keys.

For **touchscreen terminals**, adjustment are only available via the "Terminal parameters" system page.



Static keys (see chapter A, § 7. Managing the control system, Page 32.)



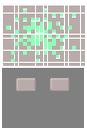
Dynamic keys (see chapter A, § 7. Managing the control system, Page 32.)

Extra keys for TXBT

Access to Windows 95 functions

A PC keyboard equipped as standard for Windows 95 comprises two additional keys; the START and MENU keys. To access the same functions on the TXBT, use the following equivalents:

- **Start** key: Obtained by pressing Ctrl+Esc on the TXBT, used to start up an application.
- **Menu** key: Obtained by clicking the mouse right-hand button on the TXBT, used to access the most common functions associated with an icon.



"Mouse" function with touchscreen pad and right/left click buttons
Used to select a field or an item in a list (for example: list of pages).
Cannot be used to modify a graphic variable field. Gives access to the Windows 95 functions.

1. Keys and indicator lights

External keyboard

An external keyboard can be connected to the DIN 8-pin connector.

The 2 keyboards remain active.

The front of the 2 terminals have QWERTY keyboards. Any external keyboard should also be a QWERTY keyboard.

TXBT and external keyboard equivalents

TXBT keyboard keys	External keyboard keys
Rx	Fx
Fx	ALT + CTRL + Fx
?	
DEL	DEL
HOME	HOME,
ESC	ESC
+1	SHIFT + arrow up
SYST	SYST
MENU	PageDown
PRINT	ALT + PrtScrn
MOD	INSER
SHIFT	SHIFT
-1	SHIFT + arrow down
ALARM	SHIFT + ENTER or END
ENTER	ENTER
CTRL	CTRL
ALT	ALT

D

2. Operating Principle

Basic Principle

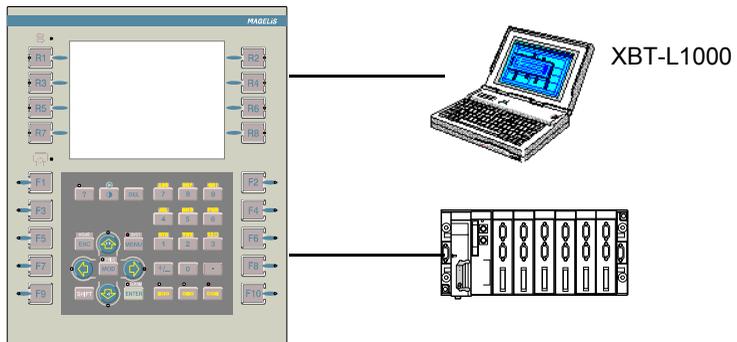
The terminals have 3 operating modes:

Application transfer

This mode enables transfers between the XBT-L1000 and the terminal.
(XBT-L1000 <-> XBT transfer: application and protocol).

Case of XBTs: local transfer XBT-L1000 <-> XBT

Case of TXBTs: local transfer XBT-L1000 <-> TXBT or remote transfer via the PLC network (**Unitelway, Fipway or ISAway**).



! WARNING

UNINTENTIONAL EQUIPMENT OPERATION

Connect the serial link and printer link to the XBT with the power OFF.

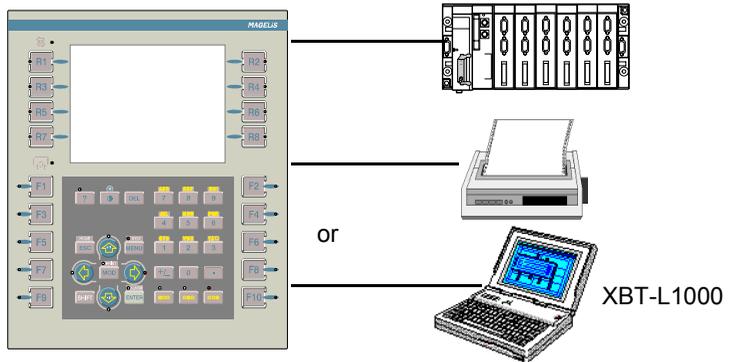
Failure to follow this instruction can result in death, serious injury, or equipment damage.

2. Operating Principle

Operating mode

This mode is used for on-line control of the control system:

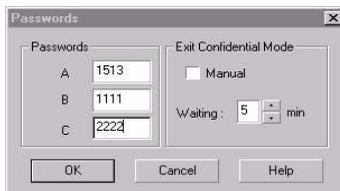
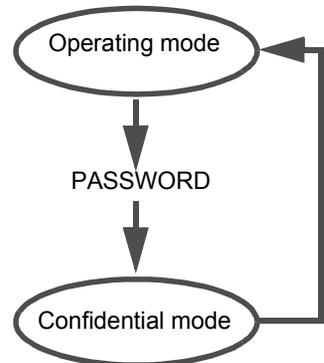
- PLC control
- Displaying information, variables, alarms
- Entering values
- Discrete command
- Print, log consultation functions, etc.



Confidential mode

Besides providing access to the running mode functions, this allows you to access advanced functions requiring a password:

- Access to pages that are protected in run-time mode
- Access to system pages

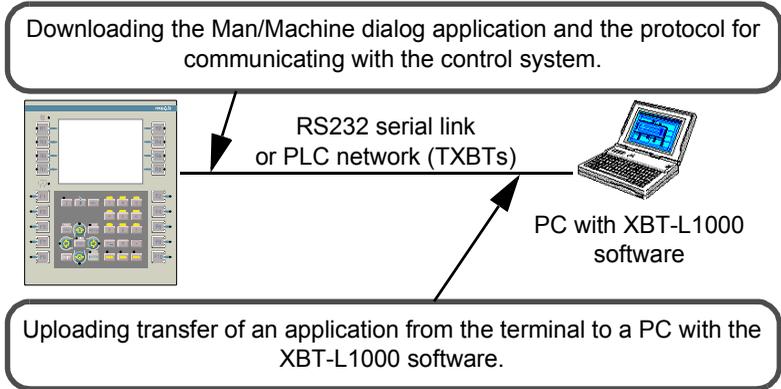


In the "PASSWORD (advanced)" system pages it is possible to configure the automatic exit after a limited writing time (1 to 60 minutes). see ["Confidential mode, password management"](#), Page 18.

2. Operating Principle

Application transfer

In this mode, 2 types of transfers are possible:



SYST indicator light: the SYST indicator light flashes during the transfer.

XBT-L1000/Terminal transfer procedure

See [chapter B, § 11. Transferring the application and the protocol to the terminal, Page 62.](#)

Wiring: Refer to the terminal instructions for the XBT, or to the TXBT Magelis Product Line Reference Manual. See [chapter B, § 12. Transferring the application and the protocol to a PCMCIA card, Page 64.](#)

2. Operating Principle

Operating mode

Operating mode is used for on-line control of the control system:

- Page display
- Entry/Modification of the process's parameter values
- Process control (discrete)
- Print
- Printing of form pages,
- Consulting and acknowledging alarms
- Consulting the alarm log
- Accessing the terminal configuration (printer link, time-stamp link, link with the control system, languages)
- Accessing the terminal's self-diagnostic functions (keypad, display unit, etc.) (TXBT only).

WARNING

UNINTENTIONAL EQUIPMENT OPERATION

Pressing the MENU key allows the inexperienced and untrained operator to accidentally display the wrong page, modify the terminal configuration, or lose the messages and alarms on the screen. This can lead to confusion, panic, and, as a consequence, loss of control over the machine. It is strongly recommended that the PLC be programmed to lock the MENU key as well as the other currently unused keys in order to prevent this from happening.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

Operating configuration

NOTE

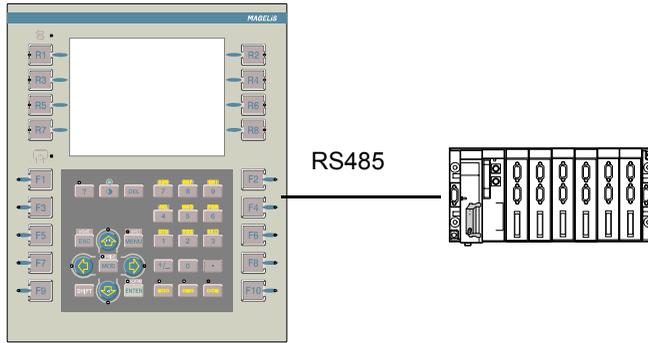
Wiring : see service instruction for the terminal and communication protocol in use.

2. Operating Principle

Ex.

Running with a PLC's RS 485 type console connector

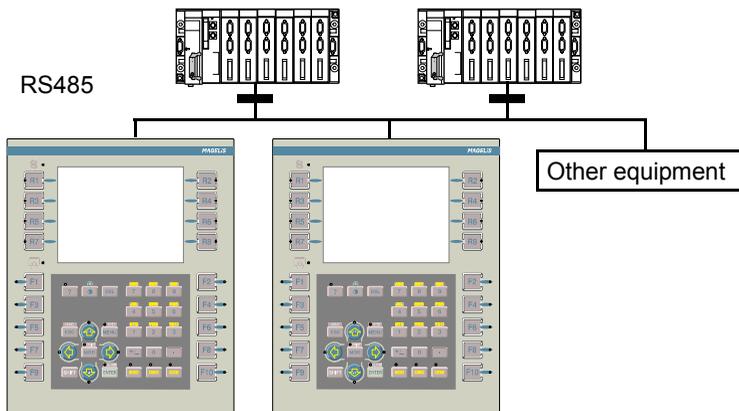
- Terminals with UNITELWAY protocol
- PLC: TELEMECANIQUE PLC with an RS485 type console connector interface (type TSX07, TSX37, TSX57 ...)
- Type of link: RS485 single-point
- Protocol: UNITELWAY.



Ex.

Running on a PLC communication network

- PLC: PLC supporting the terminal's communication protocol,
- Type of multipoint link:
 - RS422, RS485,
 - PCMCIA card (FIPIO, FIPWAY, MODBUS PLUS protocol,...)
- Protocol: multipoint protocol (UNITELWAY, FIPWAY,...)

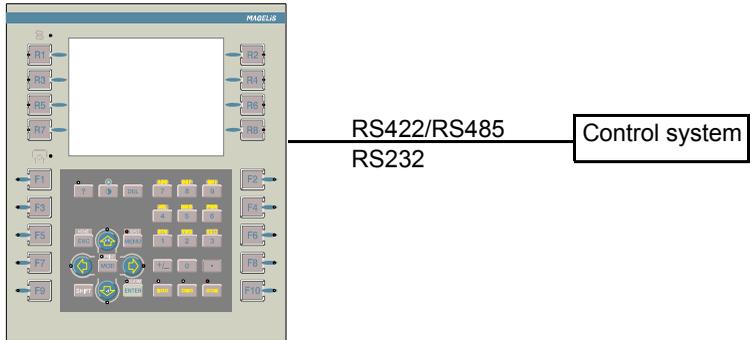


2. Operating Principle

Ex.

Running with direct point-to-point link to the control system

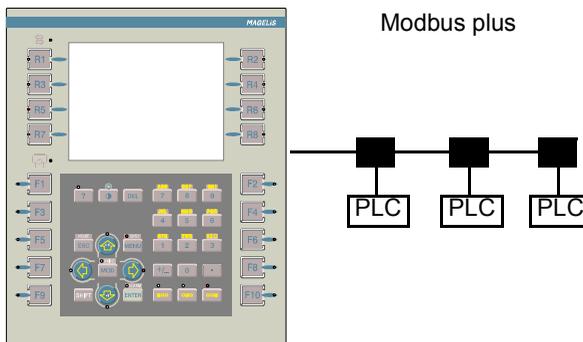
- The control system designates a system other than the PLC.
- Type of multipoint link:
 - RS422 or RS485, RS232
 - PCMCIA card (FIPIO, FIPWAY, MODBUS PLUS protocol,...
- Protocol: depending on the control system.



Ex.

Running on a PLC using Modbus Plus:

- PLC: Any PLC supporting Modbus Plus
- Type of Link: Modbus Plus
- Protocol: Modbus Plus



D

2. Operating Principle

Confidential mode, password management

To restrict reading and writing of certain data to only those authorized, you can protect access to pages or fields by means of passwords.

 WARNING
UNINTENTIONAL EQUIPMENT OPERATION
The XBT should only be installed and used by the authorized personnel that have been assigned the appropriate confidential mode PASSWORDS by the project manager.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

If the right passwords are not entered, this protection system will then:

- Prevent access to application or system pages. The protected pages are no longer accessible from a static or dynamic function key (the associated labels no longer appear on the terminal screen) and they do not appear in the list of pages.
- Inhibit writing in dynamic variable fields: alphanumeric variable field, linear/rotary potentiometer, linear/rotary switch, image box. The protected fields are displayed as if they were configured in read only mode. The labels associated with the dynamic function keys and enabling access to these fields are no longer displayed on the terminal screen.

NOTE **When an entire page is protected, password protection for individual field of that page is disabled.**

There are three different passwords: A, B and C

The value of these passwords is defined in XBT-L1000, Configuration/Terminal parameters. When the Configure Terminal parameters window appears, select the Password button to show the Passwords dialog box. Each password is a string of 4 alphanumeric characters (default value 1111).

[See chapter B, § 8. Configuring the terminal parameters, Page 56.](#)

2. Operating Principle

Exit from the confidential mode can be either manual or automatic:

- manual: the operator explicitly requests an exit from the confidential mode,
- automatic: a timer which can be programmed to a value between 1 and 60 minutes is used by the terminal to automatically exit the confidential mode.

Configuration of the parameters for automatic exit of the confidential mode can be performed via the terminal system page "Passwords/advanced properties" or for XBT-L1000, menu configuration/parametres terminal/PASSWORDS.

When exporting an application to a terminal, the properties are set to the following values: automatic exit from confidential mode: NO.

NOTE

**To ensure that your passwords remain confidential, there is no way of consulting the value from the Magelis terminal.
The only way of finding out the value of a lost or forgotten password is to consult the application using XBT-L1000.**

Operating principle

A page or field can be protected by password A and/or B and/or C. Depending on whether the user has filled out passwords A, B or C on the terminal, he will be able to access the corresponding pages and fields.

Examples :

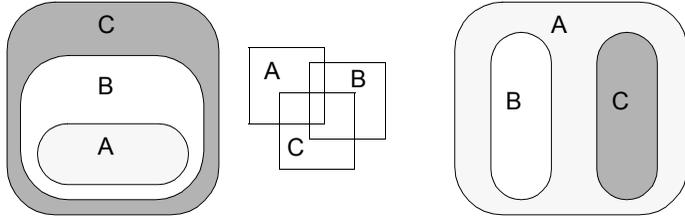


Page or field number	Protection defined in XBT-L1000
1	none
2	A
3	B
4	A, B
5	A, C
6	A, B, C

- If only A has been entered, the user will be able to access pages or fields 1, 2, 4, 5 and 6.
- If only B has been entered, the user will be able to access pages or fields 1, 3, 4, and 6.
- If C has been entered, the user will be able to access pages or fields 1, 5, and 6.

2. Operating Principle

This operating principle enables protection perimeters to be defined completely free.

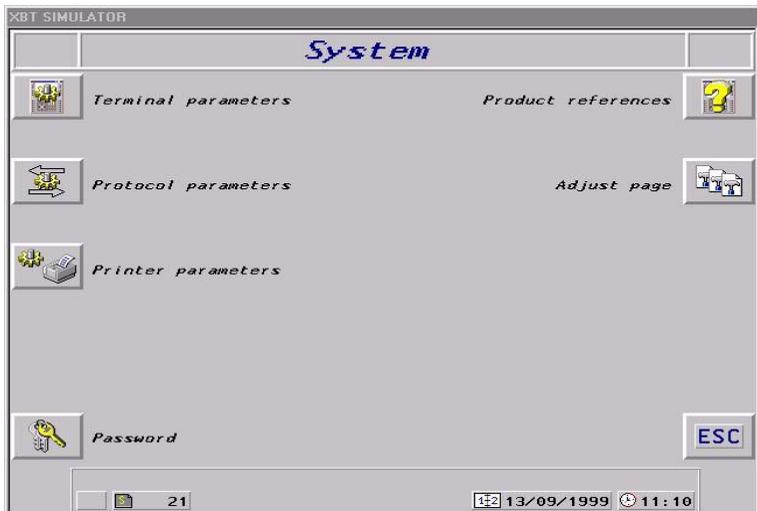


The status line informs the user of the passwords entered. (see [chapter A, § 3. Application pages, Page 20](#)).

Password entry



Press the **MENU** or **SYST** key to display the system page on terminals with keyboard and press the status touch zone then **MENU** or **SYST** for touchscreen terminals.



2. Operating Principle

Press the dynamic key (or the touch zone) associated with the Password icon, to display the Password system page.



Press the dynamic key associated with the Password icon or press the corresponding touch zone on touchscreen terminals.



Enter the password using the alphanumeric keys and then confirm with ENTER.

The password level appears in the lower strip.

The SYST indicator light comes on.

For the terminal with the 5" tactile keys, the password must be a numeric type.

Disabling the password manually

- Go to the password system page.
- Press the dynamic key corresponding to locking/unlocking of protection mode (barred key).

The SYST indicator light goes out.

NOTE

Manual disabling of password is available even if automatic exit from confidential mode has been configured.

3. Page display

Display at power up

For the XBTs

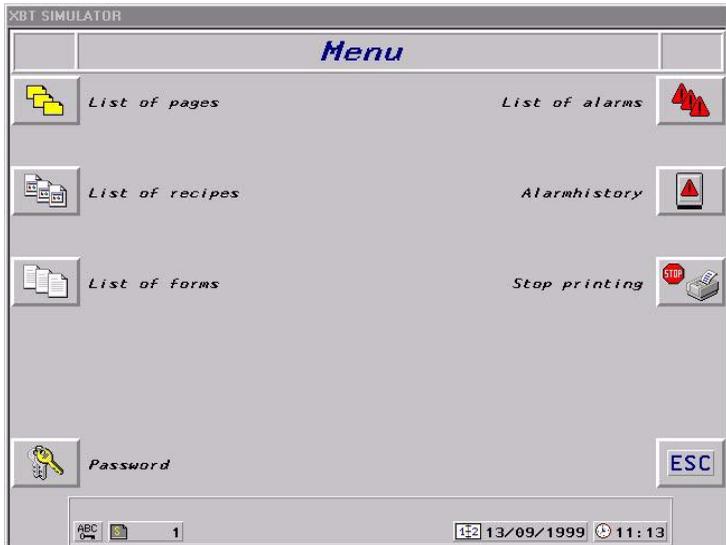
When the terminal is switched on, it automatically displays the following information:

- Reference and version of the embedded software,
- Reference of the software downloaded by XBT-L1000.

Then, depending on the configuration chosen when the application was created with XBT-L1000, the terminal will display either:

- an application page that can be selected with XBT-L1000 (see below),
- the MENU page.

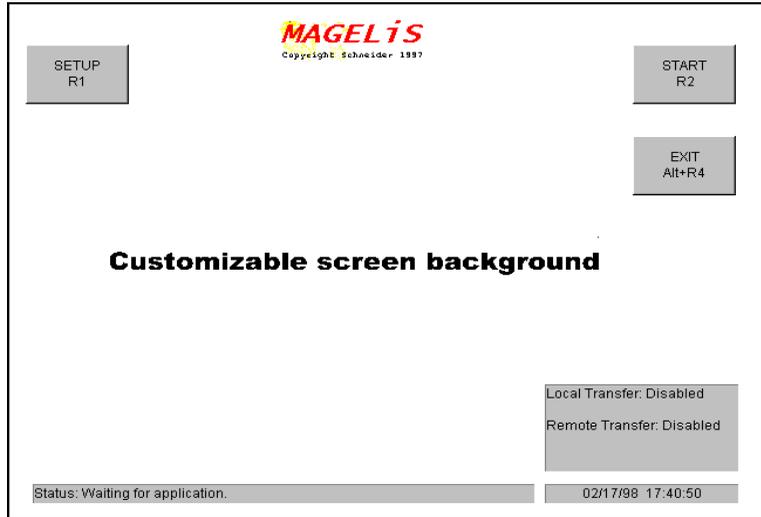
This page, displayed at power up, will then be accessible using the HOME key.



3. Page display

For the TXBTs

When the terminal is switched on, the home screen appears if the terminal contains no Magelis graphic application.



- Home screen background

The screen background can be replaced by simply replacing the TXBT.BMP file in the\TXBT\TOOLS directory. The file definition must be 640x480, 256 colors).

The functions possible from the home screen are started using dynamic keys.

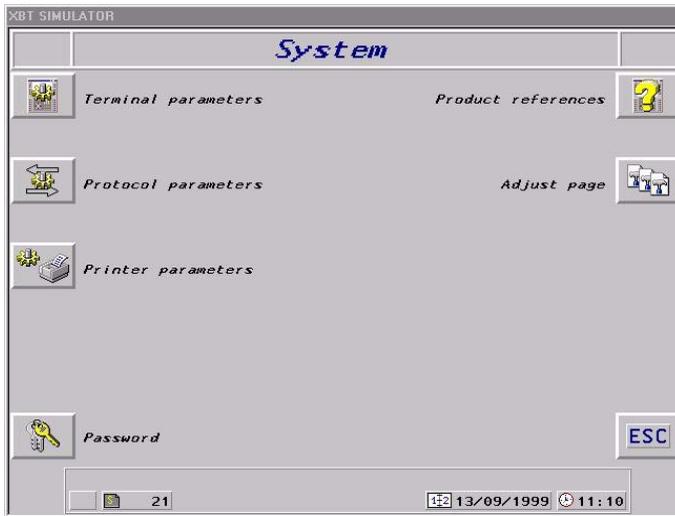
- Running the Magelis graphic R2 application

The Magelis graphic application is run with key R2.

Depending on the configuration chosen when creating the application with XBT-L1000, the terminal displays either:

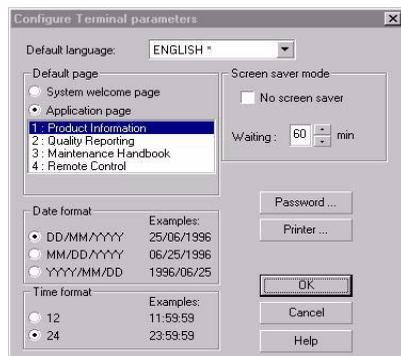
- An application page, or
- A home system page.

3. Page display



- Access to Windows 95, running an application
The CTRL+ESC keys are used to start an application.
- Closing the home screen
The home screen cannot be iconized and keys ALT+R4 are used to close it.
- Setup
The home screen specifies the type of transfer, which can be configured: see TXBT Manual.

Selection of the default page to be displayed with XBT-L1000
To select the default page, [See chapter B, § 8. Configuring the terminal parameters, Page 56.](#)

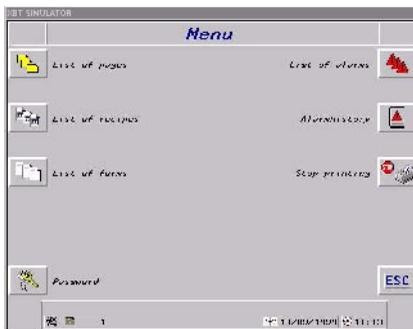


3. Page display

Displaying a page using the directory of pages

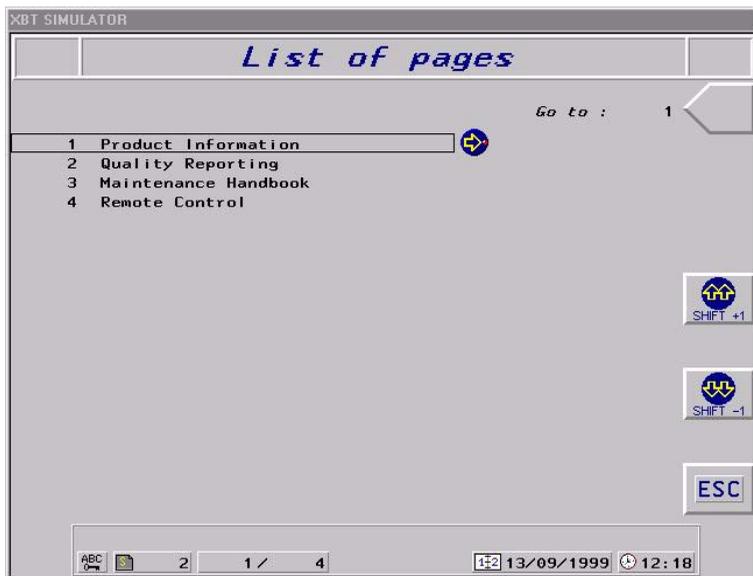


Display the Menu system page using the **MENU** key or the status touch zone then the **MENU** zone on touchscreen terminals.



Press the dynamic key (or touch zone) associated with the **List of pages** icon.

Select the required page with the up and down arrow keys.



Confirm access to the page with the right arrow key.

3. Page display

Displaying a page using its number

Go to the list of pages (see "Displaying a page using the directory of pages", Page 25).

Press the dynamic key associated with the **Page number** text or select the touch icon on touchscreen terminals.

or

Display the list of pages by pressing the **MENU** key.

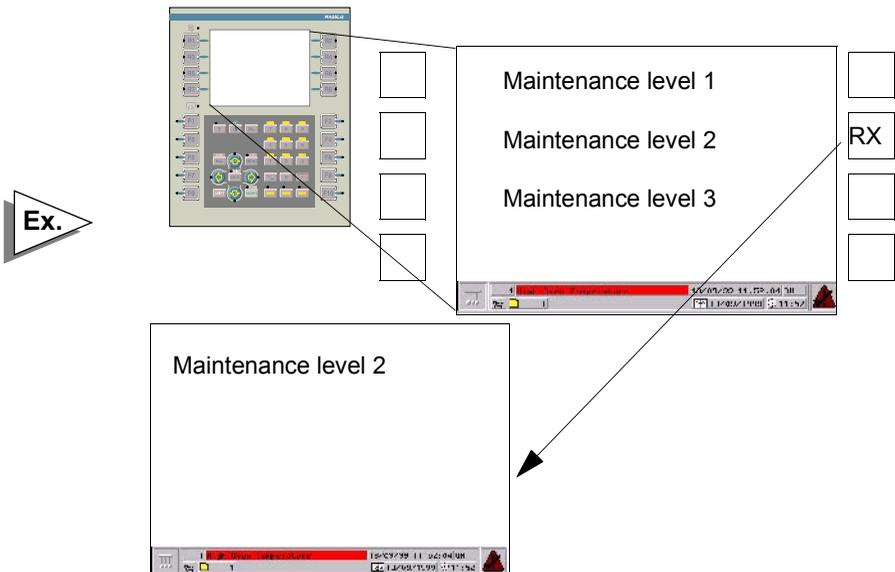


Go to the page number entry field by pressing the **MOD** key.

Enter the page n° and press **ENTER** to confirm.

Displaying a page by means of a dynamic function key, tactile zone or tactile key

The dynamic function keys (Rx) are associated with a page and can be configured to make the terminal change from one page to another. The function key is configured using the XBT-L1000 software and allows a page to be displayed directly.

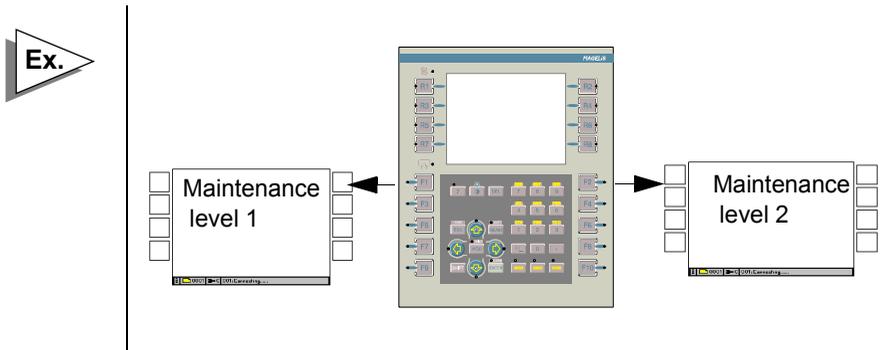


On touchscreen terminals, a page can be selected by directly pressing on a touch zone associated with this page. On terminals with tactile keys, a page can be selected by directly pressing a tactile key.

3. Page display

Displaying a page by means of a static function key

A static function key (Fx) remains the same for all the application pages. The function key is configured using the XBT-L1000 software and allows a page to be displayed directly.



D

3. Page display

Displaying a page using a word from the PLC

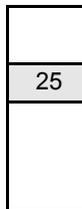
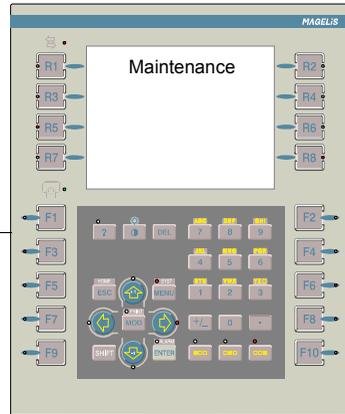
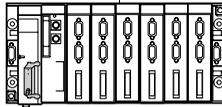
It is possible to display a page using a word in the PLC. A PLC word must be allocated in the dialog table. In this table, a word is reserved in which the program writes the number of the page to be displayed. [see chapter C, § 2. Dialog table content, Page 9](#) , for the word coding procedure.

Example:

*Display of the Maintenance page (application page No. 25) by the PLC
The terminal periodically reads the dialog table in the PLC and displays the desired page; no program has to be written in the PLC to manage communications.*



Program
If input %100 is at 1, display
maintenance page (page No.
25)



"Page number to be processed" word

Dialog table

3. Page display

Displaying a system page by writing a public variable

A public variable is an XBT internal variable, available from the variable definition window :

- XBT equipement,
- Symbols list : theme, access system page,...

It is possible to display a system page when writing in the public variable "Access system page" the system page number desired.

A dynamic function key configured in value writing can be used to display the system page desired by configuring its characteristics:

- Action : writing value
- On variable : XBT:5064-system page acces
- Value : Constant=Number of page to be displayed
- Label : the desired bitmap

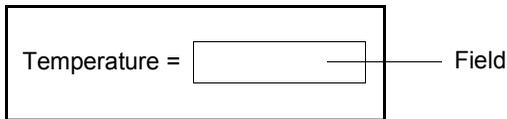
4. Variable fields

See chapter D, § 12. Variables adjustment on the TXBT, Page 68.

Variable fields are zones enabling:

- the display of values reflecting the control system status: status of a word bit, single or double word, floating word, character string, or,
- the entry of parameters allowing the control system to be controlled: modification of word bits, single, double or floating words, character string.

The display format may be binary, decimal, hexadecimal, numbered list, or an ASCII character string.



When creating the application with XBT-L1000, controller variables are associated with the variable fields and the dynamic graphic objects.

For the XBT-Fs

Whatever the protocol, the accessible variables are single words, double words, floating words, and word bits. For the MODBUS, MODBUS PLUS and TCP/IP MODBUS protocols, other types of variables are also available, see the protocols service instruction.

For the TXBTs

In the case of XWAY protocols, the accessible variables are:

- internal word,
- constant word,
- internal word bit,
- double internal word,
- internal bit,
- single words, double words, floating words, word bits,
- local and remote input/output bit,
- system bit,
- step bit,
- step macro bit,
- step macro input step bit,
- step macro output step bit.

4. Variable fields

In the case of a protocol other than XWAY, the accessible variables are single words, double words, floating words, and word bits.

The XBT-L1000 software makes it possible to define different field properties. (See chapter B, "Variable field characteristic", Page 30.)

Accessing a field

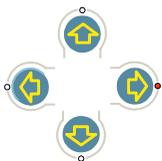
Accessing the various fields in a page



The **MOD** key allows you to select:

- The first field on the page
- or
- The last field entered (the last field whose entry was confirmed by ENTER).

The selected field is framed with a dotted box and the cursor is displayed in the variable field.



The arrow keys allow you to move from field to field.

When you are positioned in the desired field, press the **MOD** key to enable the input mode.

On touchscreen terminals, press the touch icon of the selected field for accessing the fields directly.

For the terminals with tactile keys, press the tactile keys for accessing the fields directly.

NOTE

When configuring touch zones with XBT-L1000, the objects must be aligned on the XBT-L1000 default grid, otherwise the operator may be unable to select certain objects. If nothing has been entered after one (1) minute, the input mode is cancelled.

The order in which the page fields go to entry mode depends on the object alignment under XBT-L1000.

4. Variable fields

Accessing a field by means of dynamic function keys, tactile zone or tactile keys

It is possible to select a field on a page by configuring a dynamic function key (Rx) associated with the page to select the field.

The same application procedure has access to an application page using the Rx key, with the action parameter : access to field.

Access to a field using the TXBT mouse

A field can be selected using the TXBT mouse by positioning the pointer on the field and clicking.

Request for entry on the initiative of the PLC

The PLC can request an entry in a page variable field (example: request for a set point).

The word “Field number to be entered” is reserved in the dialog table. The program writes the number of the field to be entered in this word. This number is provided by XBT-L1000, Display/Field number menu.

[See chapter C, § %MWn+21: Recipe transfer not allowed, Page 25](#), for coding of this word.

NOTE

Each field is automatically numbered by XBT-L1000. Numbering starts by number 1 for each page. The PLC program must thus check that the number of the page displayed is correct before requesting a field entry.

4. Variable fields

Field entry



Entering numeric fields

Use the 0 to 9, A to Z and +/- (+/- select, + by default) keys to enter alphanumeric values.

Use the ENTER key to confirm the input value within the fields and send the results to the PLC.

Use the horizontal arrow keys to move from one digit to another within the field.

Deleting characters

The **DEL** key deletes the character to the left of the fixed digit.

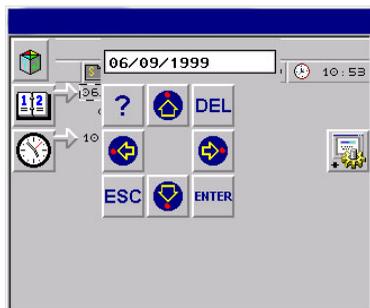
Canceling the entry

You can cancel the entry in progress by pressing **ESC**; no modification is made to the field.

Terminals with the 5" tactile keys characteristics

The alphanumeric fields entry is performed in accordance with the coder wheel (limitation of the space for the keyboard display). Entry is done this way :

-   - Choice of the digit under modification,
-   - Selection of the value for the digit,
-  - Validation of the modified digits set.



4. Variable fields

Entering graphic fields

Once positioned on the object required, press the **MOD** key to switch to entry mode or press the touch zone of the object.

Use the up, down, right and left arrows (LEDs flashing) to modify the value of a field.

Press the **ENTER** key to validate field entry.

Field Characteristics

Protecting fields

To configure password access to a variable field, [see chapter B, § 8. Configuring the terminal parameters, Page 56](#). To know how the terminal manages password access, [see "Confidential mode, password management", Page 18](#).

Thresholds

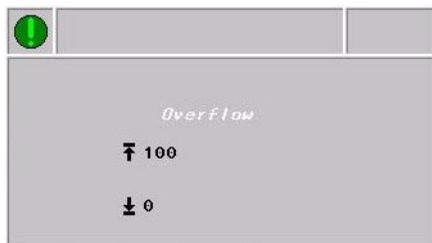
Four thresholds can be set for a variable field: Min (minimum), L (low), H (high), and Max (maximum).

The value of these thresholds can be:

- constant,
- variable: the value is read when the page is displayed (read-only).

Min and Max are the absolute display limits for the variable, L and H are its intermediate thresholds (pre-alarm, etc.).

If the operator enters a value which is $>Max$ or $<Min$, it is not sent to the controller and a warning message appears.



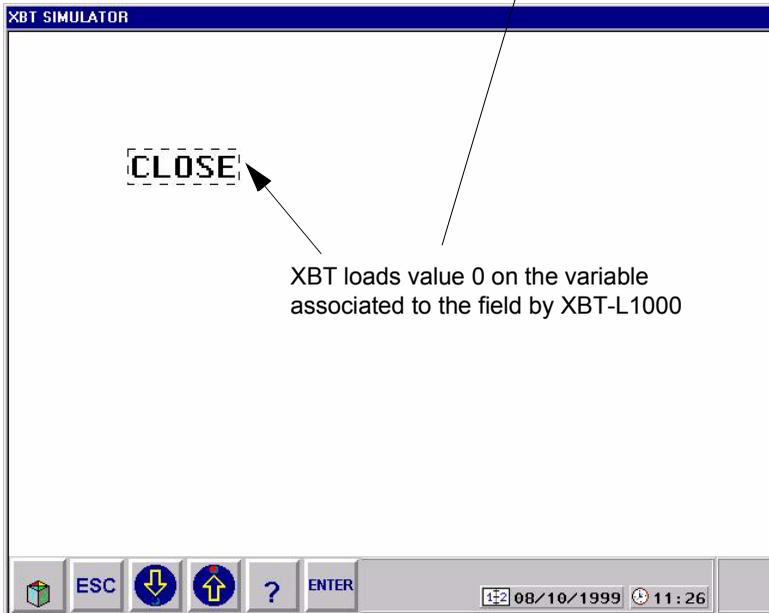
4. Variable fields

Variable display rules

- A value that cannot be displayed is represented by # characters (overflow value).
- A value not filled out by the PLC is represented by ? characters.
- A write-only variable is represented by * characters.

Numbered list

The XBT-L1000 software allows a string of text to be assigned to each value of the variable associated with the field.



XBT loads value 0 on the variable associated to the field by XBT-L1000

Keys to select strings programmed using XBT-L1000

D

4. Variable fields

NOTE The texts list, in the configured languages, can be imported from or exported to EXCEL format (filename .XLS).
[See chapter B, § 7. Import/Export, Page 54.](#)



A field (%MW10) that accepts two values with two associated strings of text (0: CLOSE 1: OPEN).

If you select OPEN using the arrow keys, and confirm by pressing ENTER, the %MW10 word will take the value 1 in the PLC.

Inversely, if the PLC writes the value 1 on %MW10 the OPEN text will be displayed.

If the word %MW10 value is neither 0 nor 1, not any text will be displayed. The field became invisible.

Data types

Word bits, single words, double words, floating point words, character strings.

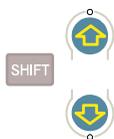
Alphanumeric display format

Binary, integer, decimal (five digits maximum after the decimal point), hexadecimal, ASCII, text numbered list.

4. Variable fields

Immediate write

Immediate write in a field consists in incrementing or decrementing the field value. It is performed by pressing the shift + "up arrow" key or shift + "down arrow" key on terminals with keyboard or by pressing the touch zones +1 and -1 on touchscreen terminals. If in XBT-L1000, the access has been correctly configured in "immediate writing" or "immediate reading/writing", the value is transmitted to the PLC each time the key is pressed and without the need to press **ENTER** key or **ENTER** tactile zone on the terminal.



NOTE

Entry by coder wheel (XBT-FC terminals) :
the immediate entry is accessible by a previous press on the **SHIFT** touch zone.

D



To configure the variables with XBT-L1000, [see chapter B, "Variable field characteristic", Page 30.](#)

This entry mode is used by the operator to modify a field value in a continuous manner in order to:

- prevent sudden skipping from one value to another,
- view the result of an action "in real time" (adjustment, positioning, etc.).

5. Alarms

Principle

Alarms are triggered and then displayed when a word bit in the PLC(s) is ON. Several alarms may be active simultaneously, and are stored by the terminal in the alarm list.

 WARNING
UNINTENTIONAL EQUIPMENT OPERATION
The XBT does not support any type of processor nor machine control in association with alarms. It is the designer's responsibility to consider programming PLC logic to account for programmed alarms.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

Example : display on an XBT-F terminal



For the detailed description of the alarm list, see ["Description of the alarm list"](#), Page 46.

Alarm indicating

"Alarm" indicator light.



●
ALARM on
Touchscreen
terminals

The "Alarm" indicator light keeps the operator constantly informed of the alarm list status:

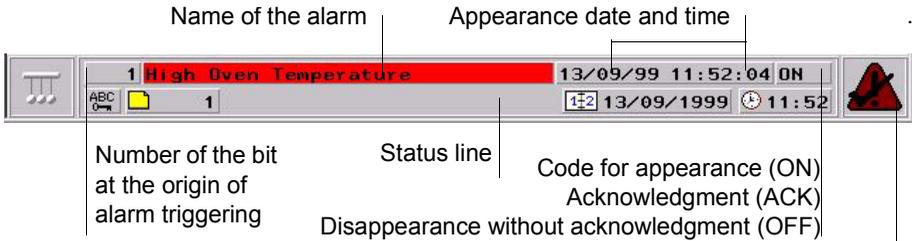
- Off: the current list of alarms is empty,
- On: the list contains alarms that have already been displayed,
- Flashing: the list of alarms contains new alarms.



On the application pages

The designer can place an alarm bar, corresponding to the last alarm that has occurred, in the alarm pages. This bar is updated whenever a new alarm occurs, whatever its type (with or without a required acknowledgement) and priority. If several alarms occur simultaneously, the highest priority alarm is displayed; if there are no alarms, the bar remains displayed but is empty.

5. Alarms



Absent: no alarm
Steady yellow: alarm acknowledged (ACK) - Alarm at state ON
Steady green: alarm at state OFF (must be acknowledged if the characteristic of the alarm is to be acknowledged)
Flashing red: alarm at state ON



Direct display of the alarm indicated in the strip (without displaying the alarm list) is performed by pressing the keys shown opposite. On touchscreen terminals, press directly the alarm strip.

- On-line printing:
[see "Continuous printing of an alarm page", Page 59.](#)
- Alarm bit:
[see chapter B, "Application/Alarm/Help/Recipe pages", Page 38.](#)
- Alarm relay:
[see "Alarm relay command", Page 45.](#)

Alarm page parameters

Alarm pages have various parameters:

- A 32-character maximum message. This message will be displayed in the alarm strip, the alarm list and the history and will be printed,
- Text, variable fields, static graphic objects used to indicate the fault and the relevant corrective actions.



Conveyor fault
Turn power off
Remove jammed part
Restart

NOTE

The alarm page can remain empty on request of the designer. The management of alarms is then provided by messages only.

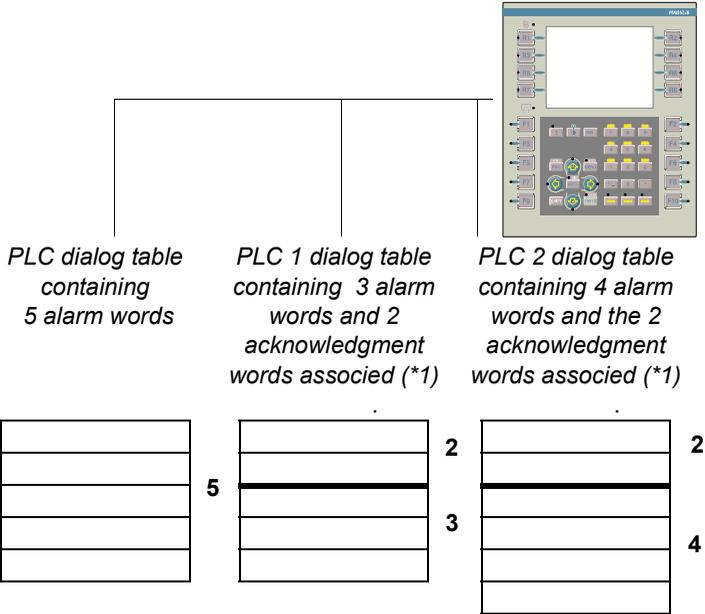
- a priority,
- a request for acknowledgement,
- an alarm relay command,
- an assignment to a group of alarms,
- a type of action on alarm appearance (display, printing, storage).

5. Alarms

Alarm table

- A word bit is associated with each separate alarm. All these words make up the alarm table which is part of the dialog table.
- A terminal can process the alarms from several PLCs.
- The alarm table can be distributed between several of the automated process's PLCs.

For each PLC, the alarm bits are distributed in packets of 16 alarms, i.e., "n" words of 16 bits per PLC.
The terminal can accept up to 32 words depending on the type of terminal.



* 1 : words "N° last acknowledged alarm" and "last acknowledged alarm group" (see chapter C, § 2. Dialog table content, Page 9).

Any given alarm may be triggered by several different bits that may belong to different PLCs.

see "Alarm table", Page 41

5. Alarms

Alarm group

Alarm groups can be configured in order to group together alarm pages in modules.

An alarm group is a set of alarms identified by **different color attributes per group** for the appearance (ON), disappearance (OFF) and acknowledgment (ACK) statuses. There are 16 groups.

Each group is identified by an 8-character name modifiable allowing quick identification by the operator of a part of the machine or of the installation.



Group 1 : cracker1

colors defined :

- *appearance : flashing red*
- *disappearance : steady green*
- *acknowledgment : flashing cyan*

Group2 : convoy.4

colors defined :

- *appearance : steady yellow*
- *disappearance:flashing magenta*
- *acknowledgment : flashing blue*

According to the colors, the user can quickly identify the control system unit in which the fault has occurred (example: cracker1).

In the list of alarms, it is possible to select:

- display of the alarms from a single group out of the 16.
- display of the alarms from the 16 groups.



The dynamic key or the touch zone associated with the **ACK ALL** icon is used to acknowledge the alarms of the group(s) present on the screen (see "[Description of the alarm list](#)", Page 46).

5. Alarms

Display priority in the alarm list

A priority can be allocated to each alarm page using the XBT-L1000 software.

The alarm pages can take different priorities. 16 levels are possible from 1 to 16, with the lowest display priority being priority No. 16.

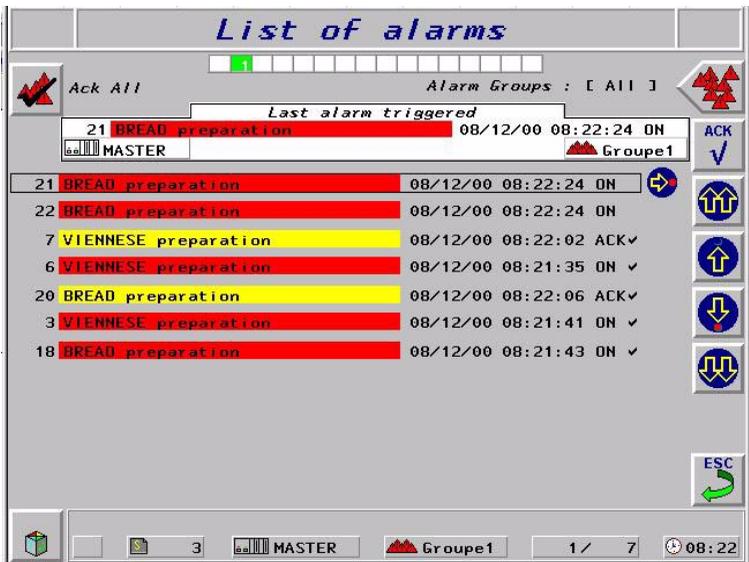
Alarm list storage principle

1. Alarms not consulted are displayed at the top list. Below them are displayed alarms already consulted (identified by a mark) i.e. alarms which were already present the last time the list of alarms was displayed.

2. Alarm priority (1 at the top, 16 at the bottom).

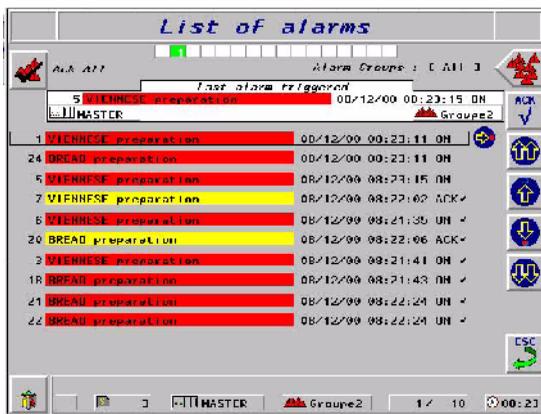
3. When the alarm priority is the same, they are stored in such a way that the oldest one is displayed first. The possible cause of a series of faults can thus be identified rapidly.

The first alarms displayed at the top are the not consulted (new) alarms, triggered while displaying any other page (criteria n°1).



5. Alarms

After triggered and already consulted, alarms are sorted by priority or time (criteria n°2 or 3)



SHIFT

ALARM
ENTER

The list of alarms is displayed after pressing the **SHIFT + ENTER** keys or the status touch zone and then ALARM for touchscreen terminals.

The last alarm displayed appears under "last alarm triggered".

Number of alarms in "Alarm list" page (1)				
	Terminals with keyboard	Touchscreen terminal		
		Without keys	With keys	
			Line	Column
5"	512+100	512+100	0	
10"	512+100	512+100	512+100	512+100

(1) : 512+100 = 512 classic alarms + 100 diagnostic alarms (diagnostic alarms are available with option XBT-L1003+)

Alarm display principle

When an alarm appears:

- The ALARM indicator light flashes. The alarm is stored in the alarm list. The alarm can be acknowledged by the operator directly on the application page by pressing the **ENTER** key or  for touchscreen terminals.

- The alarm relay is closed (if this function is selected).
- The alarm strip is updated.

5. Alarms

Acknowledging alarms

When designing pages, it is possible to define whether the alarm page should be systematically acknowledged or not. These 2 types of alarms are managed in the following way:

Alarms which must be acknowledged

An alarm which must be acknowledged remains in the list of alarms until it is acknowledged by the operator, even if the cause of the fault is no longer present (the alarm bit is back to 0). Its status is then OFF.

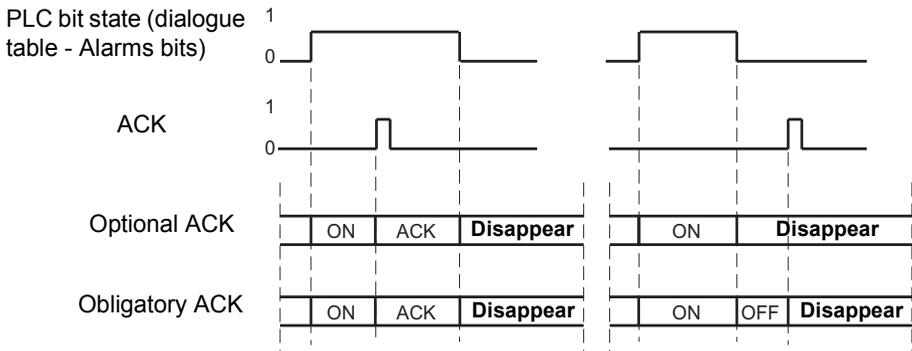
Advantage: transient faults are isolated (instability of a discrete sensor for example).

Alarms with optional acknowledgment

An optional acknowledgment alarm disappears from the list as soon as the cause of the fault is no longer present (the alarm bit is back to 0), whether the alarm has been acknowledged or not.

Advantage: Do not monopolize the screen with faults display that are considered minor for the application.

Obligatory and optional ACK



5. Alarms



Alarm acknowledgement from the alarm strip

Press the **ENTER** key on the terminal or the touch zone on touchscreen terminals to acknowledge the alarm displayed in the alarm strip.

The alarm message switches to **ACK** status.

NOTE

The alarm strip can be displayed on alarm pages.

Acknowledgement will thus be effective on the strip alarm and not on the alarm displayed.



Alarm acknowledgement from the list of alarms

Press the **ENTER** key on the terminal to acknowledge the alarm selected in the list. The alarm message switches to **ACK** status. The dynamic key or the touch zone associated with the **ACK ALL** icon is used to acknowledge the alarms from the group(s) displayed.

Alarm relay command



The alarm relay option is available for each alarm.

The alarm relay energizes as soon as an alarm defined with the "alarm relay" option is triggered.

The relay deenergizes as soon as all the active alarms defined with the "alarm relay" option have been acknowledged by the operator(ACK), or have disappeared.

NOTE

In the event of a power loss to the terminal, the alarm relay de-energizes.

5. Alarms

Description of the alarm list

The alarm list includes:

- the active alarms which are present but not acknowledged by the operator (ON),
- the active alarms acknowledged by the operator (ACK),
- alarms with mandatory acknowledgement and which have not been acknowledged but for which the triggering cause is no longer present (OFF).

The alarm list is refreshed whenever an alarm appears or disappears. The alarm list remains displayed awaiting a user action.

Case of the last coming out alarm

The last coming out alarm is shown on a different way :

Source equipment		Alarm membership group	
MASTER		<i>Last alarm triggered</i> Group1	
1 High Oven Temperature		13/09/99 11:42:01 ACK	
N° of the bit at the origin of alarm triggering (see "Principle", Page 38)	Name of the alarm	Appearance date and time	
		Code for appearance (ON) Acknowledgment (ACK) Disappearance without acknowledgment (OFF)	

Case of other alarms

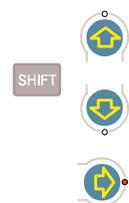
1 High Oven Temperature		13/09/99 11:42:01 ACK	
Number of the bit at the origin of alarm triggering (see "Principle", Page 38)	Name of the alarm	Appearance date and time	
		Code for appearance (ON) Acknowledgment (ACK) Disappearance without acknowledgment (OFF)	

The function key associated with the "group" icon is used to select an alarm group or all the alarms.

The status line indicates the alarm group and the equipment connected (PLC) which triggered the alarm selected in the list.

5. Alarms

Possible actions in the alarm list



ENTER : to acknowledge an alarm, the alarm status becomes **ACK**.

ACK ALL: allows overall acknowledgment of all the alarms or those of the selected group.

Up and down arrows: to navigate in the alarm list.
SHIFT + up and down arrow or double up/down arrows on touchscreen terminals: previous page/next page.

Right arrow:to display the alarm page corresponding to the selected alarm.

PRINT: to print the alarm list.

D

Alarm display by the PLC

The dialog table enables the dialog between the PLC and the terminal. This table contains words which are reserved for alarm display. [see chapter C, § 2. Dialog table content, Page 9](#), for the coding of these words.

6. Alarm history log

Principle

The terminals can manage an alarm page log. The alarm descriptions and state, the equipment data, the date and time status are stored in this log. The alarms are stored one after the other, and when the log is full, the oldest alarms are overwritten by the most recent ones. The log recording capacity is 500 events.

Each alarm event:

- Appearance,
- Acknowledgment,
- Disappearance.

is recorded and time-stamped.

The following functions can be performed:

- On the PLC's initiative:
 - Printing the alarm log,
 - Clearing the alarm log.
- On the operator's initiative:
 - Displaying the alarm log,
 - Printing the alarm log,
 - Clearing the alarm log (in confidential mode),
 - Displaying the selected alarm page.

The log is useful for analyzing the sequence of events which has led to a given machine state.

6. Alarm history log

Displaying the alarm history log

The alarms are shown with the most recent alarm displayed first.
The events relative to each alarm are: appearance, acknowledgment, clearing.



MENU: To access the alarm log.

SHIFT



Up and down arrows: To scroll through the alarm log.

SHIFT + up and down arrow or double up/down arrows on touchscreen terminals: previous page/next page.



Right arrow: to display the alarm page corresponding to the selected alarm.

PRINT: To print the alarm log.

ESC: To return to the previous page.

Number of alarms in "alarm history log"				
	Terminals with keyboard	Touchscreen terminal		
		Without keys	With keys	
			Line	Column
5"	1000	1000	0	
10"	1000	1000	1000	1000

D

Clearing the alarm history log



At the operator's initiative

1. Prior display of the history.
2. Press the key or the touch zone **Delete history**.
3. Validate history clearing: the complete history is cleared.

NOTE

History clearing can be restricted to confidential mode. For this, protect the system page "Delete history" by a password.

On the PLC initiative

The alarm history is cleared by means of the history reset command word in the dialog table (see [chapter C, § 2. Dialog table content, Page 9](#)).

7. Process control using function keys

Printing the alarm history log

see "Printing the alarm Log", Page 61.

The terminals are used to :

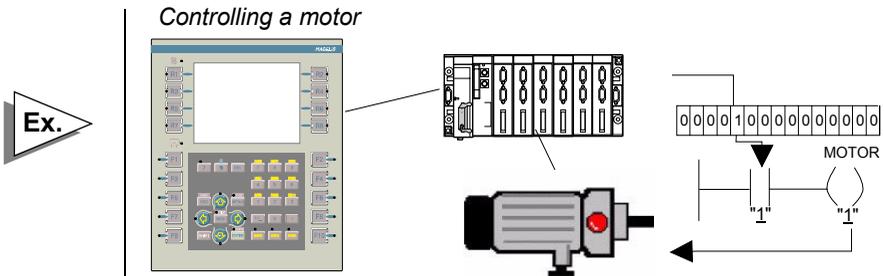
- control the control system (impulse command or toggle command),
- write directly the constant or variable value,

from :

- the static function keys (Fx) or dynamic function keys (Rx) in the case of terminals with a keyboard.
- touch zones for touchscreen terminals,
- touch zones and keys for terminals with tactile keys.

Momentary contact command

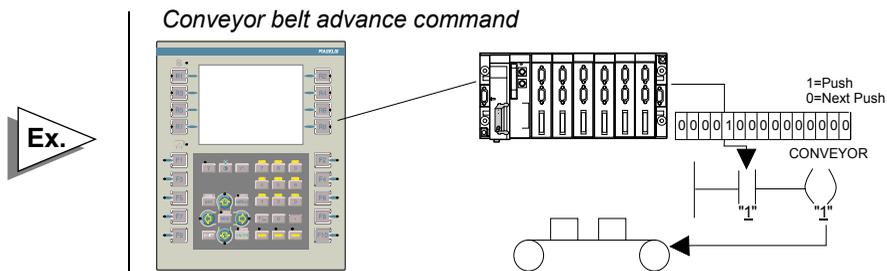
The system is actuated by pressing a function key, the touch zone or the key of a terminal with tactile keys, which starts an action; if the key or the touch key or zone is released the action stops.



7. Process control using function keys

Push on/Push off toggle command

The control system is actuated by pressing the function key, the touch zone or the key of terminal with tactile keys, which start an action; the action is stopped by pressing the function key or the touch key or zone again.



Control using static function keys (Fx)

When creating the application, a word bit, defined automatically by the dialog table, is associated with each momentary contact and "push on/push off" toggle static function key. This word bit will be in the Master PLC.

Control using dynamic function keys (Rx), touch key or zone

When creating the application, the following are associated with each momentary contact and push on/push off dynamic function key:

- One label comprised of 1 or 2 graphics,
- A word bit whose PLC address must be declared when configuring with XBT-L1000.

Dynamic function keys may be configured to communicate with any PLC attached to the terminal.

Command using the TXBT mouse

The dynamic function keys can be controlled by positioning the pointer on the corresponding key label and clicking.

Assigning static function keys in the dialog table

See chapter E, "Assigning the static function keys", Page 27.

7. Process control using function keys

Value direct writing

The customer must press a function key, a tactile zone or a tactile key of a XBT terminal, to write a PLC variable or a constant in another PLC variable.

Selection of a mixing delay

1 mn	5 mn
10 mn	15 mn

But the customer can also directly operate on PLC or terminal variables. For example, in the case of the PLC, increase/decrease a variable with a fixed step.

For example, in the case of the terminal :

- change the application language :
 - Action : Writing value
 - Variable : XBT:5062-language
 - Value : Constant=0,1,2 (1,2, or 3rd programmed language)
 - Label : bitmap

- directly control the screen brightness (control of the function night/day for example),
 - Action : Writing value
 - Variable : XBT:5063-brightness
 - Valeur : Constant=0 to 100 (% of brightness)
 - Label : bitmap

- directly call a system page. (see ["Displaying a system page by writing a public variable", Page 29](#)).

7. Process control using function keys

Ex.



D

8. Running Windows 95 application on the TXBT

The TXBT terminal can be used to run Windows 95 applications installed on the terminal (for example the calculator). If the Magelis application is already running, it will continue to work in the background, the pages are refreshed and the alarms monitored.

The software can be started up in 2 ways.

Startup with a Windows 95 command

Program startup

- Click on the Start button (or use the CTRL+ESC keys), then select Program.
- Select the program to be executed

Program startup using the Run command

- Click on the Start button (or use the CTRL+ESC keys) and then Run.
- In the Open zone, type in the location and name of the program you want to start.

If you cannot remember the location or name of the program file, click on Browse.

8. Running Windows 95 application on the TXBT

Running using the Rx dynamic function keys

The executable program can be run by pressing an Rx key (for example the calculator).

Configuration with XBT-L1000



Starting the calculator with key R4 as soon as the measurement is displayed.

- Select the page linked to the dynamic key in the Page Tree Structure window.
The configuration screen appears.
- Select the dynamic function key to be assigned.
The configuration dialog box appears.
- Select Run Application.
- Type in the executable program path in the "Open" editing field.



D:\WINDOWS95\CALC.EXE

Executable program path

This is the path (drive, directory/sub-directories) on the TXBT terminal and not the path on the PC equipped with XBT-L1000.

If the location of the executable program on the TXBT is changed, startup will be impossible.

9. Key locking by the PLC

In order to prevent the operator from performing certain functions depending on the control system status, the PLC is able to lock out the terminal. There are 3 reserved words in the dialog table that allow various keys to be locked. These keys are:

- static function keys,
- system keys,
- numeric keys.

Word bit at 1 = key locked

The word concerning the system keys also contains a bit allowing the total lock of the keyboard or of the tactile pad. This total lock also affects the keys of a terminal with tactile keys.

See [chapter C, § 2. Dialog table content, Page 9](#), for the word coding procedure.

WARNING

UNINTENTIONAL EQUIPMENT OPERATION

Pressing the **MENU** key allows the inexperienced and untrained operator to accidentally display the wrong page, modify the terminal configuration, or lose the messages and alarms on the screen. This can lead to confusion, panicking, and, as a consequence, loss of control over the machine. It is strongly recommended that the PLC be programmed to lock the **MENU** key as well as the other currently unused keys in order to prevent this from happening.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

10. Printing

General

The following information can be printed:

Printing at the operator's initiative



- Alarm log
- List of active alarms.
- Form pages,
- Screen hardcopies (TXBT only),
- Terminal references.
The PRINT key is used to send the command.
- Active window capture (TXBT only).
The SHIFT+ALT+PRINT keys are used to send the command.

Printing at the PLC's initiative

- Alarm log,
- Free format printing,
- On-line alarm printing,
- Form page printing.

See [chapter C, § 2. Dialog table content, Page 9](#),. for the word coding "Printing command".

D

NOTE

The recommended printing format for the “Alarm history printing”, “On-line alarm printing” and “Alarm list printing” functions is 132 columns. On a 80-column printer, the “alarm group” and “equipment” information is not printed out.

Print set-up

Case of XBT Terminals

• Printer selection

A serial printer must be used and no declaration in XBT-L1000 is required. For connection, refer to the service instructions.

10. Printing

• Printer set-up

Printer setup is performed with XBT-L1000 or locally in the terminal. The System menu is used to consult and configure the printer parameters. The printing formats are entered on XBT-L1000 via the Configure/Parameters menu of the Printer terminal.

NOTE

If the printer has been configured with fewer columns than the required printing format, the result will be truncated. Characters whose ASCII code is < 32 and > 125 will be replaced by “.” characters when printed. Except for free format and form page printing.

Case of TXBT terminals

• Printer selection

A parallel printer must be used.

- Select the Start menu (you can use the CTRL+ESC keys to call up the Start menu).
- Select the Settings/Printers command
- Click on the Add printer icon.
- Execute the Windows 95 procedures and choose LPT1 as the printer port. For connection, refer to the TXBT manual.

• Printer setup

On the TXBT, printer setup is that of Windows 95.

The printing setup screen can be accessed:

- Either directly with Windows (Start menu, etc.)
- In the Magelis application, using the “System menu” (SHIFT-MENU) then “Printer parameters” (R5)

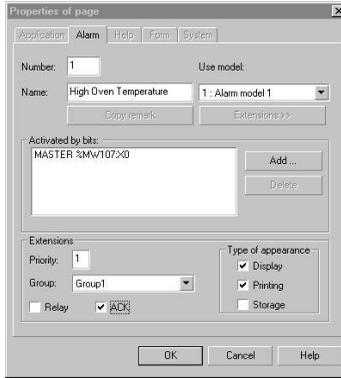
Stop printing

This function is accessed with the system menu. Any printing in progress (log, continuous, etc.), even if the printer is faulty, will be stopped without any request for confirmation; i.e. the print buffer will be emptied and the print queue will be cancelled.

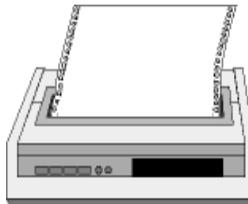
10. Printing

Continuous printing of an alarm page

The option must be selected when the page is created using XBT-L1000 by selecting the "print" option.



At each dialog table read cycle, the "printable" alarms are printed with the alarm name. A header is printed containing the page number and name, and the printing date and time



```

ALARM
-----
24/07/97 12:01:30
1024:Text of alarm .      !2407 12:00:00 !      -      -      !MASTER !CONVEYOR
1024:Text of alarm .      !      -      !2047 12:01:00!      -      -      !MASTER !CONVEYOR
1024:Text of alarm .      !      -      !      -      !2047 12:04:00 !      -      -      !MASTER !CONVEYOR
-----
!ON (Valid) !ACK !OFF (Invalid) !EQUIPMENT !GROUP
    
```



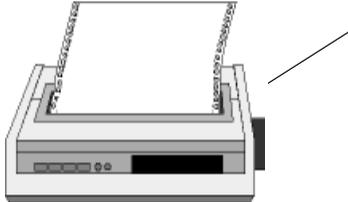
10. Printing

Printing the list of active alarms



Press the “Print” key or the PRINT touch zone on display of the “List of alarms” page.

The list of alarms is printed as it is at the time the operator requests the printout. If alarms occur during printing, they will not appear in the list.



ALARM LIST	!ON (Valid)	!ACK	!OFF (Invalid)	!EQUIPMENT	!GROUP

24/07/97					

1024:Text of alarm .	!2407 12:00:00 !	-	!	!MASTER	!CONVEYOR
1031:Text of alarm .	!2407 12:01:00 !	-	-	!MASTER	!CONVEYOR
1025:Text of alarm .	!2407 12:04:00 !	-	-	!MASTER	!CONVEYOR

10. Printing

Printing a form page

From system pages at the operator's initiative

Display the page "MENU", then the forms list select a form in the list, specify the number of copies and press the key



From a function key or a tactile zone at the operator's initiative

Configure the function key or the tactile zone to write the number of the form in the printing command word of the dialog table ([voir § 4. Variable fields, page 30](#)).

At the PLC's initiative

Printing a form is performed with the printing command word of the dialogue table ([voir § 4. Variable fields, page 30](#)), the most recent alarm is shown first.

Printer configuration : [see § 11. Terminal configuration, Page 64](#).

D

Printing the alarm Log



At the operator's initiative

Press the key or the tactile zone "PRINT".

At the PLC's initiative

Printing history log is performed with the printing command word in the dialog table ([See chapter C, § 2. Dialog table content, Page 9](#)).

The history log is printed in a sequential form ([see § 11. Terminal configuration, Page 64](#)).

10. Printing

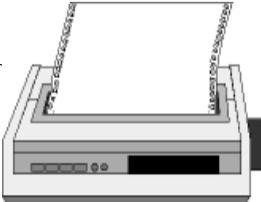
```

-----
ALARM HISTORIC      !ON (Valid)  !ACK      !OFF (Invalid) !EQUIPMENT  !GROUP
-----
24/07/97
-----
1024:Text of alarm . !2407 12:00:00! - !      - !MASTER      !CONVEYOR
1024:Text of alarm . !2407 12:01:00!2047 12:01:00 ! - !      - !MASTER      !CONVEYOR
1024:Text of alarm . !2407 12:04:00! - !2047 12:05:00 !MASTER      !CONVEYOR
-----

```

- Is printed for each alarm:
- alarm number and the page name
 - appearance (ON), acknowledgement (ACK), disappearance (OFF) date and time
 - alarm group.

An asterisk * at the beginning of a line indicates that information has been lost in the previous line. This happens when the log overflows, in which case the oldest events are overwritten by the most recent events.



10. Printing

Free format printing

Free format printing consists of sending the data contained in the free format printing table, located after the dialog table:

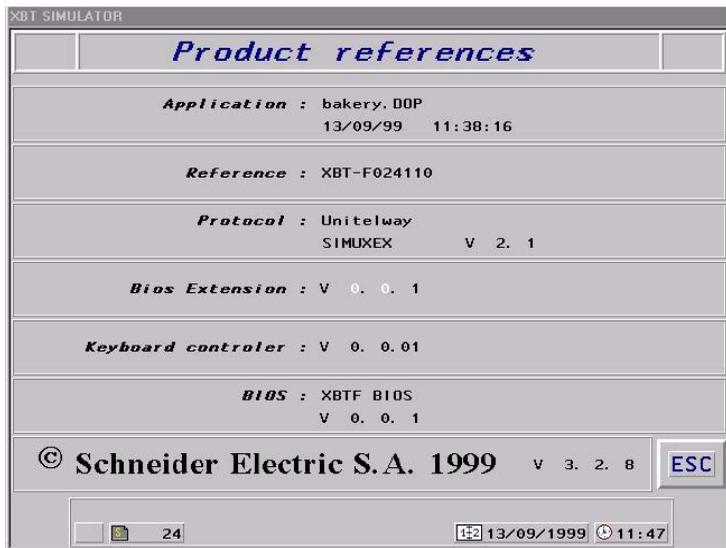
- To the terminal's printer port,
- On the PLC's initiative.

A dialog table word is used to manage the dialog. [See chapter C, § 2. Dialog table content, Page 9](#), for the word coding procedure.

Printing terminal's reference: It is possible to print the terminal's references. Those references are exactly the ones displayed in the system page "Terminal's reference".

Printing of the product references

It is possible to print the terminal's references. These references are those displayed in the system page "product references".



D

11. Terminal configuration

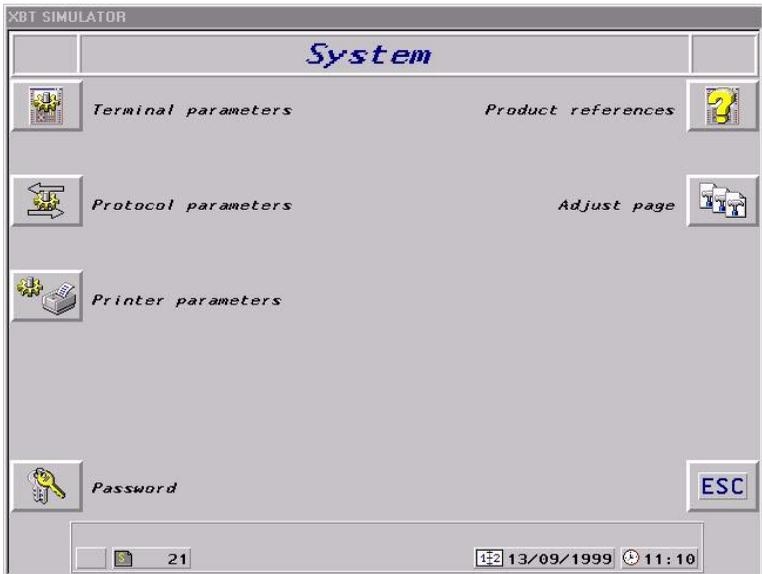
The terminal configuration parameters can be modified on the terminal directly. They are then saved in the PCMCIA card without using XBT-L1000. However, any modification performed in the terminal cannot be retrieved by XBT-L1000 when importing an application.

The terminal configuration function is accessible from the system menu and is used for consulting or modifying the following parameters:

- terminal data and time and format,
- language,
- screen parameters,
- product references,
- printer parameters,
- printer <-> Terminal protocol line parameters,
- screen brightness and stand by screen display,
- automatic exit from the confidential mode.



Press the **SYST** key or the status touch zone then SYST on touchscreen terminals to display the system menu. If access is protected by a password, enter it (see "[Confidential mode, password management](#)", Page 18).



11. Terminal configuration

Parameter modification principle

- Select the parameter by dynamic function keys or pressing the touch zones.
- Depending on the type of parameter, the modification is performed using:
 - Numeric keys
 - Arrow keys (for parameter lists)
 - Context keyboards displayed on touchscreen terminals.
- Press ENTER to confirm the modification.

 WARNING
UNINTENTIONAL EQUIPMENT OPERATION
Since all alarms are always time/date stamped and the control program may rely on the XBT's real time clock, it is important to set or verify the XBT's date and time after every installation, repair, disassembly, shipment, or battery change.
Failure to follow this instruction can result in death, serious injury, or equipment damage.

D

Terminal parameters

Terminal date and time

Time format: 24.mn.ss or 12:mn:ss,

Date format: DD.MM.CCYY or MM.DD.CCYY or CCYY.MM.DD.

Language

To change language: Select the language with the "up" and "down" arrow keys and confirm by pressing ENTER.

Screen

The brightness and contrast of the screen can be adjusted. For terminals with keyboard, the adjustments are identical to those performed using the keyboard keys.

On touchscreen terminals, this parameter can be adjusted using the touch zones (depending on screen technology).

11. Terminal configuration

Clear screen

A clearing page is provided on touchscreen terminals for de-activating the touchscreen pad in order to clear the screen surface. Simultaneously press the two opposite touch zones to re-activate the pad and exit the clearing page.

Printer

The printer setup parameters, except for the printer control codes used for the forms, can be modified.

Standby

Screens can be damaged if a steady image is displayed for a long time. It is thus recommended to select the following in the "Terminal parameters" system page:

- Standby: YES
- Wait: 60 minutes.

NOTE

These parameters are initialized to the above values after exporting an application from the PC to the terminals.

Parameters of the operations line

Case of the XBT terminal

The parameters displayed depend on the protocol and some may or may not be modifiable.

Case of the UNI-TELWAY protocol:

Bit rate: 300 bauds

Parity: even

Address: Master

Error counter N°. 1: 0

Error counter N°. 2: 0

Error counter N°. 3: 0

Error counter N°. 4: 0

Counter reset by dynamic key.

11. Terminal configuration

Case of the TXBT terminal

- Protocol parameters

The following parameters are displayed:

- Protocol name
- Controller names and addresses (max. 15) and status of communications with them (if possible)
- TXBT local address
- Four error counters
- Last communication error that appeared
- Counter reset by dynamic function key

- Application parameters

The following parameters are displayed:

- Application reference and protocol used
- Currently running application path: the application can be on the disk in this directory\TXBT\APPLI (default directory which can be changed) or on the PCMCIA memory card
- Size of PCMCIA memory card (if installed)
- The text of the last error which appeared (excluding communication error)

- Password

Declaration of password A, B or C

D

Printer line parameters

The following parameters are displayed by default:

- Printer
 - Number of columns: 132
 - Automatic line skip: YES
 - Automatic line feed: NO
- XBT-Printer serial line
 - Baudrate (Bauds): 9600
 - XON/XOFF protocol: NO
 - Link: RS 232
 - Duplex : Half Duplex
 - Stop bits: 1 BIT
 - Data bits: 8 BITS
 - Parity: ODD

12. Variables adjustment on the TXBT

Principle

The TXBT can be used to adjust the variables of the connected PLCs. Adjustment is available for the following communication protocols:

- UniTelway
- IsaWay
- Modbus
- Fipway
- Fipio
- Modbus+

Accessible objects

XWAY Protocols

- Simple word
- Double word
- Internal word
- Floating word
- Word bit
- Constant word
- Internal word bit
- Internal double word
- Internal bit
- Local input/output bit
- Remote input/output bit
- System bit
- Step bit
- Step macro bit
- Step macro input step bit
- Step macro output step bit.

Modbus and Modbus+

The objects accessible for adjustment are input and output registers, input and output bits, bits extracted from registers.

Adjustment can be via the symbols if the symbol/identifier association has been loaded into the TXBT from XBT-L1000.

12. Variables adjustment on the TXBT

Loading the PL7 symbols file

Creation of symbols file

To create a symbols file with PL7:

1. Open the variables editor.
2. Select the File/Export command.
3. Select the disk and/or directory in which the file is to be stored.
4. Enter a filename: for example Appli.SCY
5. Select export mode.

Symbols file transfer to TXBT

The resulting symbols file (e.g. Appli.SCY) must be positioned on the TXBT terminal. To do this:

1. Select the Configuration/Enclosures menu... then select **Files**.
2. Select the file(s) (e.g. Appli.SCY) to be loaded onto the TXBT: the file is now a part of the Magelis application and will be exported at each export operation.
3. Select the **Transfer/Export** menu. The application is then exported, along with the selected file(s).

NOTE The terminal does not check consistency between the PLC application and the symbols file loaded. A change made to this file will not be automatically accepted. For this, it has to be deleted and added again.

Access to adjustment

The adjustment function can be accessed using the dynamic function keys in 2 ways:

From the system page

To display this page, press the **Menu** key and then press the dynamic function key associated with the Adjustment item.

From an application page

The adjustment function can be run from an application page, by assigning the variable adjustment tool startup function to a dynamic function key associated with this page.

12. Variables adjustment on the TXBT

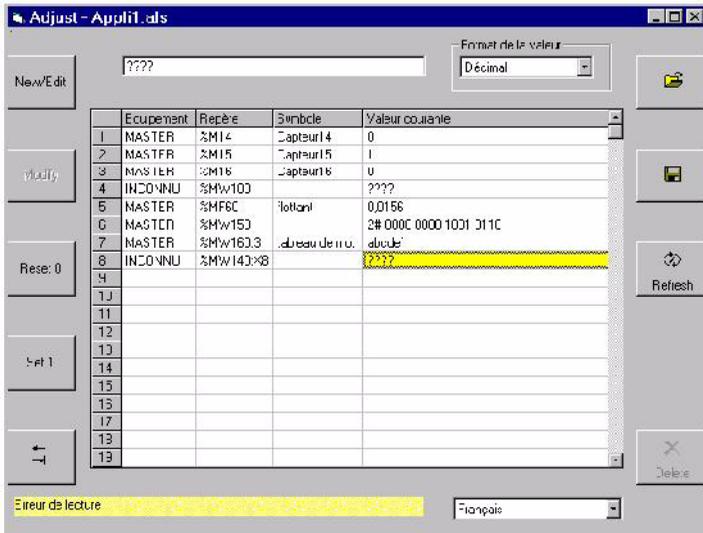
To configure this function with XBT-L1000:

1. Select the page linked to the dynamic key in the Page Tree Structure window.
2. Select the **Configuration/Function keys** menu and the terminal front panel appears.
3. Click (double-click) on the dynamic function to be assigned.
4. Select **Execution of Application**
5. Click on **Open** and enter **ADJUST.EXE**.

NOTE The complete file path is required if the executable program is not in the **APPLI** directory.

Procedure

1. Select the device.
2. Enter a variable (New/Edit R1),
3. Start continuous refresh (Refresh R6)



Modifying a value

1. Select the cell to be modified.
2. Enter the new value.
3. Confirm entry (Modify R3)

12. Variables adjustment on the TXBT

Deleting a variable

1. Select the row.
2. Delete the row (Delete R10).

Display format

The data read in the controller can be displayed in the following formats:

- Signed decimal integers
- Hexadecimal values (0 to 0xFFFFFFFF)
- Bit string
- One place floating point format
- ASCII character string. This contains 1 to 4 characters. The non-ASCII characters are represented by “.”.

List of variables

The list of variables displayed can be saved with key R4 into a .ALS file and then called back with key R2. The list called up overwrites the current list.

D

NOTE

1. If “???” are displayed, this means that the variable could not be accessed. If only one variable isn't accessible, all the variables will be displayed with “???”.
2. ESC goes back to the Magelis application previous page. Adjustment is not stopped, but its window moves into the background.
3. Alt-R4 (or click on X) stops adjustment.
4. The variable adjustment page is not password protectable. Protection of the Adjust page from unwanted users can be accomplished by key-locking the system page.

13. Variables adjustment on the XBT

Principle

Adjustment is used to modify variables of connected PLCs from an XBT.

Accessible objects

- bits (with MODBUS, MODBUS PLUS and TCP/IP MODBUS protocols),
- words,
- double words,
- word bits,
- floating words.

Access to adjustment



The adjustment function is accessible from the system pages.

Number of displayable variables				
Terminals with keyboard		Touchscreen terminal		
		Without keys	With keys	
			Line	Column
5"	6	5	0	
10"	26	26	10	13

Up to 16 adjustment pages can be defined, i.e. 416/448 variables maximum for a 10" product (tactile/keyboard) and 80/96 variables maximum for a 5" product (tactile/keyboard).

13. Variables adjustment on the XBT

Creating or modifying the Adjustment page

When the Adjustment page is displayed, the operator can:

1. Select the variable to be modified in the list or add a new variable to this page or delete a variable from this page.
2. From the entry panel, modify the characteristics of the variable selected from the list, i.e.:
 - The variable type (in compliance with the protocol) which indirectly defines the variable format,
 - The syntax type in compliance with the protocol,
 - The variable address which must be comprised between:
 - [Min..Max] for the word, double word, word bit, floating word variables. The minimum and maximum limits depend on the protocol.
 - [0..15] for the word bit number.
 - The equipment, selecting it in the equipment list of the current application.

NOTE

XBT cannot be selected.

The display format if it complies with the variable type:

- **word bit variable: possible display but binary only,**
- **floating variable: possible display but decimal only,**
- **string variable (Jbus protocol): possible display but in ASCII only,**
- **double word variable: possible displays but decimal, hexadecimal and in ASCII only,**
- **word variable: all types of display are possible.**

For the character string type, another parameter can be used to set up the string length. By default, the length is 16 characters, which is the maximum length possible.

13. Variables adjustment on the XBT

Saving an adjustment



An adjustment page can be saved on the PCMCIA card only and cannot be imported to the XBT-L1000.

Loading an adjustment page



An adjustment page selected must be selected in the list of adjustment pages using the arrows.

NOTE

The variable adjustment page is not password protectable. Protection of the Adjust page from unwanted users can be accomplished by key-locking the system page.

14. Use the recipe pages

Freezing display



This icon is used to freeze display in the current state. The operator can thus edit the values displayed or enter new values.

Saving parameters



This icon is used to save the recording of the values displayed on screen to the PCMCIA card under a name selected by the operator.

NOTE

It is possible to store up to 5000 variables values in up to 125 records max. A record can have a maximum of 64 variable values.



How do we get to the recording on the product?

Recording 1 -> X variables values

Recording 2 -> X variables values

.

.

.

Recording n -> X variables values

125 Max

5000 Max

Restoring a recording



This icon is used to access the list of recordings. Select the required recording using the arrow keys.

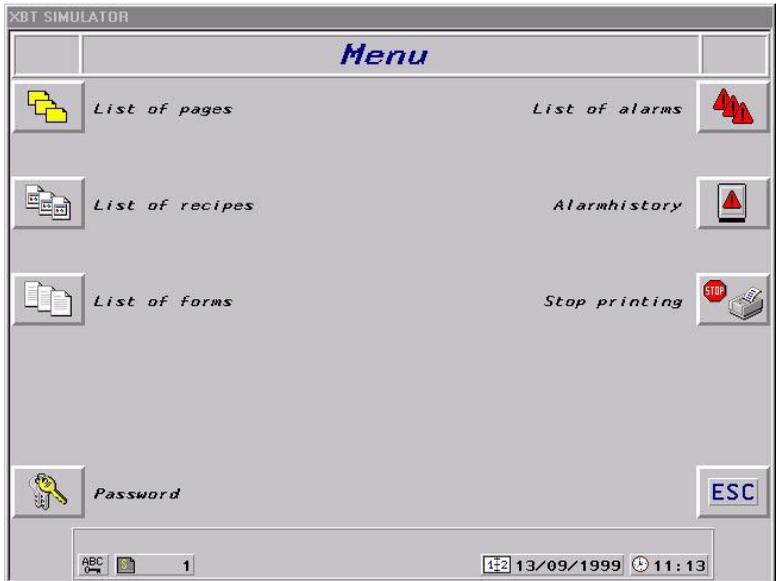
Transferring the recording to the control system



The values of the recording are transferred to the control system, in compliance with the transfer rules ([see chapter C, "%MWn+21: Recipe transfer not allowed", Page 25](#)).

[See chapter B, "Recipe page", Page 45.](#)

14. Use of recipe pages



D

Press tactile zone or dynamic function key to first select one recipe among the different recipe pages programmed under XBT-L1000, and after that select one of the recordings already stored of the previously recipe page selected ([see chapter B, "Recipe page", Page 45](#)).

NOTE

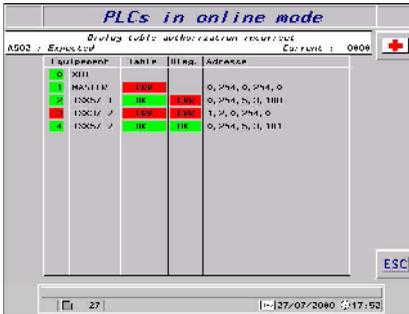
Recipes are recorded and called by a number, not by an alphanumeric.

15. System page "Connected PLC"

A system page "Connected PLC" that gathers all synthetic data regarding the whole equipment configured in the application is also available.

- Name of the equipment
- Communication status between terminal and equipment
- State of management of the device dialog table (alarm or reflex)
- State of management of the device diagnostics buffer
- Incorrect value of the "Authorization" word of the dialog table

10" Terminals



If the value of the "Authorization word" is invalid, you can correct this value from the system page.

5" Terminals



16. Loading extension tasks at application transfer

On a TXBT terminal, it is possible to add functions on top of the basic XBT-F functions. These extra functions are called Extension tasks (see TXBT manual).

17. Loading extra files at application transfer

On a TXBT terminal, when making a PC -> TXBT transfer, it is possible to load extra files into the TXBT (see the TXBT manual).

Chapter E

**Application Development
Example**

E



Contents

You will be guided step by step through the example, the goal being to create rapidly your first application.

Chapters 2, 3 and the appendix respectively give all the information on the implementation methodology, terminal operation and the various handling procedures.

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 **WARNING**

UNINTENTIONAL EQUIPMENT OPERATION

This example application will change register contents in remote devices. This may cause unanticipated change in device status. If this example is used in a functioning system, ensure that all effects of any register changes are fully understood before running this example.

Failure to follow this instruction can result in death, serious injury, or equipment damage.

1. Expression of requirements

The Industrial Bakery Co. makes various types of bread.

Bread production consists of two operations

1. Preparing the dough

The operation consists in mixing water, flour and yeast in a kneader.

Depending on the amount of dough to be made, the operator must indicate: the amounts of water, flour and yeast required.

The weight of the dough obtained must be indicated to the operator.

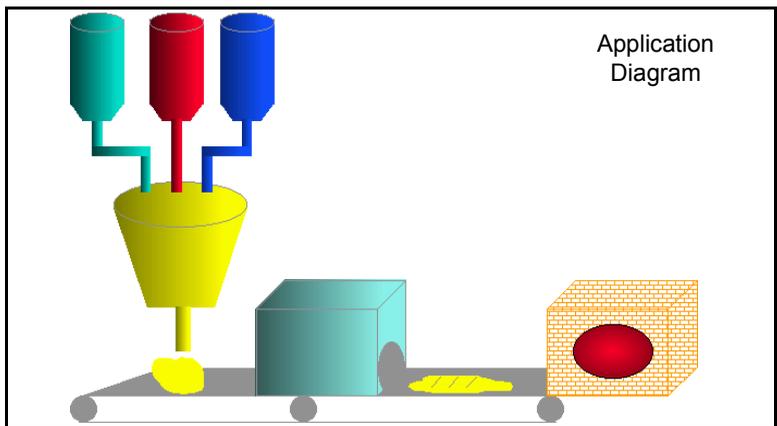
The operator will have to be assisted when entering the amounts of water, flour and yeast to be used according to the type of dough to be made.

2. Baking the dough

The operator selects the baking temperature.

The baking temperature range will be displayed.

If there is a problem (baking temperature too high or too low) an alarm will be activated and the operations to be performed will be indicated to the operator.



E

1. Expression of requirements

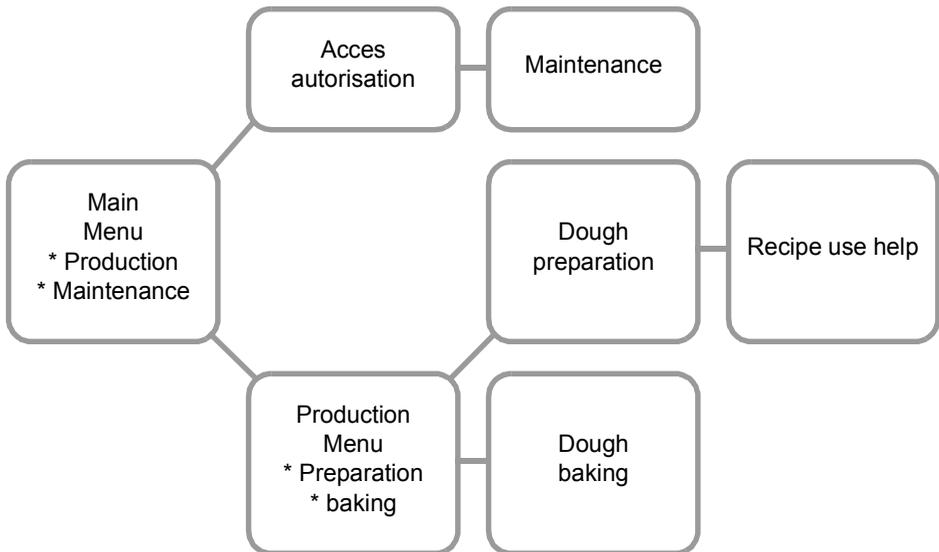
The following two operations are performed besides the production operations:

Installation maintenance

In order to guarantee the quality of the product, daily checks must be performed by the maintenance department. This operation, performed by authorized personnel (maintenance operator), consists in checking the kneader (On/Off). The production operators are not allowed to perform this type of operation.

Management of production

The client wishes to enter the amounts of water, flour, salt and yeast only once per type of bread (filing of these parameters for re-use). The application will be organized as follows:



1. Expression of requirements

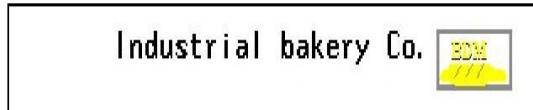
If there are any problems during baking (temperature too high or too low):

- the operator must be informed immediately, whatever screen is displayed,
- he must also be able to access the information indicating the operations to be performed in that case.

Additional information

The company wants its name and logo to be displayed on the following screens:

- Dough preparation,
- Dough baking,
- Maintenance.



Navigating between the various screens

The company wants navigation between the:

- main menu,
- maintenance,
- production menu,
- dough preparation,
- dough baking,

screens to be indicated to the operator by icons which will be associated with dynamic function keys on the terminal.

soit indiquée à l'opérateur par des icônes qui seront associés à des touches fonctions dynamiques du terminal.



Acces to main menu



Acces to production menu

1. Expression of requirements



Access to the Maintenance screen.



Access to the Dough Preparation screen.



Access to the Dough Baking screen.

Process control

The F1 static function key is used to start up the process.
Press this key to start the process and press it again to stop it.

Maintenance

For the maintenance operations you will have to:

1. Switch off the kneader by pressing the F2 function key.
2. Check the various parts of the kneader.
3. Switch the kneader back on by pressing F2 again.

Access to the Maintenance screen is protected by a password: PW01.

Locking the Kneader On/Off key

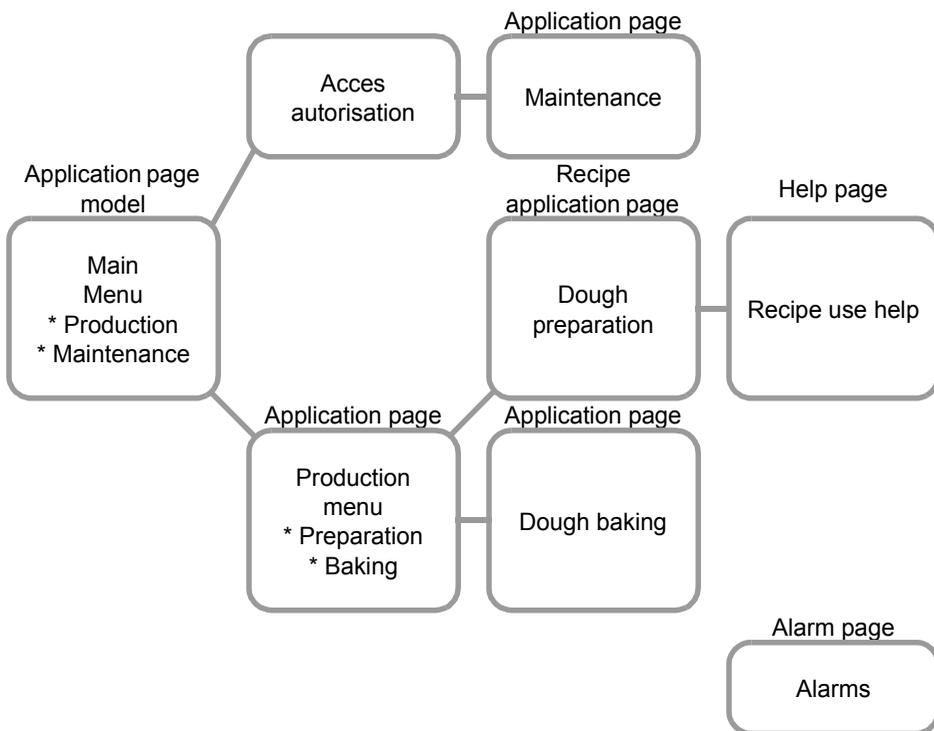
The F2 static function key is locked when the following pages are displayed:

- Menu
 - Dough preparation and dough preparation help
 - Dough baking and dough baking help
- and is unlocked when the Maintenance page is displayed.

2. Analyzing the expression of requirements

Application tree structure

Analysis of the requirements is used to structure the application in several types of pages:



An application page Model will be used to display the company name and logo on the application pages (Dough preparation, Dough baking, Maintenance).

Navigating between application pages

The dynamic function keys associated with the corresponding icons will be used for navigating between pages.

2. Analyzing the expression of requirements

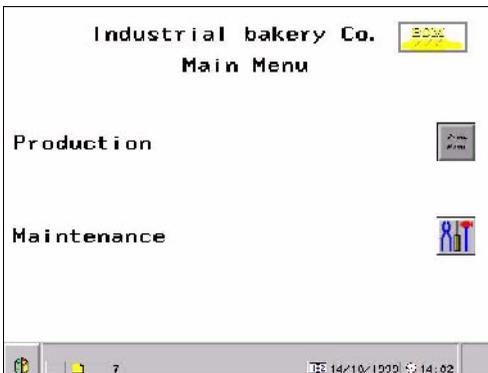
Application tree structure balance

The application will include:

- 5 application pages:
 - Main menu
 - Production menu
 - Maintenance
 - Dough preparation
 - Dough baking
- 1 alarm page
- 2 help pages
 - Dough preparation help
 - Dough baking help

Main menu application page

Application model 1 which includes the company name and logo is used for this application page.

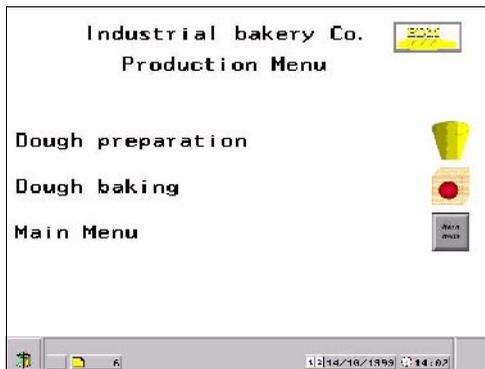


- R4** — Access to production menu screen
- R8** — Access to maintenance screen

2. Analyzing the expression of requirements

Production Menu application page

Application model 1 into which the company name and logo are entered is used for this application page.



- R4** — Acces to dough preparation screen
- R6** — Acces to dough baknig screen
- R8** — Acces to main menu screen

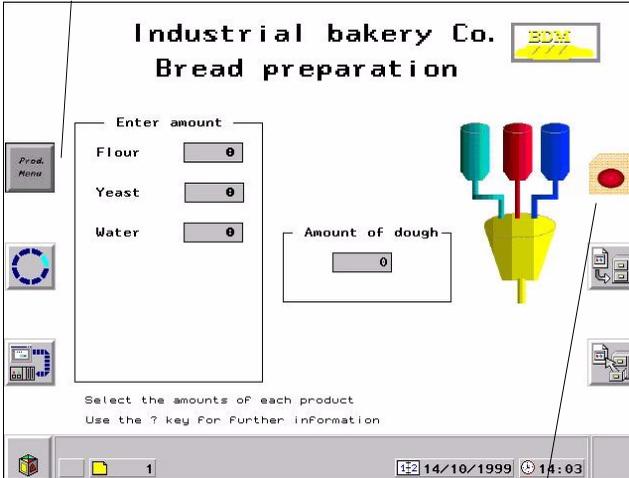
Dough preparation application page

The recipe model into which the company name and logo are entered is used for this application page. The four icons for management of the recordings are included in this specific model (see next page).

E

2. Analyzing the expression of requirements

Access to Production menu screen using dynamic key R1 associated with the icon.



Access to the baking monitoring screen by pressing the R6 dynamic key associated with the icon.



Access to the help page associated with the dough preparation application page by pressing the ? key on the keyboard.

Dough preparation



Freeze display Record



Record parameters



Transfer recording to the control system



Restore recording

Entering the amount

Enter the amounts of flour, yeast and water required.

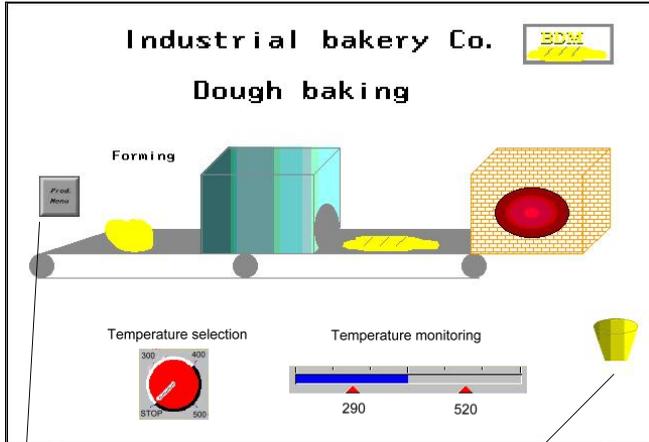
Press the "Save parameters" key (R8) to record these amounts. Enter the recording name (name of the type of bread).

Perform the same procedure for the other types of bread. To restore a recording, press the "Restore recording" (R10) key. Use the arrows to select a recording in the list.

Validate. Transfer the parameters using the "Transfer recording" (R9) key.

2. Analyzing the expression of requirements

Dough baking application page



Access to the Production menu screen using dynamic key R1 associated with the icon.

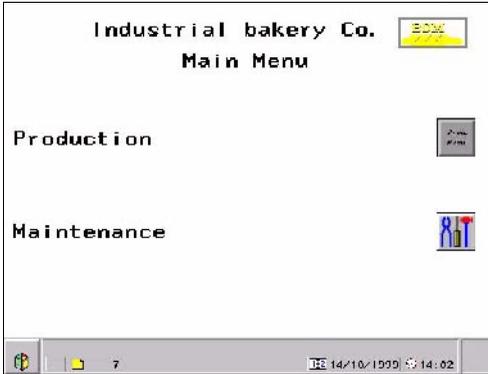


Access to the Dough Preparation screen using dynamic key R6 associated with the icon.

E

2. Analyzing the expression of requirements

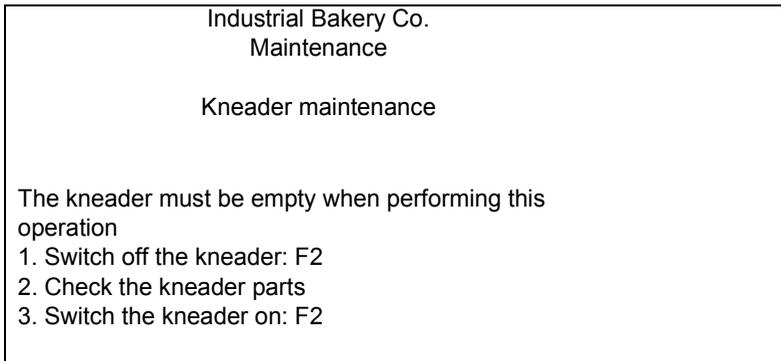
Maintenance page



R4

R8

Password : PW01



2. Analyzing the expression of requirements

Static function keys

Process control

F1: toggle command

Maintenance

(switching off the kneader)

F2: toggle command

Static function keys F1 and F2 are locked when the following pages are displayed:

- Main menu,
- Production menu,
- Dough preparation and dough preparation help,
- Dough baking,

and are unlocked when the Maintenance page is displayed.

Data associated with the application

Data associated with the alphanumeric and graphic fields

Amount of flour: %MW30.

Amount of water: %MW31.

Amount of yeast: %MW32.

Amount of dough produced: %MW33. (This data is provided by the control system).

Temperature selected with the rotary selector switch: %MW34.

Temperature monitored by the bar graph: %MW35.

Dialog table data

The start address of dialog table is %MW100.

%MW100: word containing the bits associated with the static function keys.

%MW101: word containing the number of the displayed page.

%MW102: word containing the static function key locking command.

%MW104: word containing the alarm bit.

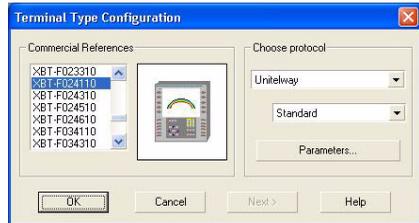
The function of the words will be explained later in this document.

3. Creating the application

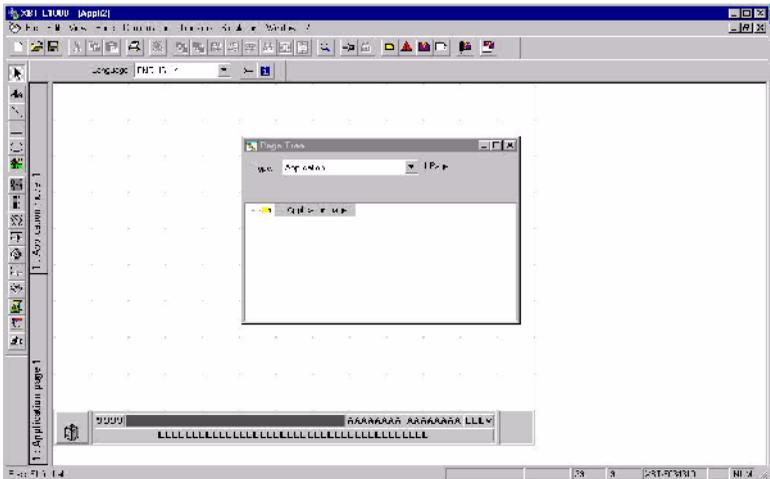
The XBT-L1000 software and the protocols must be installed on the PC. Refer to the corresponding service instructions.

Selecting the terminal and protocol

1. Start up the XBT-L1000 software. If an application is already displayed, choose the **File/New** menu.
2. Choose the type of XBT



Select the **protocol** (e.g.: ModBus Plus) and confirm by clicking **OK**. The default page will then be displayed.



3. Creating the application

Save the application using the **File/Save** menu under the name: Bakery.DOP; this name will then be displayed in the title bar



Creating the page model

Two model pages are available by default when creating an application: one model for standard application pages and another for the recipe pages. The designer can edit them or create new ones.

Application page model

Reminder: the company wants all the application pages to have the same page background.

Choose Application page model in the tree structure window

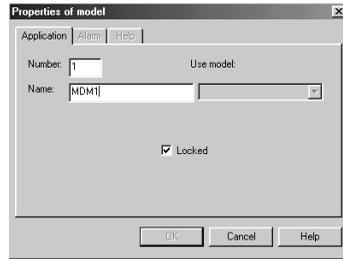


E

3. Creating the application

Choose the **Page/Properties** menu.

Indicate the name of the model (MDM1 model) and deselect the Locked option. Click **Ok**.



Entering text

To enter "Industrial Bakery Co" text [see chapter B, "Text", Page 18](#).



Importating an image

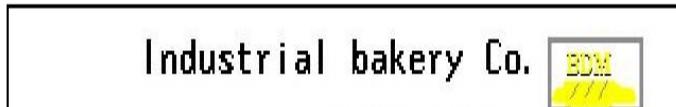
To select the logo of the company "*.BMP" for instance, [see chapter B, "Create graphics", Page 19](#).

Now that the model page has been created, we are going to create the pages.

Note

The model page created will appear in gray on the XBT-L1000 background, but will appear in color on the terminal.

The image is inserted, position it at the desired place.



Now that the model page has been created, we are going to create the pages.

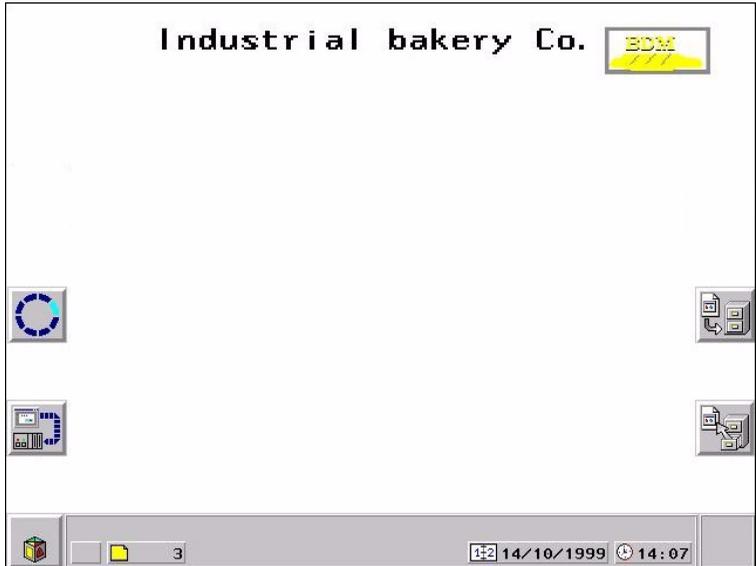
Note

The model page created will appear in gray on the XBT-L1000 background, but will appear in color on the terminal.

3. Creating the application

Recipe page model

The recipe page models have the same properties as the application page models except that the latter includes the four additional icons for managing “recipe” recordings.



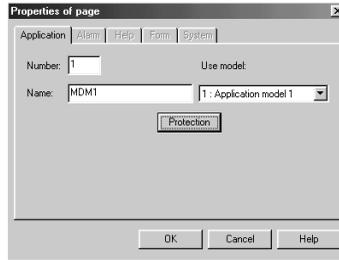
E

3. Creating the application

Creating the various pages

Application page

1. Select the application page type in the **Page tree structure** window, a page called Application page 1 exists by default, with the model page displayed in gray in the background.
2. Choose the **Page/Properties** menu (or click the right mouse button).



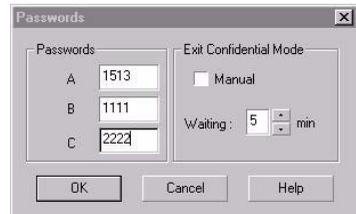
The first page to be created in the example is called: MENU.

3. Enter the name of the page, click Protection and, if necessary, deselect the **Access with password** box and confirm with **Ok**. Click **Ok** again. The menu page has now been created.



4. Choose the **Page/New Page** menu or click the new page icon and proceed in the same way as in step 3 to create the "Dough preparation" page, and then create the "Dough baking" page in the same way.

5. To access the maintenance page, click Protection and select the checkbox Access by password. Check box A and click on Passwords..., enter PW01 in the A field. Select **Ok**, **Ok**, and **Ok**.



Help page

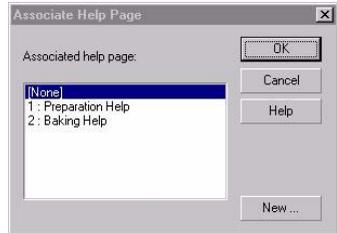
Create the help pages (Preparation and Baking) by selecting the Page/New page/Help menu.

3. Creating the application

To associate a help page with an application page



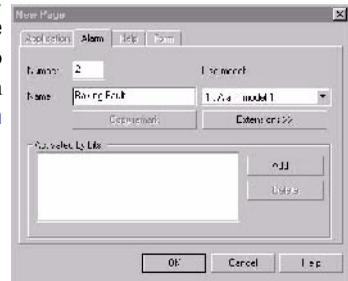
1. Select the application page in the Tree structure page (for example: Dough preparation application page).
2. Select the **Page/Associate help page** menu or click the corresponding icon.
3. Select the help page you want to associate (for example: Preparation) and click **OK** to confirm. Also associate the Baking help page.



Alarm page



Create the alarm pages (Baking problem) in the same way as the application pages by choosing the **Page/New page/Alarm** menu or by clicking the corresponding icon. Enter the name of the alarm page (Baking fault) and click **OK** to confirm. For the complete alarm processing, see "Alarm processing", Page 30.



The page architecture is displayed in the tree structure window



E

3. Creating the application

Creating navigation between the application pages

Navigation between the application pages is performed by means of dynamic function keys (example: Main menu page).



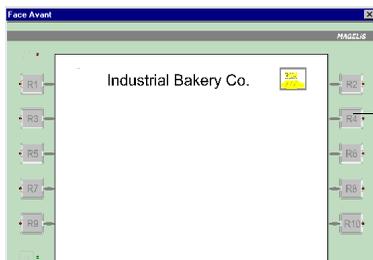
Access to the Production screen: R4 dynamic key associated with the icon



Access to the Maintenance screen: R8 dynamic key associated with the icon

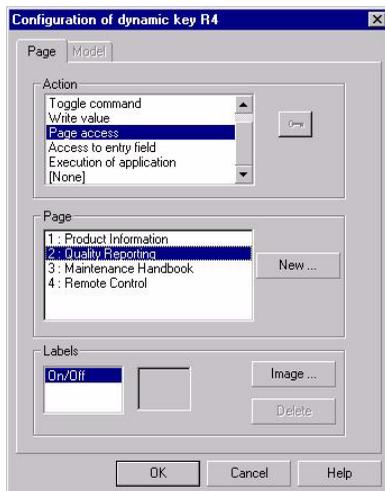
3. Creating the application

1. Double click the dynamic function key to be assigned

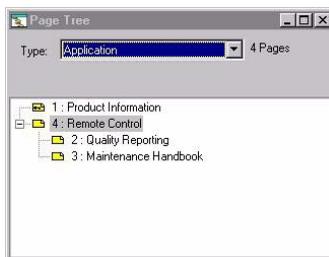


Example: R4

2. Select **Action/Page access**, the destination page (Dough preparation), click **Image** and insert the image associated with the R4 key (see "Creating the page model", Page 17)



Create the navigation between all the application pages in the same way (see § 2. Analyzing the expression of requirements, Page 9). The Tree structure window displays the navigation architecture you have created..

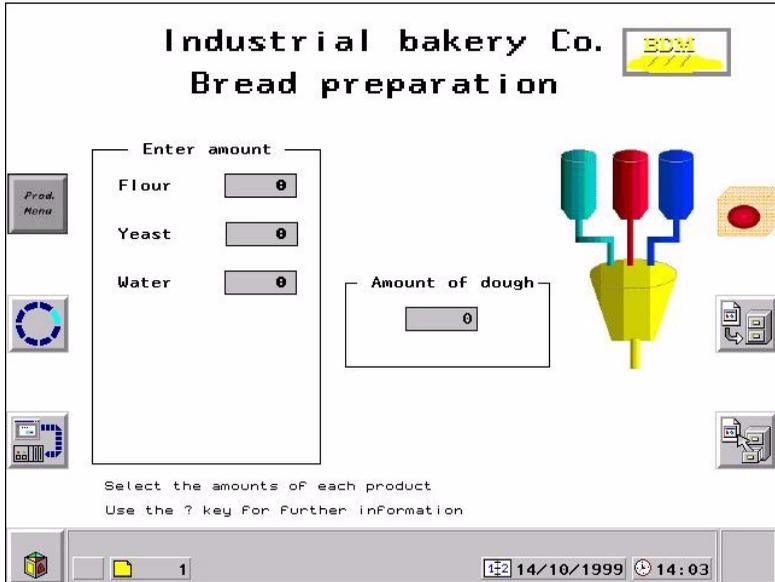


NOTE

Right click on one page of the tree structure to create a new page of same type as the page selected.

3. Creating the application

Creating the page content



Text

For entering the text in the various pages, [See chapter B, § Text, Page 18.](#)

Line, Rectangle, Ellipse

1. Select the tool button.
2. Using the mouse, define the object size.
3. Select the Edit/Property menu (or right mouse click or double click).
4. Define the object properties (filled in or empty, color, etc.).

Alphanumeric fields

The Dough preparation application page has 3 entry fields and one read only field.



1. Select the Create an Alphanumeric Field tool button.
2. Using the mouse, click on the required location.
3. Define the object properties.

3. Creating the application

To introduce the characteristics of the amount entry fields, such as number of characters, format, PLC variable associated and its access from the terminal, [see chapter B, "Alphanumeric variable field", Page 21](#) and [see chapter B, "Variable field characteristic", Page 30](#).

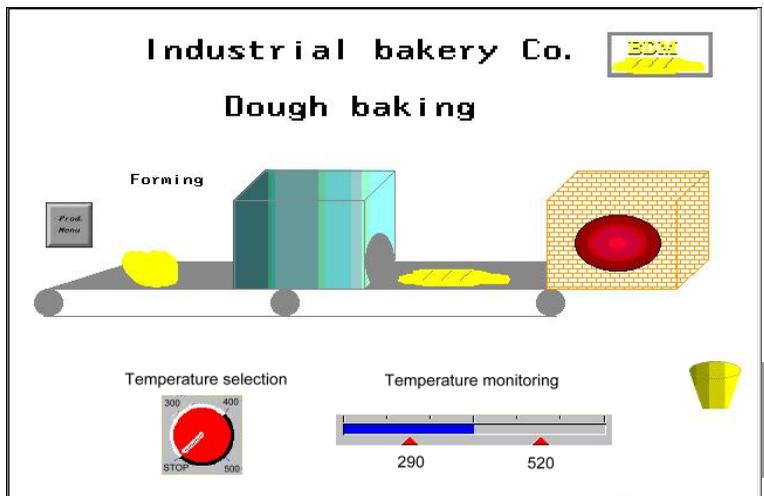
Exemples:

Amount of flour : %MW30

Amount of water : %MW31

Amount of yeast : %MW32

Amount of produced dough : %MW33



The "Dough baking" application page includes:

- texts and drawings, whose entry principle has already been described,
- 1 temperature rotary selector switch,
- 1 temperature monitoring bar graph.

3. Creating the application

Rotary switch



1. Select the **Rotary switch** tool button.
2. Using the mouse, select the required location.
3. Select the Edit Properties menu (or click the right mouse button or press ALT ENTER).
4. Select the type of the **Rotary switch**
5. Assign the word %MW34 to the object using the **Modify** button, click **Ok**. This word will contain the value selected by means of the rotary selector(4 positions : 0, 300,400, 500).
6. Click **List** and, using the **Delete** or **Add** buttons, define the number of positions for the rotary switch and the value to be assigned in the word. Click **Ok**.
7. Using the **Color** button, define the color of the graduations and of the background.
8. Click **Ok twice** to confirm, the rotary switch will then be displayed but the graduations will not be identified.
9. Using the **Text** tool, enter the values to allow the operator to identify the positions.

To introduce the characteristics of the temperature selection [see chapter B, "Switches", Page 26](#).

Bar-graph



1. Select the Bar Graph tool button.
2. Using the mouse, define the object size.
3. Select the **Edit/Bar Graph Properties** menu (or right mouse click or double click).
4. Select the type of bar graph (for example: horizontal, large graduation).
5. Assign the word %MW35 to the object using the **Modify** button. This word will contain the oven temperature value. Click **Ok**.
6. Click **Options** and set the object to cyclic readings. The temperature must be between 290° C and 520° C. If the temperature is outside these limits the display will switch to blue. Click **Threshold** to define a high threshold (H) of 520 and a low threshold (L) of 290 and click **Color** to define the colors.
7. Click **OK** to confirm. The bar-graph is displayed but the graduations are not identified.
8. Using the **Text** tool, enter the values to allow the operator to identify the positions.

To introduce the characteristics of the temperature monitoring, [see chapter B, "Bar-graph", Page 23](#).

3. Creating the application

Assigning the static function keys

In order to assign the static function keys:

1. Select the **Configuration/Function Keys** menu. The front panel of the terminal will then be displayed.
2. Double click the required function key (For example: F1).
3. Select the toggle command type.
4. Click **Ok** to confirm.

Note **Bits associated with the dialog static function keys that can be used in the PLC application**

A reserved word in the dialog table indicates the status of the function keys in the form of a word bit: bit at 1 = key pressed.
In our example the word %MW100 is used.

	Bit 1	Bit 0
%MW100	<input type="checkbox"/>	<input type="checkbox"/>
	F2	F1

Bits B0 and B1 are associated with the F1 and F2 command keys.

3. Creating the application

Locking the static function keys

To perform this function, you must:

- know the number of the displayed page,
- lock or unlock the key as the case may be.

Number of the displayed page

A word in the dialog table contains the number of the displayed page; the **Page/property** menu gives the number of each page:

- Menu: page No. 1
- Dough preparation: page No. 2
- Dough baking: page No. 3
- Maintenance: page No. 4

In our example word %MW101 is used.

Locking the static function keys

A word in the table is assigned to static function key locking. In our example word %MW102 is used.



Set bit B1 to 1 to lock the F2 key.

Key locking by the PLC

The program has the following structure:

If %MW101 (No. of the displayed page) = 1, 2 or 3 set bit B1 of word %MW102 to 1 (F2 locked).

If %MW101 (No. of the displayed page) = 4 set bit B1 of word %MW102 to 0 (F2 unlocked).

3. Creating the application

Creating the dialog table

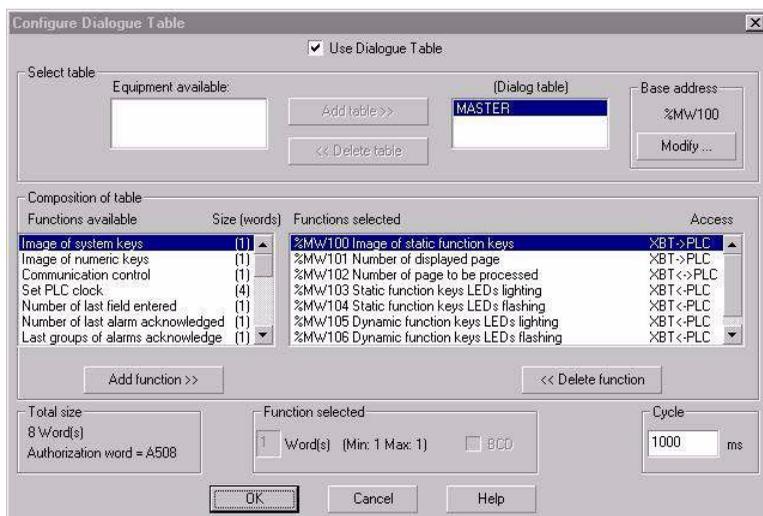
Several elements of the dialog table have been declared in the preceding chapters:

- %MW100: word containing the bits associated with the static function keys.
- %MW101: word containing the number of the displayed page.
- %MW102: word containing the static function key locking command.
- %MW104: word containing the alarm bit.

Select the **Configuration/Dialog table** menu

Check the **Use dialog table** option.

For more explication, [see chapter C, § 2. Dialog table content, Page 9.](#)



E

3. Creating the application

Alarm processing

Reminder of the expression of requirements

If the baking temperature is too high, an alarm will be displayed in a strip on the application pages, the Alarm indicator will flash;

- you can acknowledge the alarm by pressing ENTER,
- or consult the alarm page by pressing SHIFT+ ENTER.

PLC command to display the alarm

The dialog table contains words reserved for displaying alarms. Display is commanded by the PLC by setting a word bit to 1 in the dialog table. In our example, bit B0 of word %W104 is used.

Alarm configuring by the PLC

Go to the alarm page by means of the **Page tree structure** window, select the **Page/Properties** menu and click the **Extension** button in the Property window.

The screenshot shows the 'Properties of page' dialog box with the following configuration:

- Number: 1
- Name: High Oven Temperature
- Use model: 1 : Alarm model 1
- Activated by bits: MASTER %MW107>X0
- Extensions: Priority 1, Group Group1, Relay checked, ACK checked.
- Type of appearance: Display checked, Printing checked, Storage checked.

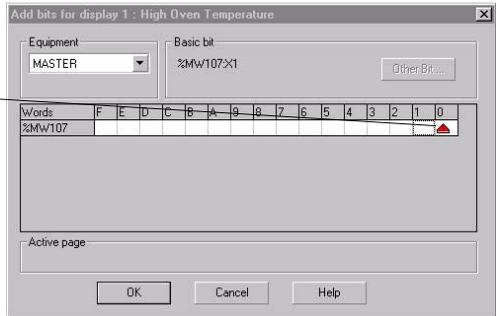
Select Type of action: **Display** (type of action when the alarm is triggered).
Select the **ACK** box: compulsory acknowledgment of the alarm when it is triggered.

3. Creating the application

Click **Add** to assign the alarm bit (bit 0 of word %MW104)

	Bit 15																				Bit 0
%MW104	AL16																				ALO

Click bit 0 to assign the alarm. The word is defined in the dialog table.

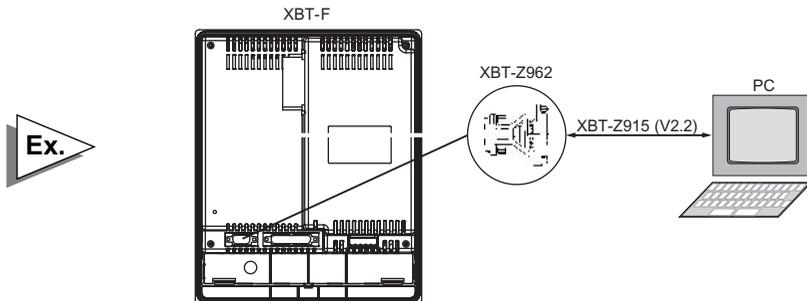


For more informations, [see chapter B, "Alarm page", Page 40.](#)

4. Loading the application in the terminal

1. Connect the terminal to the PLC using the relevant cable (ex.: XBTZ968 for a TSX Micro with Unitelway V2.0).
2. Connect cable **XBT-Z915, revision index 22 and the XBT-Z962** between the PC and the terminal.
3. Switch on the terminal (refer to the terminal service instruction for wiring of power supply).
4. Click "**Transfers**", "**Export**" to terminal using the software (application open).

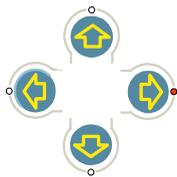
Example : Transfert from PC to PCMCIA card



See chapter B, § 12. [Transferring the application and the protocol to a PCMCIA card](#), Page 64, to direct export/import to PCMCIA memory card.

5. Running the application

The dynamic function keys are used to navigate between pages.



After pressing **MOD**, use the arrow keys to navigate from one field to the other.

Once you are positioned on the desired field, press **MOD** to select the field.

If you do not enter any value in the field within one minute, the field will exit the entry mode.

Cancelling the entry

Press the **ESC** key if you want to cancel the current entry; the field will then not be modified in any way.



Chapter F

Appendices

F

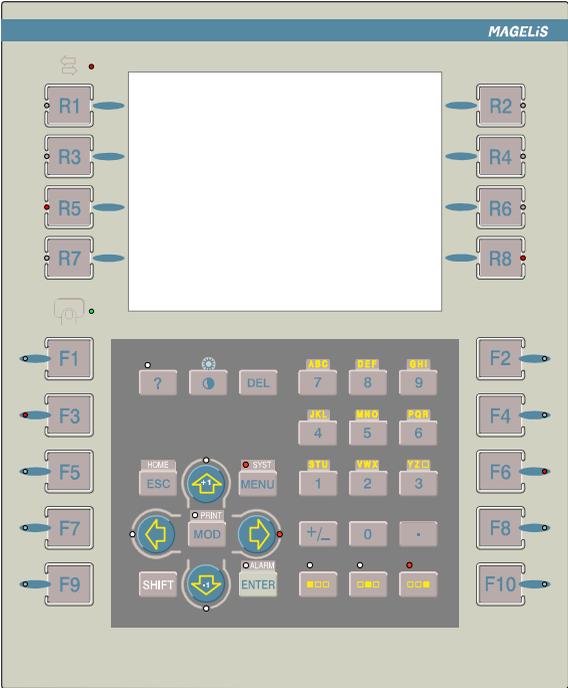
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1. XBT-F Specifications

XBT-F 01



1. XBT-F Specifications

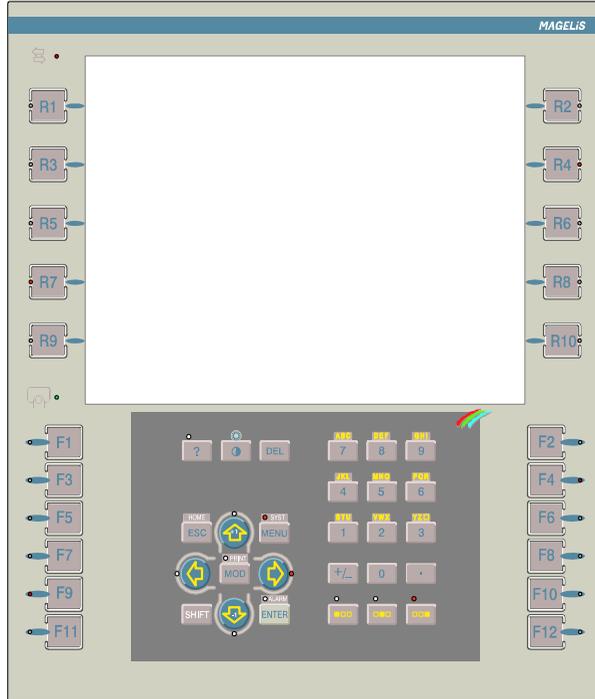
Types of display	LCD 5.7" 320*240 pixels STN monochrome 16 grey levels
Power	24 VDC Voltage limits : 18 to 30 VDC Ripple : 5 % maximum Consumption : 35 W
Memory	Application + protocol : PCMCIA card, 50 to 450 pages of applications, alarms and help according to the memory card in use Alarm log : 1000 events Recipe : 125 recordings and 5000 values maximum 255 form pages 512 classic alarm bits (+100 diagnostic alarm bits)
Serial link	RS232/RS485/RS422, asynchronous serial link
Printer / XBT-L1000 link	RS232 asynchronous serial link
Keyboard	Customisable membrane keypad
Indicating	1 communication status indicator light 1 indicator light per function key 1 indicator light per service key 1 keypad/standby screen busy indicator light
Exchange protocols	Downloadable from the protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, Modbus plus, Modbus, Jbus and those used for AEG, Allen Bradley, GE, Siemens and Omron PLCs.
Time-stamp	yes (no back-up)
Alarm relay	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load

1. XBT-F Specifications

Weight	3.96 lb (1.8 kg)
Temperature	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%, Storage : - 4 to +140 °F (- 20° to + 60 °C).
Degree of protection	IIP65 per IEC529 and degree 1 per NFC20-010; UL Type 4, 4X, NEMA Type 4
Installation and attachment	Built-in, attached with 10 push latches (provided), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
System languages	English, French, German, Italian, Spanish System pages can be translated in any other language
Static function keys	10
Dynamic function keys	8

1. XBT-F Specifications

XBT-F 02



1. XBT-F Specifications

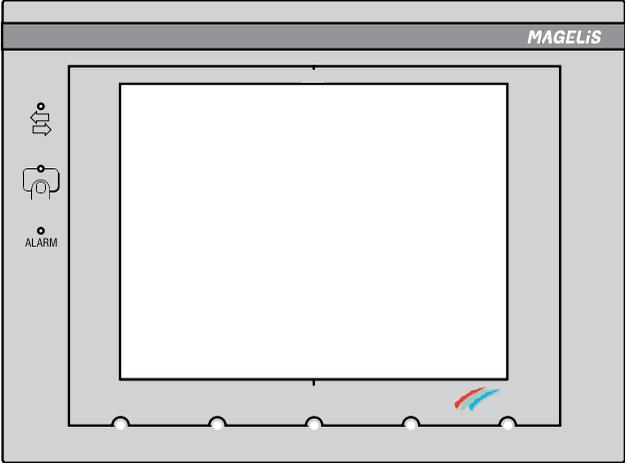
Types of display	LCD 10.4" 640*480 pixels STN monochrome (9.5" screen), 16 grey levels and TFT color (10.4" screen), 256 colors.
Power	24 VDC Voltage limits : 18 to 30 VDC Ripple: 5 % maximum Consumption: 35 W
Memory	Application+protocol: PCMCIA card, 30 to 300 pages of applications, alarms and help according to the memory card in use. Alarm log: 1000 events Recipes: 125 recordings and 5000 values maximum 255 form pages 512 classic alarm bits (+100 diagnostic alarm bits)
Serial link	RS232/RS485/RS422 asynchronous serial link
Printer / XBT-L1000 link	RS232 asynchronous serial link
Keyboard	Customisable membrane keypad
Indicating	1 communication status indicator light 1 indicator light per function key 1 indicator light per service key 1 keypad/standby screen busy indicator light
Exchange protocols	Downloadable from the protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, Modbus plus, Modbus, Ethernet TCP/IP Modbus, TCP/IP XWAY, Jbus and those used for AEG, Allen Bradley, GE, Siemens and Omron PLCs.
Time-stamp	yes (no back-up)
Alarm relay	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load

1. XBT-F Specifications

<i>Weight</i>	5.95 lb (2.7 Kg)
<i>Temperature</i>	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%, Storage : - 4 to +140 °F (- 20° to + 60 °C).
<i>Degree of protection</i>	IIP65 per IEC529 and degree 1 per NFC20-010 ; UL Type 4, 4X, NEMA Type 4
<i>Installation and attachment</i>	Built-in, attached with 12 push latches (provided), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
<i>System languages</i>	English, French, German, Italian, Spanish. System pages can be translated in any other language
<i>Static function keys</i>	12
<i>Dynamic function keys</i>	10

1. XBT-F Specifications

Touchscreen XBT-F 032



1. XBT-F Specifications

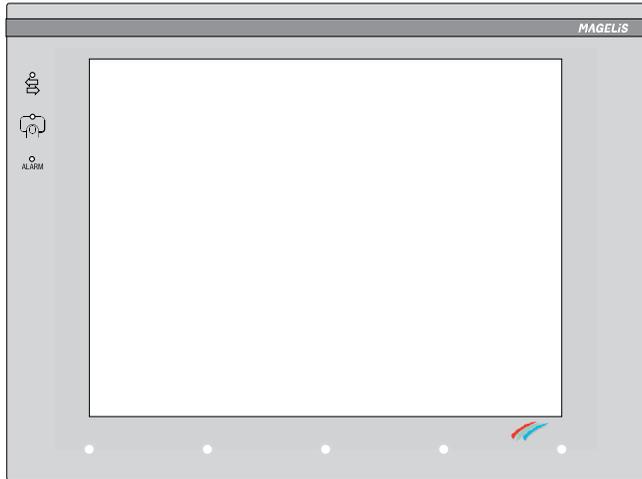
Types of display	LCD STN 5.7" 320*240 pixels 256 colors
Touchscreen pad	Resistive matrix 6x8 touch zones
Power	24 VDC Voltage limits : 18 to 30 VDC Ripple: 5 % maximum Consumption: 35 W
Memory	Application+protocol: PCMCIA card, 50 to 450 pages of applications, alarms and help according to the memory card in use. Alarm log: 1000 events Recipes: 125 recordings and 5000 values maximum 255 form pages 512 classic alarm bits (+100 diagnostic alarm bits)
Serial link	RS232/RS485/RS422 asynchronous serial link
Printer / XBT-L1000 link	RS232 asynchronous serial link
Indicating	1 communication status indicator light 1 touchscreen pad pressed/standby screen indicator light 1 alarm indicator light
Exchange protocols	Downloadable from the protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, Modbus plus, Modbus, Jbus and those used for AEG, Allen Bradley, GE, Siemens and Omron PLCs.
Time-stamp	yes (no back-up)
Alarm relay	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load

1. XBT-F Specifications

<i>Weight</i>	3.53 lb (1.6 kg)
<i>Temperature</i>	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%. Storage : - 4 to +140 °F (- 20° to + 60 °C)
<i>Degree of protection</i>	IP65 per IEC529 and degree 1 per NFC20-010; UL Type 4, 4x, NEMA Type 4
<i>Installation and attachment</i>	Built-in, attached with 8 push latches (provided), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
<i>System languages</i>	English, French, German, Italian, Spanish. System pages can be translated in any other language

1. XBT-F Specifications

Touchscreen XBT-F 034



F

1. XBT-F Specifications

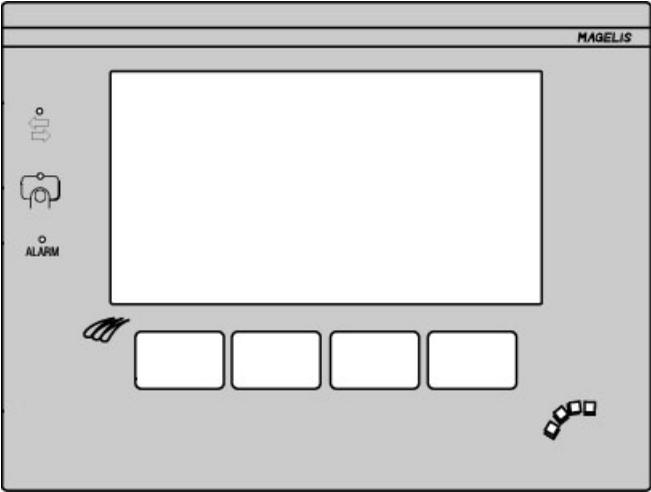
Types of display	LCD 10.4" 640*480 pixels 256 colors.
Touchscreen pad	Resistive matrix 10x13 touch zones
Power	24 VDC Voltage limits : 18 to 30 VDC Ripple: 5 % maximum Consumption: 35 W
Memory	Application+protocol: PCMCIA card, 30 to 300 pages of applications, alarms and help according to the memory card in use. Alarm log: 1000 events Recipes: 125 recordings and 5000 values maximum 255 form pages 512 classic alarm bits (+100 diagnostic alarm bits)
Serial link	RS232/RS485/RS422 asynchronous serial link
Printer / XBT-L1000 link	RS232 asynchronous serial link
Indicating	1 communication status indicator light 1 touchscreen pad pressed/standby screen indicator light 1 alarm indicator light
Exchange protocols	Downloadable from the protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, Modbus plus, Modbus, Ethernet TCP/IP Modbus, TCP/IP XWAY, Jbus and those used for AEG, Allen Bradley, GE, Siemens and Omron PLCs.
Time-stamp	yes (no back-up)
Alarm relay	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load

1. XBT-F Specifications

<i>Weight</i>	5.29 lb (2.4 kg)
<i>Temperature</i>	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%. Storage : - 4 to +140 °F (- 20° to + 60 °C)
<i>Degree of protection</i>	IP65 per IEC529 and degree 1 per NFC20-010; UL Type 4, 4x, NEMA Type 4
<i>Installation and attachment</i>	Built-in, attached with 10 push latches (provided), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
<i>System languages</i>	English, French, German, Italian, Spanish. System pages can be translated in any other language

1. XBT-F Specifications

XBT-FC 02



1. XBT-F Specifications

Types of display	LCD STN 5.7" touch screen 320*240 pixels 256 colors
Touchscreen pad	Resistive matrix 6x8 touch zones
Keyboard	4 keys on 1 row
Power	24 VDC Voltage limits : 18 to 30 VDC Ripple: 5 % maximum Consumption: 35 W
Memory	Application+protocol: PCMCIA card, 50 to 450 pages of applications, alarms and help according to the memory card in use. No alarms Recipes: 125 recordings and 5000 values maximum 255 form pages
Serial link	RS232/RS485/RS422 asynchronous serial link
Printer / XBT-L1000 link	RS232 asynchronous serial link
Indicating	1 communication status indicator light 1 touchscreen pad pressed/standby screen indicator light 1 alarm indicator light
Exchange protocols	Downloadable from the protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, Modbus plus, Modbus, Jbus and those used for AEG, Allen Bradley, GE, Siemens and Omron PLCs.
Time-stamp	yes (no back-up)
Alarm relay	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load

1. XBT-F Specifications

<i>Weight</i>	3.53 lb (1.6 kg)
<i>Temperature</i>	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%. Storage : - 4 to +140 °F (- 20° to + 60 °C)
<i>Degree of protection</i>	IP65 per IEC529 and degree 1 per NFC20-010; UL Type 4, 4x, NEMA Type 4
<i>Installation and attachment</i>	Built-in, attached with 8 push latches (provided), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
<i>System languages</i>	English, French, German, Italian, Spanish. System pages can be translated in any other language

1. XBT-F Specifications

XBT-FC 04



1. XBT-F Specifications

Types of display	LCD 10.4" touch screen 640*480 pixels 256 colors.
Touchscreen pad	Resistive matrix 8x13 touch zones
Keyboard	8 keys on 1 row
Power	24 VDC Voltage limits : 18 to 30 VDC Ripple: 5 % maximum Consumption: 35 W
Memory	Application+protocol: PCMCIA card, 30 to 300 pages of applications, alarms and help according to the memory card in use. Alarm log: 1000 events Recipes: 125 recordings and 5000 values maximum 255 form pages 512 classic alarm bits (+100 diagnostic alarm bits)
Serial link	RS232/RS485/RS422 asynchronous serial link
Printer / XBT-L1000 link	RS232 asynchronous serial link
Indicating	1 communication status indicator light 1 touchscreen pad pressed/standby screen indicator light 1 alarm indicator light
Exchange protocols	Downloadable from the protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, Modbus plus, Modbus, Ethernet TCP/IP Modbus, TCP/IP XWAY, Jbus and those used for AEG, Allen Bradley, GE, Siemens and Omron PLCs.
Time-stamp	yes (no back-up)

1. XBT-F Specifications

<i>Alarm relay</i>	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load
<i>Weight</i>	5.29 lb (2.4 kg)
<i>Temperature</i>	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%. Storage : - 4 to +140 °F (- 20° to + 60 °C)
<i>Degree of protection</i>	IP65 per IEC529 and degree 1 per NFC20-010; UL Type 4, 4x, NEMA Type 4
<i>Installation and attachment</i>	Built-in, attached with 10 push latches (provided), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
<i>System languages</i>	English, French, German, Italian, Spanish. System pages can be translated in any other language

1. XBT-F Specifications

XBT-FC 08



1. XBT-F Specifications

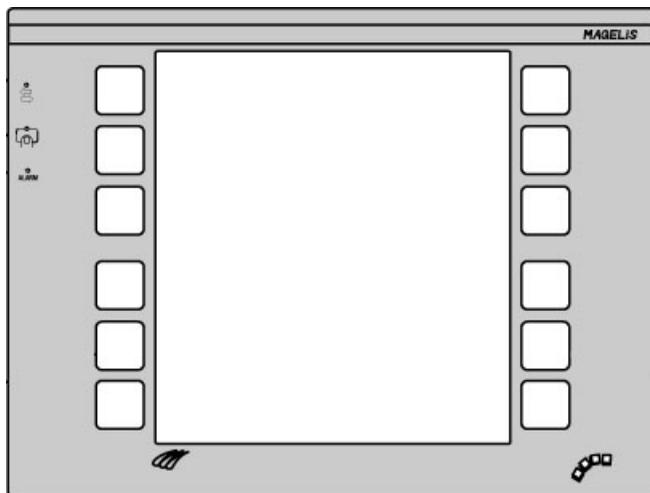
Types of display	LCD TFT 10.4" touch screen 640*480 pixels 256 colors.
Touchscreen pad	Resistive matrix 6x13 touch zones
Keyboard	16 keys on 2 rows
Power	24 VDC Voltage limits : 18 to 30 VDC Ripple: 5 % maximum Consumption: 35 W
Memory	Application+protocol: PCMCIA card, 30 to 300 pages of applications, alarms and help according to the memory card in use. Alarm log: 1000 events Recipes: 125 recordings and 5000 values maximum 255 form pages 512 classic alarm bits (+100 diagnostic alarm bits)
Serial link	RS232/RS485/RS422 asynchronous serial link
Printer / XBT-L1000 link	RS232 asynchronous serial link
Indicating	1 communication status indicator light 1 touchscreen pad pressed/standby screen indicator light 1 alarm indicator light
Exchange protocols	Downloadable from the protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, Modbus plus, Modbus, Ethernet TCP/IP Modbus, TCP/IP XWAY, Jbus and those used for AEG, Allen Bradley, GE, Siemens and Omron PLCs.
Time-stamp	yes (no back-up)

1. XBT-F Specifications

<i>Alarm relay</i>	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load
<i>Weight</i>	5.29 lb (2.4 kg)
<i>Temperature</i>	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%. Storage : - 4 to +140 °F (- 20° to + 60 °C)
<i>Degree of protection</i>	IP65 per IEC529 and degree 1 per NFC20-010; UL Type 4, 4x, NEMA Type 4
<i>Installation and attachment</i>	Built-in, attached with 10 push latches (provided), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
<i>System languages</i>	English, French, German, Italian, Spanish. System pages can be translated in any other language

1. XBT-F Specifications

XBT-FC 06



F

1. XBT-F Specifications

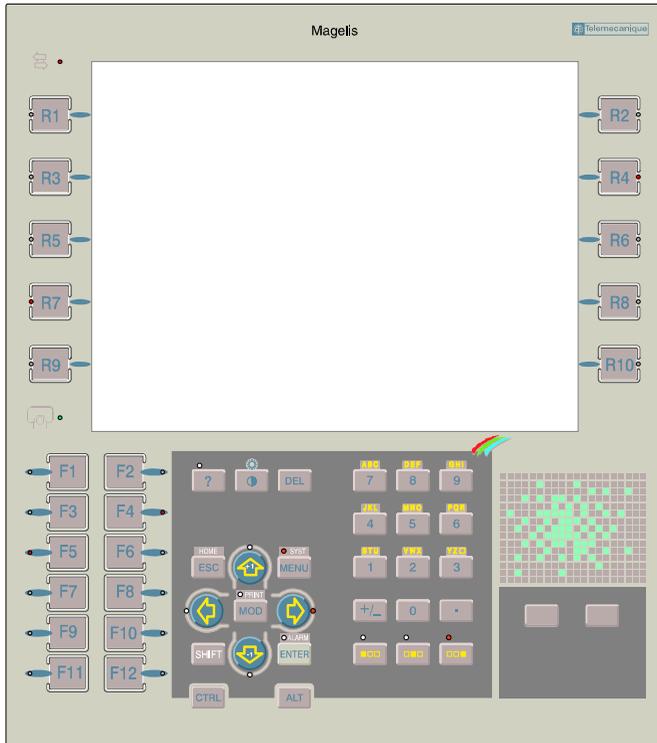
Types of display	LCD TFT 10.4" touch screen 640*480 pixels 256 colors.
Touchscreen pad	Resistive matrix 10x9 touch zones
Keyboard	12 keys on 2 columns
Power	24 VDC Voltage limits : 18 to 30 VDC Ripple: 5 % maximum Consumption: 35 W
Memory	Application+protocol: PCMCIA card, 30 to 300 pages of applications, alarms and help according to the memory card in use. Alarm log: 1000 events Recipes: 125 recordings and 5000 values maximum 255 form pages 512 classic alarm bits (+100 diagnostic alarm bits)
Serial link	RS232/RS485/RS422 asynchronous serial link
Printer / XBT-L1000 link	RS232 asynchronous serial link
Indicating	1 communication status indicator light 1 touchscreen pad pressed/standby screen indicator light 1 alarm indicator light
Exchange protocols	Downloadable from the protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, Modbus plus, Modbus, Ethernet TCP/IP Modbus, TCP/IP XWAY, Jbus and those used for AEG, Allen Bradley, GE, Siemens and Omron PLCs.
Time-stamp	yes (no back-up)

1. XBT-F Specifications

<i>Alarm relay</i>	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load
<i>Weight</i>	5.29 lb (2.4 kg)
<i>Temperature</i>	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%. Storage : - 4 to +140 °F (- 20° to + 60 °C)
<i>Degree of protection</i>	IP65 per IEC529 and degree 1 per NFC20-010; UL type 4, 4x, NEMA 4
<i>Installation and attachment</i>	Built-in, attached with 10 push latches (provided), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
<i>System languages</i>	English, French, German, Italian, Spanish. System pages can be translated in any other language

1. XBT-F Specifications

TXBT



1. XBT-F Specifications

<i>Types of display</i>	LCD 10.4" 640x480 pixels Color (10.4" screen), 256 colors
<i>Power supply</i>	24 VDC Voltage limit: 18 to 30 VDC Ripple: 5% maximum Consumption: 80 W
<i>Hard disk</i>	1.6 Gb or more
<i>Dynamic RAM</i>	16 Mb expandible to 32 Mb
<i>Application memory</i>	Application+protocol: PCMCIA type II card Faults history: PCMCIA card
<i>Serial link</i>	PLC: isolated serial link, RS232C/RS485/RS422 PC: Non-isolated serial link, RS232C
<i>Printer link</i>	Parallel
<i>External keyboard</i>	PS/2 compatible
<i>Bus or network</i>	Slot for PCMCIA type II and III card
<i>ISA bus cards</i>	2 format 2/3 slots
<i>Keypad</i>	Customisable membrane keypad
<i>Indication</i>	1 communication status indicator light 1 indicator light per function key 1 indicator light per service key 1 keypad/standby screen busy indicator light

1. XBT-F Specifications

<i>Signaling Exchange protocol</i>	Downloadable from protocol diskette using the XBT-L1000 software. Protocols: UNI-TELWAY, FIPWAY, FIPIO, ISAWAY, Modbus plus, Modbus, Jbus
<i>Time-stamp</i>	yes (with back-up)
<i>Alarm relay</i>	min. 1.0 mA / 5V AC/DC usage limits max. 1.0 A / 24 V DC -220 V AC resistive load max. 0.5 A / 24 V DC -220 V AC inductive load
<i>Weight</i>	11.2 lb (5.1 kg)
<i>Temperature</i>	Operating : +32 to +113 °F (0 to 45 °C), Humidity : 0 to 85%. Storage : - 4 to +140 °F (- 20° to + 60 °C)
<i>Degree of protection</i>	P65 per Section IEC529 and degree 1 per NFC20-010; UL type 4, 4x, NEMA 4
<i>Installation and attachment</i>	Built-in, attached with 12 push latches (supplied), on panel 0.06 to 0.24 inches thick (1.6 to 6 mm).
<i>System language</i>	French, English, Spanish, Italian, German. System pages can be translated in any other language
<i>Static function keys</i>	10
<i>Dynamic function keys</i>	12
<i>Application, help and alarm pages</i>	Application, alarm and help pages: limited to disk capacity, maximum of 1024 pages

2. System messages

System messages generated by XBT

(system messages in English, not configurable)

WIRING FAULT

SWITCH POWER OFF : Incorrect cable.

WAITING FOR TRANSFER : Waiting for downloading.

NO PROGRAM : No application in the product.

DOWNLOAD IN PROGRESS : Downloading to XBT in progress.

DOWNLOAD ABORTED : Downloading to XBT cancelled by the operator.

DOWNLOAD FAILED : Unsuccessful downloading to XBT.

DOWNLOAD COMPLETED : Downloading to XBT successfully completed.

UPLOAD IN PROGRESS : Uploading to the PC in progress.

UPLOAD ABORTED : Uploading to the PC cancelled by the operator.

UPLOAD FAILED : Unsuccessful uploading to the PC.

UPLOAD COMPLETED : Uploading to the PC successfully completed.

CONNECTING : Cable reading and search for the communication configuration in progress.

APPLICATION FAULT : Application error (incoherence).

2. System messages

System messages generated by XBT (5 languages), language selected during configuration.

WRONG PASSWORD : Entry of an incorrect password.

PAGE DOES NOT EXIST : Call-up of a non-existent page.

PROTECTED ACCESS PAGE : Call-up of a page protected by password.

Remedy: enter the password protecting the page.

IMPOSSIBLE TO WRITE VARIABLE : Writing of a non-existent variable or XBT <-> PLC connection problems. Possible cause: equipment address error, variable address error.

Remedy: change the parameters of the variable in XBT-L1000.

OVERFLOW MIN <= VALUE >= MAX : Entry of a value which is outside the limits.

INCORRECT DIALOG TABLE AUTHORIZATION : Incorrect authorization word.

Remedy: write in the word "Authorization" the value given by XBT-L1000 in the dialog box "Configure dialog table", "Authorization word=" field.

DIALOG TABLE READING IMPOSSIBLE : Connection problems between XBT <-> PLC.

Same possible cause, same remedy: see "Impossible to write variable".

DIALOG TABLE WRITING IMPOSSIBLE : Writing to a protected zone or XBT <-> PLC connection problems.

Same possible cause, same remedy: see "Impossible to write variable".

PRINTING ACKNOWLEDGED : Transient display if printing requested by the user is possible.

IMPOSSIBLE ACTION, PRINTING IN PROGRESS : Transient display when printing is in progress.

IMPOSSIBLE ACTION, FAULTY PRINTER : Transient display when printer is faulty, or the terminal is still connected to XBT-L1000 or there is no paper in the printer.

2. System messages

SAVING IN PROGRESS : Transient display during saving on the PCMCIA card of:

- a recipe recording,
- an adjustment page.

SAVING IMPOSSIBLE : Transient display after request for saving on the PCMCIA card of:

- a recipe recording,
- an adjustment page.

Possible cause: PCMCIA card full or zone allocated to storage full.

LOADING IN PROGRESS : Transient display during loading from the PCMCIA card of:

- a recipe recording,
- an adjustment page.

LOADING IMPOSSIBLE : Transient display after request for loading from the PCMCIA card of:

- a recipe recording,
- an adjustment page.

Possible cause: file damaged.

TRANSFER IN PROGRESS : Transient display during transfer to the control system of recipe recording data. The transfer can be aborted by pressing ESC (key or touch zone).

TRANSFER IMPOSSIBLE : Transient display after request for transfer of a recipe recording to the control system.

Possible cause: connection problem between the terminal and the control system.

2. System messages

No saving of value for objects set to error

Transient display after saving a recipe recording on the PCMCIA card.

Possible causes

- the objects could not read their variables (symbol: or),
- the request for saving has been initiated while all the objects had not read their variables. The objects are not displayed yet.

Remedies:

- check that the equipment item of the variable(s) associated with the objects set to error is properly connected to the terminal,
- check that the variables of the objects set to error are declared in the PLC.

- wait for the full page to be displayed before requesting saving. In both cases: delete incomplete saving, solve the problem, save again.

Objects set to error not initialized

Transient display after loading of a recipe recording from the PCMCIA card.

Possible causes:

- some objects were set to error during saving and thus not saved,
- one or several objects have been added to the page since last saving of the recording; no value has thus been recorded by the objects.

Remedy: in both cases, the terminal initializes the relevant objects to 0.

- The objects must be set to a correct value.
- The recording must be saved again and include the values correctly initialized by the user.
- All these actions must be performed before transfer to the control system in order not to transfer erroneous values.

OPERATION IN LOCAL MODE: Display in the status line.

In this mode, the terminal does not indicate the status of the control system but usually the status of a recipe recording which has just been loaded from the PCMCIA card.



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MAGELIS terminals XBT-F



**ALIMENTATION / ALIMENTATION / STROMVERSORGUNG
ALIMENTAZIONE / ALIMENTACION : 24V DC**

Après une coupure d'alimentation, attendre 2 secondes avant de remettre sous tension le produit.

After a power supply cutoff wait 2 seconds at least before putting the product under voltage again.

Nach einer Netzunterbrechung sollte das Gerät erst nach mind. 2 sekunden wieder eingeschaltet werden.

Dopo un'interruzione nell'alimentazione, attendere almeno 2 secondi prima di rimettere il prodotto sotto tensione.

Después de un corte de corriente, esperar 2 segundos al menos antes de poner de nuevo el producto bajo tensión.

Informations réservées à certaines législations locales.

Information reserved for local legislation.

Diese Informationen sind abhängig von den Gesetzen des jeweiligen Landes.

Informazioni riservate a talune direttive locali.

Informaciones reservadas a la legislación del país.



DANGER

This equipment must be installed or serviced only by qualified electrical personnel.

- Turn off all power supplying this equipment before working on or inside equipment.
- Always use a properly rated voltage to supply this equipment.

EXPLOSION - HAZARDOUS ATMOSPHERE

When used in hazardous location (Class I Div.2) and if suitable for the application (see product label) do not connect or disconnect equipment unless power has been switched off or the area is known to be non hazardous.

Failure to follow these instructions will result in death or serious injury.



WARNING

UNINTENTIONAL EQUIPMENT OPERATION

XBT-F should be used only with XBT-L100__ Software V3.3 or later.

Failure to follow this instruction can result in death, injury or equipment damage.

M

MAGELIS terminals XBT-F

Informations réservées à certaines législations locales.

Information reserved for local legislation.

Diese Informationen sind abhängig vonden Gesetzen des jeweiligen Landes.

Informazioni riservate a talune direttive locali.

Informaciones reservadas a la legislación del país.



WARNING

UNINTENTIONAL EQUIPMENT OPERATION

The application of this product requires expertise in the design and programming of control systems. Only persons with such expertise should be allowed to program, install, alter and apply this product.

Failure to observe this precaution can result in death, severe personal injury or equipment damage.



WARNING

IMPROPER EQUIPMENT OPERATION

The XBT should only be installed and used by the authorized personnel that have been assigned the appropriate confidential mode PASSWORDS by the project manager.

Failure to observe this precaution can result in equipment damage or production loss.



WARNING

UNINTENTIONAL EQUIPMENT OPERATION

Since all alarms are always time/date stamped and the control program may rely on the XBT's real time clock, it is important to set or verify the XBT's date and time after every new installation, repair, disassembly, shipping or battery change.

Failure to observe this precaution can result in equipment damage or production loss.

ENVIRONNEMENT / ENVIRONMENT / UMGEBUNG / ENTORNO / AMBIENTE

- Température de fonctionnement

- Ambient operation temperature
- Betriebstemperatur
- Temperatura ambiente di funzionamento
- Temperatura ambiente de funcionamiento

0 °C... +45 °C (32°F...+113°F)



Il ne faut jamais dépasser les 45°C (113°F) dans l'armoire quel que soit l'angle d'inclinaison.

Never exceed 45°C (113°F) temperature in the cabinet whatever the steepness of the terminal.

45°C im elektrischen Kasten darf für allen Neigungswinkeln nie überschritten werden.

Qualunque sia l'angolo di inclinazione non bisogna mai superare i 45°C nell'armadio.

Nunca sobrepasar 45°C dentro del armario, cualquiera que sea el ángulo del terminal.



Il faut prévoir une ventilation dans l'armoire.

The cabinet must be ventilated.

Eine Belüftung im elektrischen Kasten vorzusehen.

Occorre prevedere una ventilazione nell'armadio.

Hay que prever una ventilación dentro del armario.

Position terminal Terminal position Terminalstellung Posizione del terminale Posición del terminale	Température ambiante (°C)(°F) Ambient temperature (°C) (°F) Zimmertemperatur (°C) (°F) Temperatura ambiente (°C) (°F) Temperatura ambiente (°C) (°F)
90°	0°C...+45 °C (32°F...+113°F)
45° /	0°C...+35°C (32°F...+95°F)
0° —	0°C...+20°C (32°F...+64°F)

- Température de stockage

- Storage temperature
- Lagerungstemperatur
- Temperatura ambiente di stoccaggio
- Temp. ambiente de almacenamiento

- 20 °C...+60 °C (- 4°F...+140°F)

- Humidité relative (sans condensation)

- Humidity (without condensation)
- Luftfeuchtigkeit (ohne Kondensierung)
- Umidità (senza condensazione)
- Humedad (sin condensación)

0 ... 85 %

MAGELIS terminals XBT-F

- Protection (face avant)

- Protection (front panel)
- Schutzart (für die Frontseite)
- Protezione (lato anteriore)
- Protección (panel frontal)

IP 65, Nema type 4
(IEC 529 - NF C 20010)
(UL Type 4x indoor)

- Protection (face arrière)

- Protection (rear panel)
- Schutzart (für die Rückseite)
- Protezione (lato posteriore)
- Protección (cara trasera)

IP 20

- Tenue aux décharges électrostatiques

- E.S.D. withstand
- Elektrostatische Verträglichkeit
- Tenuta alle scariche elettrostatiche
- Resistencia a descargas electroestáticas

IEC 1000 - 4 - 2
niveau 3 / level 3 / Grad 3 / livello 3 / nivel 3

- Perturbations électromagnétiques

- Electromagnetic interference
- Elektromagnetische Verträglichkeit
- Perturbazioni elettromagnetiche
- Perturbaciones electromagnéticas

IEC 1000 - 4 - 3
10 V / m

- Perturbations électriques

- Electrical interference
- Elektrische Verträglichkeit
- Perturbazioni elettriche
- Perturbaciones eléctricas

IEC 1000 - 4 - 2
niveau 3 / level 3 / Grad 3 / livello 3 / nivel 3

- **Chocs/ Shocks /**
Shockfestigkeit / Urti / Impactos

**IEC 68 - 2 - 27 impulsion 1/2 sinusoidale 11 ms,
15 g dans les 3 axes/**
1/2 sinusoidal pulse on 3 axes, 15 g for 11ms/
11 ms, 15 g halbsinusförmige Impulse in 3 Achsen /
impulso 1/2 sinusoidale 11 ms, nei 3 assi 15 g /
impulso 1/2 sinusoidal 11 ms, 15 g en los 3 ejes.

- **Vibrations/ Vibration /**
Vibrationsfestigkeit / Vibrazioni /
Vibraciones

IEC 68 - 2 - 6 **DNU**
0,075 mm 10 Hz - 57 Hz 2 Hz à 11,2 Hz +/- 2 mm
1 g 57 Hz - 150 Hz 11,2 Hz à 150 Hz 1 g

MAGELIS terminals XBT-F

XBT-F01 / XBT-F02

ETIQUETTES PREDECOUPEES (mise en place) / PRE-CUT LABELS (placement) / VORGESCHNITTENE ETIKETTEN (Einsetzen) / ETICHETTE PRONTE DA RITAGLIARE (inserimento) / ETIQUETAS RECORTADAS (colocación)

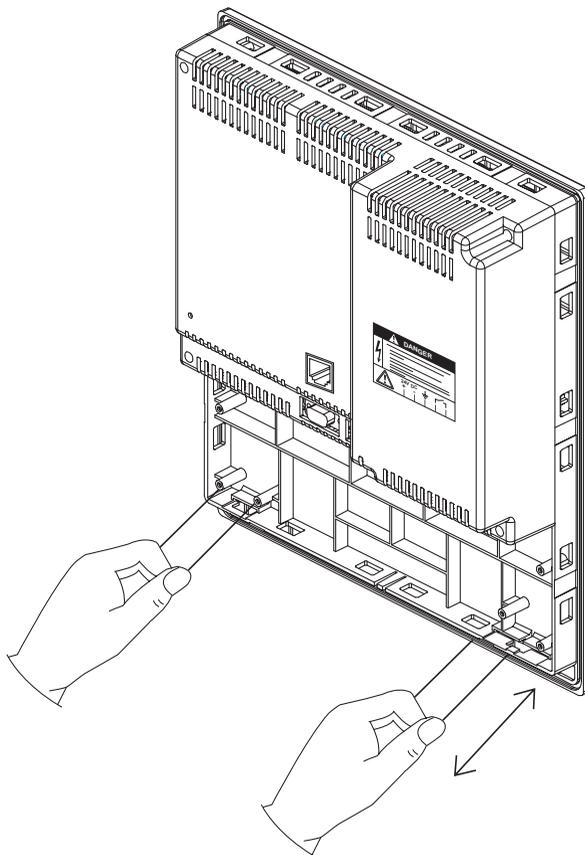


PLANCHE ETIQUETTES PREDECOUPEES / PRE-CUT LABELS / EINZUG FÜR VORGESCHNITTENE ETIKETTEN / INSERTO ETICHETTE PRONTE DA RITAGLIARE / PLACA DE ETIQUETAS RECORTADAS /

XBT-F01 : Réf XBL Y F10 / Ref. XBL Y F10 / Rif. XBL Y F10 / Ref. XBL Y F10 /

XBT-F02 : Réf XBL Y F12 / Ref. XBL Y F12 / Rif. XBL Y F12 / Ref. XBL Y F12 /

M

MAGELIS terminals XBT-F



Lors de l'installation du terminal sur son support, bien vérifier que l'extrémité de l'étiquette reléguable n'est pas positionnée entre le support et le joint du terminal.

En effet si l'ensemble est soumis à des projections de liquide, il peut y avoir pénétration du liquide dans le terminal par les étiquettes reléguables. Ce qui peut entraîner des défauts de fonctionnement ou choc électrique.

When installing the terminal on its support, make sure that the end of the re-usable label is not positioned between the support of the terminal and the seal.

If it is and the assembly is subject to splashes of projections of liquid, the liquid may penetrate inside the terminal via the labels. This may cause operating faults or electric shocks.

Beim Installieren des Terminals auf seinem Träger muss dafür gesorgt werden, dass das Ende des Etiketts, das mit einem neuen Text versehen werden kann, nicht zwischen den Träger und die Terminaldichtung zu liegen kommt.

Wird die Einheit nämlich Flüssigkeitsspritzern ausgesetzt, kann an der Stelle des Etiketts Flüssigkeit in das Terminal eindringen und Betriebsmängel oder Elektroschock verursachen.

Durante l'installazione del terminale sul rispettivo supporto, verificare bene che l'estremità dell'etichetta leggendaria non sia posizionata tra il supporto e il giunto del terminale.

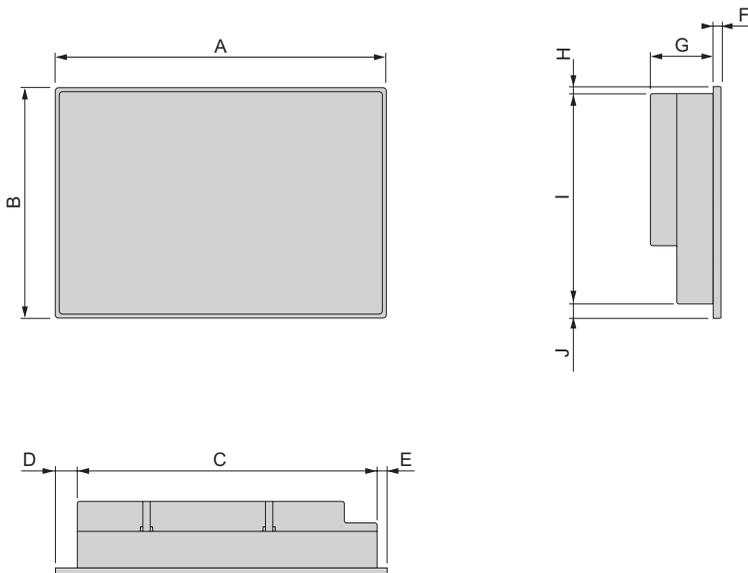
Infatti se il complesso è soggetto a schizzi di liquido, possono verificarsi penetrazioni del liquido nel terminale attraverso le etichette leggendarie, il che può provocare malfunzionamenti o scosse elettriche.

Al instalar el terminal sobre su soporte, verificar que la extremidad de la etiqueta de personalización no esté entre el soporte y la junta del terminal.

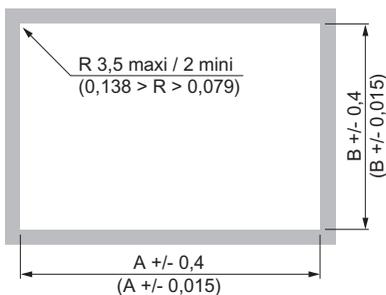
De facto, en caso de exposición del producto a proyecciones de líquido, éste puede penetrar al interior por las etiquetas, lo que pudiera provocar fallos o choque eléctrico.

MAGELIS terminals XBT-F

ENCOMBREMENTS / DIMENSIONS / ABMESSUNGEN / DIMENSIONI / DIMENSIONES
mm (inches)



DECOUPE DU PANNEAU / PANEL CUT-OUT / AUSSCHNITT FÜR TRÄGERPLATTE /
APERTURA NEL PANNELLO / MECANIZADO DEL SOPORTE



	XBT F01	XBT-F02	XBT-F032	XBT-F034	XBT-FC022310	XBT-FC044/084/064
A	209 (8,18)	285 (11,22)	186,2 (7,32)	284,9 (11,22)	186,2 (7,32)	284,9 (11,22)
B	243 (9,52)	309 (12,17)	136,2 (5,35)	210,9 (8,295)	136,2 (5,35)	210,9 (8,295)

M

MAGELIS terminals XBT-F

ENCOMBREMENTS / DIMENSIONS / ABMESSUNGEN / DIMENSIONI / DIMENSIONES
mm (inches)

	XBT-F01	XBT-F02	XBT-F032	XBT-F034	XBT-FC022310	XBT-FC044/084/064
A	220,3 (8,66)	296 (11,65)	197 (7,74)	296 (11,65)	197 (7,74)	296 (11,65)
B	265 (10,34)	332 (13,07)	147 (5,78)	222 (8,73)	147 (5,78)	222 (8,73)
C	208,3 (8,16)	284,3 (11,197)	185,5 (7,29)	284,3 (11,197)	185,5 (7,29)	284,3 (11,139)
D	6 (0,235)	5,85 (0,229)	5,75 (0,226)	5,85 (0,229)	5,75 (0,226)	5,85 (0,229)
E	6 (0,235)	5,85 (0,229)	5,75 (0,226)	5,85 (0,229)	5,75 (0,226)	5,85 (0,229)
F	7 (0,275)	7 (0,275)	7 (0,275)	7 (0,275)	11 (0,275)	11 (0,275)
G	81 (3,19)	84 (3,3)	85,6 (3,36)	84 (3,3)	85,6 (3,36)	84 (3,3)
H	6 (0,235)	5,85 (0,235)	5,75 (0,226)	5,85 (0,229)	5,75 (0,226)	5,85 (0,229)
I	242,3 (9,494)	308,3 (9,494)	135,5 (5,33)	210,3 (8,27)	135,5 (5,33)	210,3 (8,27)
J	16,7 (0,654)	17,85 (0,654)	5,75 (0,226)	5,85 (0,229)	5,75 (0,226)	5,85 (0,229)

MASSE / WEIGHT / GEWICHT / PESO / PESO

Kg (lbs)	1,8 (3,964)	2,7 (5,947)	1,6 (3,52)	2,4 (5,28)	1,6 (3,52)	2,4 (5,28)
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**EPAISSEUR DU SUPPORT / THICKNESS OF MOUNTING SURFACE / DICKE DER TRÄGER-
PLATTE / SPESSORE DEL SUPPORTO/ ESPESOR DEL SOPORTE :**

1,6...6 mm
(0,06...0,236 inch)

MAGELIS terminals XBT-F

MONTAGE / MOUNTING / EINBAUHINWEISE / MONTAGGIO / MONTAJE

Les terminaux XBT-F032 / XBT-FC022 se fixent sur le panneau au moyen de 8 agrafes à ressort /
XBT-F032 / XBT-FC022 terminals are attached to the panel by means of 8 spring loaded clips /
Die Bedientableaus XBT-F032 / XBT-FC022 werden an der Trägerplatte mit Hilfe von 8 ederklemmen befestigt /

I terminali XBT-F032 / XBT-FC022 si fissano sul pannello mediante 8 chiusure elastiche /
Se fijan los terminales XBT-F032 / XBT-FC022 en el soporte con 8 pestillos de retención elásticos /

Les terminaux XBT-F01, XBT-F034 et XBT-FC04/08/06 se fixent sur le panneau au moyen de 10 agrafes à ressort /
XBT-F01, XBT-F034 and XBT-FC04/08/06 terminals are attached to the panel by means of 10 spring loaded clips /
Die Bedientableaus XBT-F01, XBT-F034 und XBT-FC04/08/06 werden an der Trägerplatte mit Hilfe von 10 Federklemmen befestigt / I terminali XBT-F01, XBT-F034 e XBT-FC04/08/06 si fissano sul pannello mediante 10 chiusure elastiche /
Se fijan los terminales XBT-F01, XBT-F034 y XBT-FC04/08/06 en el soporte con 10 pestillos de retención elásticos /

Les terminaux XBT-F02 se fixent sur le panneau au moyen de 12 agrafes à ressort /
XBT-F02 terminals are attached to the panel by means of 12 spring loaded clips /
Die Bedientableaus XBT-F01 werden an der Trägerplatte mit Hilfe von 12 Federklemmen befestigt /
I terminali XBT-F01 si fissano sul pannello mediante 12 chiusure elastiche /
Se fijan los terminales XBT-F01 en el soporte con 12 pestillos de retención elásticos /



Attention au sens de montage des agrafes en fonction de l'épaisseur du support /

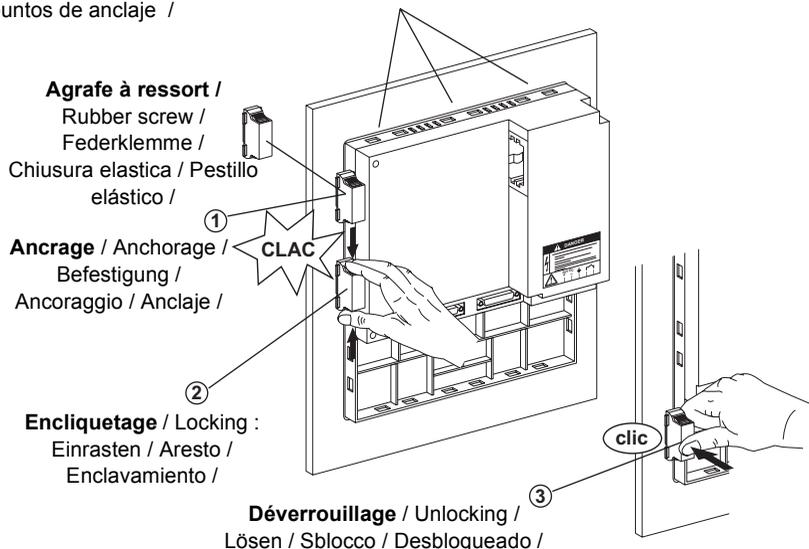
Note: the proper mounting orientation of the clip depends on the thickness of the mounting panel /

Achtung! Die Einsetzrichtung der Federklemmen hängt von der Dicke der Trägerplatte ab /

Attenzione al senso del montaggio delle chiusure in funzione dello spessore del supporto /

Cuidado: posición de los pestillos dependiendo del espesor del soporte /

points d'ancrage / anchoring points / Befestigungspunkte / punti di ancoraggio /
puntos de anclaje /



MAGELIS terminals XBT-F

MONTAGE suite / MOUNTING / EINBAUHINWEISE / MONTAGGIO / MONTAJE

Position des agrafes à ressort en fonction de l'épaisseur du panneau /

Orientation of the spring loaded clips depend on panel thickness /

Die Lage der Federklappen hängt von der Dicke der Trägerplatte ab /

Posizione dei punti di ancoraggio della chiusura elastica in funzione dello spessore del pannello /

Posición de los puntos de enclaje de los pestillos elásticos dependiendo del espesor del soporte /

panneau 1,6 - e - 4 mm (0,06 - e - 0,16 inch)

1,6 - e - 4 mm panel/ für Platte 1,6 - e - 4 mm /
pannello 1,6 - e - 4 mm/ soporte 1,6 - e - 4 mm/

panneau 4 - e - 6 mm (0,16 - e - 0,24 inch)

4 - e - 6 mm panel/ für Platte 4 - e - 6 mm /
pannello 4 - e - 6 mm / soporte 4 - e - 6 mm



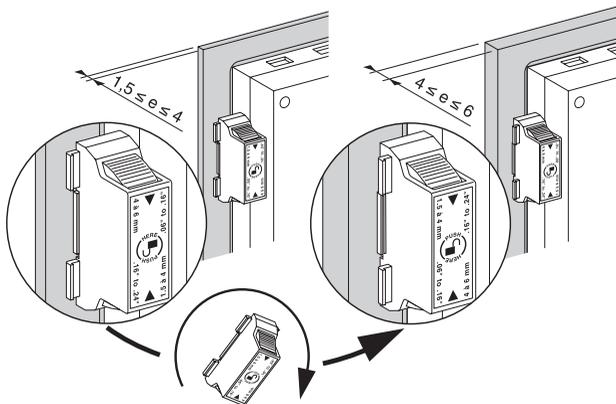
Pour garantir l'étanchéité, la surface du support doit être plane et rigide /

To ensure tightness, the panel surface must be flat and rigid /

Zur Gewährleistung der Dichtigkeit muß die Plattenfläche eben und starr sein /

Per garantire la tenuta, la superficie del supporto deve essere piana e rigida /

Para garantizar la estanqueidad, el panel del soporte debe ser plano y rígido /



Informations réservées à certaines législations locales.

Information reserved for local legislation.

Diese Informationen sind abhängig vonden Gesetzen des jeweiligen Landes.

Informazioni riservate a talune direttive locali.

Informaciones reservadas a la legislación del país.



CAUTION

SPRING LOADED MECHANISM

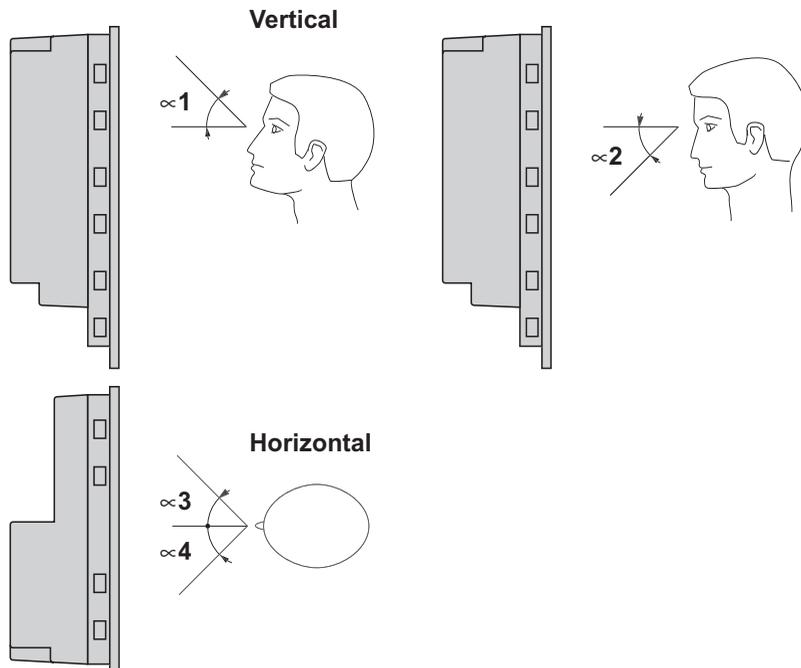
Do not release mechanism near face.

Failure to follow this instruction can result in injury

MAGELIS terminals XBT-F

MONTAGE suite / MOUNTING / EINBAUHNWEISE / MONTAGGIO / MONTAJE

Angles de vue optimaux (en degrés) / Optimum viewing angle (in degrees) / Optimaler Blickwinkel (in Grad) / Angolo visivo ottimale (in gradi) / Inclinationes óptimas de vista (en grados) /



Type	$\infty 1$	$\infty 2$	$\infty 3$	$\infty 4$
XBT-F01	20	20	30	30
XBT-F023	20	10	30	30
XBT-F0241/0243	30	20	45	45
XBT-F032	35	60	50	50
XBT-F0341/0343	30	20	45	45
XBT-FC2	35	60	50	50
XBT-FC0443	30	20	45	45
XBT-FC0643	30	20	45	45
XBT-FC0843	30	20	45	45
XBT-F0245/0246	80	80	80	80
XBT-F0345/0346	80	80	80	80
XBT-FC0445/0446	80	80	80	80
XBT-FC0645/0646	80	80	80	80
XBT-FC0845/0846	80	80	80	80

MAGELIS terminals XBT-F

Pour utiliser une application développée pour les produits

XBT-F 0231 / 0233 / 0241 / 0243 / 0341 / 0343 et XBT-FC 0443 / 0643 / 0843,

sur les produits

XBT-F 0235 / 0245 / 0246 / 0345 / 0346 et XBT-FC 0445 / 0446 / 0645 / 0646 / 0845 / 0846,

utiliser le logiciel XBT-L1000 V3.6 ou supérieur :

- . importer l'application depuis l'ancien produit Magelis,
- . changer de référence du produit (Configuration / Type terminal...)
- . exporter l'application vers le nouveau produit Magelis.

To use an application software developed for products

XBT-F 0231 / 0233 / 0241 / 0243 / 0341 / 0343 et XBT-FC 0443 / 0643 / 0843

on products

XBT-F 0235 / 0245 / 0246 / 0345 / 0346 et XBT-FC 0445 / 0446 / 0645 / 0646 / 0845 / 0846,

use software XBT-L1000 V3.6 or higher:

- . import application from the former Magelis product,
- . change reference of product (Configuration / Terminal type...),
- . export application towards new Magelis product.

Für die Verwendung von einer Anwendung, die für die pzodukten

XBT-F 0231 / 0233 / 0241 / 0243 / 0341 / 0343 et XBT-FC 0443 / 0643 / 0843

auf die Produkten

XBT-F 0235 / 0245 / 0246 / 0345 / 0346 et XBT-FC 0445 / 0446 / 0645 / 0646 / 0845 / 0846

entwickelt ist,

bitte die Software XBT-L1000 V3.6 oder eine höhere Version zu verwenden :

- . die Anwendung vom früheren MAGELIS-Produkt zu importieren;
- . der Produktshinweis (Konfiguration / Terminaltyp...) zu ändern ;
- . die Anwendung zum neuen MAGELIS-Produkt zu exportieren.

Per utilizzare un'applicazione sviluppata per i prodotti

XBT-F 0231 / 0233 / 0241 / 0243 / 0341 / 0343 et XBT-FC 0443 / 0643 / 0843,

sui prodotti

XBT-F 0235 / 0245 / 0246 / 0345 / 0346 et XBT-FC 0445 / 0446 / 0645 / 0646 / 0845 / 0846,

utilizzare il programma XBT-L1000 V3.6 o superiore :

- . importare l'applicazione dopo il vecchio prodotto Magelis,
- . cambiare il riferimento del prodotto (Configurazione / Tipo di terminale..)
- . esportare l'applicazione verso il nuovo prodotto Magelis

Para utilizar una aplicación desarrollada para los productos

XBT-F 0231 / 0233 / 0241 / 0243 / 0341 / 0343 et XBT-FC 0443 / 0643 / 0843

sobre los productos

XBT-F 0235 / 0245 / 0246 / 0345 / 0346 et XBT-FC 0445 / 0446 / 0645 / 0646 / 0845 / 0846

utilizar el software XBT-L1000 V3.6 o superior :

- . importar la aplicación desde el producto Magelis anterior,
- . cambiar la referencia del producto (Configuración / Tipo de terminal...),
- . exportar la aplicación hacia el nuevo producto Magelis.

MAGELIS terminals XBT-F

**MONTAGE DE LA CARTE MEMOIRE XBT-F01, XBT-F02, XBT-F034, XBT-FC 04, 08, 06 /
INSERTING THE MEMORY CARD XBT-F01, XBT-F02, XBT-F034, XBT-FC 04, 08, 06 /
EINSETZEN DER SPEICHERKARTE XBT-F01, XBT-F02, XBT-F034, XBT-FC 04, 08, 06 /
MONTAGGIO DELLA SCHEDA MEMORIA XBT-F01, XBT-F02, XBT-F034, XBT-FC 04, 08, 06 /
MONTAJE DE LA TARJETA DE MEMORIA XBT-F01, XBT-F02, XBT-F034, XBT-FC 04, 08, 06 /**

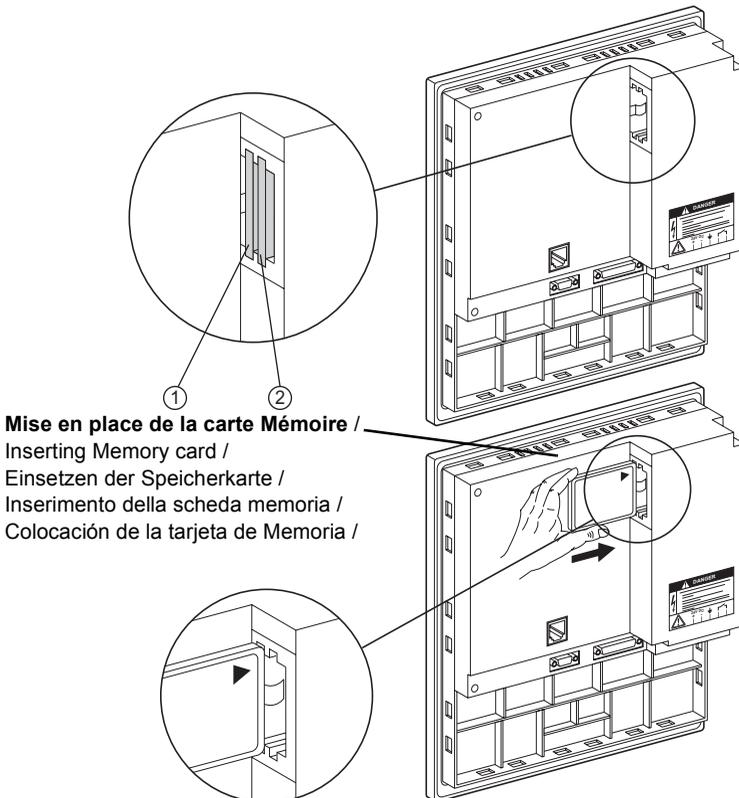
La carte mémoire PCMCIA Type II se positionne dans l'emplacement 1 /

The memory card PCMCIA Type II is inserted in location 1 /
Die Speicherkarte PCMCIA Typ II wird auf den Steckplatz 1 gesteckt /
La scheda memoria PCMCIA tipo II si colloca nella posizione 1 /
La tarjeta de memoria PCMCIA de tipo II se coloca en el lugar 1 /

La carte communication PCMCIA Type III se positionne dans l'emplacement 2* /

The communication card PCMCIA Type III is inserted in location 2* /
Die Kommunikationskarte PCMCIA Typ III wird auf den Steckplatz 2 gesteckt* /
La scheda comunicazione PCMCIA Tipo III si colloca nella posizione 2* /
La tarjeta de comunicación PCMCIA de tipo III se coloca en el lugar 2*

***Selon modèle /** depending on unit / je nach Modell/ secondo modello/ según modelo/



Mise en place de la carte Mémoire /
Inserting Memory card /
Einsetzen der Speicherkarte /
Inserimento della scheda memoria /
Colocación de la tarjeta de Memoria /

MAGELIS terminals XBT-F

MONTAGE DE LA CARTE MEMOIRE XBT-F032, XBT-FC02/
INSERTING THE MEMORY CARD XBT-F032, XBT-FC02 /
EINSETZEN DER SPEICHERKARTE XBT-F032, XBT-FC02 /
MONTAGGIO DELLA SCHEDA MEMORIA XBT-F032, XBT-FC02 /
MONTAJE DE LA TARJETA DE MEMORIA XBT-F032, XBT-FC02 /

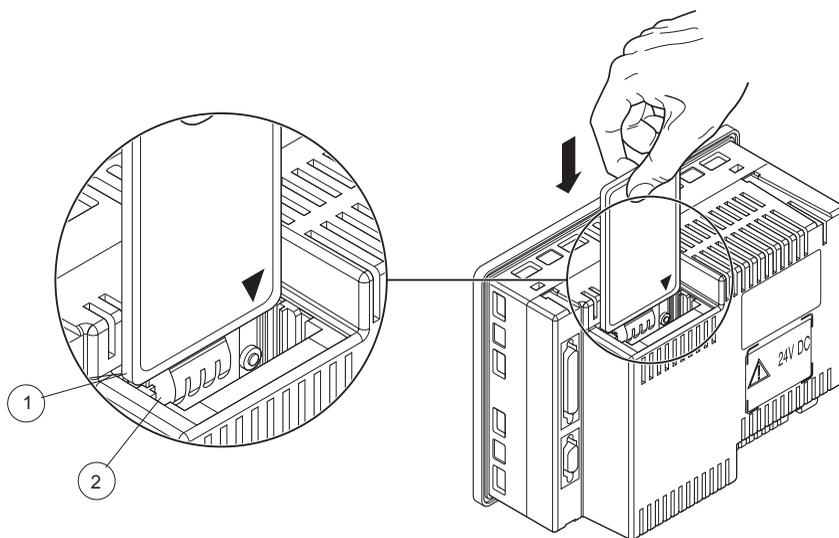
La carte mémoire PCMCIA Type II se positionne dans l'emplacement 1 /

The memory card PCMCIA Type II is inserted in location 1/
Die Speicherkarte PCMCIA Typ II wird auf den Steckplatz 1 gesteckt /
La scheda memoria PCMCIA tipo II si colloca nella posizione 1 /
La tarjeta de memoria PCMCIA de tipo II se coloca en el lugar 1 /

La carte communication PCMCIA Type III se positionne dans l'emplacement 2*/

The communication card PCMCIA Type III is inserted in location 2*/
Die Kommunikationskarte PCMCIA Typ III wird auf den Steckplatz 2 gesteckt* /
La scheda comunicazione PCMCIA Tipo III si colloca nella posizione 2* /
La tarjeta de comunicaci3n PCMCIA de tipo III se coloca en el lugar 2*

*Selon mod2le / depending on unit / je nachModell/ secondo modello/ seg2n modelo/

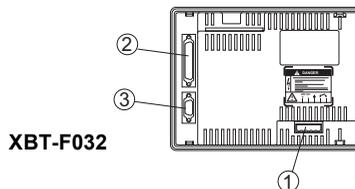
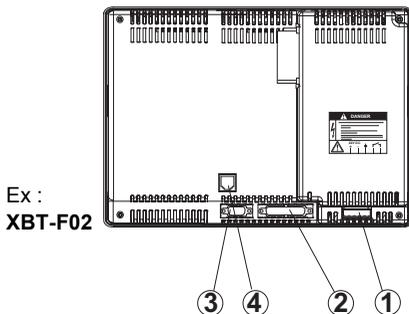


Mise en place de la carte M2moire /

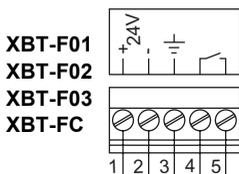
Inserting Memory card /
Einsetzen der Speicherkarte /
Inserimento della scheda memoria /
Colocaci3n de la tarjeta de Memoria /

MAGELIS terminals XBT-F

LIAISONS ELECTRIQUES / ELECTRICAL CONNECTIONS / VERBINDUNGSMÖGLICHKEITEN / COLLEGAMENTI / CONEXIONES ELÉCTRICAS



- ① - **ALIMENTATION ET SORTIE RELAIS**
POWER SUPPLY AND RELAY OUTPUT
STROMVERSORGUNG UND RELAISAUFGANG
ALIMENTAZIONE E USCITA RELE
ALIMENTACIÓN Y SALIDA RELÉ



La terre du produit doit toujours être reliée à celle de son alimentation/The ground of the product should always be connected to the ground of the power supply/Den Erdleiter des Geräts immer mit dem Leiter der Spannungsversorgung verbinden/La terra del prodotto deve sempre essere collegata a quella della sua alimentazione/La tierra del producto debe estar siempre conectada a la de su alimentación/.

- **Tension nominale** / Nominal voltage / Nennspannung / Tensione nominale / Tensión nominal: **24 V DC**

- **Limites de tension (ondulation comprise)** / Voltage limits (including ripple) / Spannungsschwankung (einschl. Restwelligkeit) / Limiti di tensione (ondulazione compresa) / Limites de tensión (ondulación incluida): **18... 30 V**

MAGELIS terminals XBT-F

• **CONSOMMATION** / POWER CONSUMPTION / LEISTUNGS-AUFNAHME / CONSUMO / CONSUMO:

XBT-F01/ F02/ F03 / FC: 20 W (24 V / 0.8 A) typique / 35 W (24 V / 1.5 A) maxi.

• **Courant d'appel à la mise sous tension (dimensionnement des protections externes**

Inrush current (for external protection devices)

Rufstrom beim Einschalten (Nennbetrieb der externen Schutzbeschaltungen)

Corrente di punta alla messa in tensione (dimensionamento delle protezioni esterne)

Corriente de llamada a la puesta en tensión (para dimensionar protecciones externas) :

I crête / I peak/ I Spitze / I picco / I cresta: **108 A (pour impédance de ligne nulle)**/(for line impedance) / (Wellenwiderstand der Leitung=0) / (Impedenza di linea 0) / (para impedancia de línea 0)/

I² t = 1,2 A²s (dimensionnement fusible de ligne) / (for line fuse rating) / (Nennbetrieb Leitungssicherung) / (Dimensionamento fusibile linea) / (para dimensionar fusible de línea) /

I. t = 11 mC (11 A.s) (dimensionnement du disjoncteur de ligne) / (for line circuit breaker rating) / (Nennbetrieb Leitungstrennschalter) / (Dimensionamento interruttore linea) / (para dimensionar disyuntor de línea) /

• **(4.5) SORTIE RELAIS** / RELAY OUTPUT / RELAIS-AUSGANG / USCITA RELÉ / RELÉ DE SALIDA / :

Mini : Limites d'utilisation / Usage limits / Wertebereich/ Limiti d'impiego / Límites de utilización / :
1.0 mA / 5V AC/DC

Maxi : Charge résistive / Resistive load / ohmsche Belastung/ Carico resistivo / Carga resistiva **1A / 24V DC - 220V AC**

Maxi : Charge inductive / Inductive load/ induktive Belastung/ Carico induttivo / Carga inductiva **0,5 A / 24V DC - 220V AC**

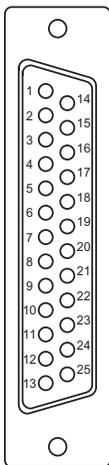
MAGELIS terminals XBT-F



CONNECTER LES LIAISONS SERIES DU TERMINAL HORS-TENSION /
TURN THE POWER OFF BEFORE CONNECTING THE SERIAL LINK
CONNECTOR / ANSCHLUß AN DIE SERIELLE SCHNITTSTELLE NUR BEI
ABGESCHALTETEM GERÄT VORNEHMEN / NON INSERIRE LA
CONNESSIONE SERIALE DEL TERMINALE SOTTO TENSIONE /
CONECTAR EL ENLACE SERIE DEL TERMINAL SIN TENSIÓN. /

2 - LIAISON SERIE

SERIAL COMMUNICATION
 SERIELLE SCHNITTSTELLE
 COMUNICAZIONE SERIALE
 UNION SERIE



1	PG
2	TXD
3	RXD
4	A
5	B
6	A'
7	OV iso
8	COM
9	
10	
11	
12	REG
13	CONF
14	B0
15	B1
16	B2
17	B3
18	B'
19	B4
20	
21	
22	OV iso
23	
24	PAR
25	

\perp **TERRE DE PROTECTION / PROTECTIVE GROUND /**
GERÄTEMASSE / MASSA MECCANICA / TIERRA DE
PROTECCION /
RS 232 C / V24

2 - TXD : **émission** / transmission / Senden / emissione / emisión /
 3 - RXD : **réception** / reception / Empfangen / ricezione / recepción /
 7 - OV iso : **commun** / common / Gemeinsamer / comune / común /

RS 422 / 485

4 - A } **émission** / transmission / Senden / emissione / emisión /
 5 - B }

6 - A' } **réception** / reception / Empfangen / ricezione / recepción /
 18 - B' }

7 - OV iso : **commun** / common / Gemeinsamer / comune / común /

ADRESSAGE UNITELWAY / UNITELWAY ADRESS /
ADRESSIERUNG UNITELWAY / DIRECCIÓN UNITELWAY /
INDIRIZZAMENTO UNITELWAY

(Sauf/ exept / nur bei / salvo / tranne XBT-H811050)

8 - COM (OV) **commun** / common / Gemeinsamer / comune / común /

14 - B0 : 2⁰ { **actif non connecté** / Active if not connected / Aktiv, wenn nicht
 angeschlossen / Nicht aktiv, wenn angeschlossen / Attivo se non
 connesso / Activo si no está conectado
 15 - B1 : 2¹ { **inactif si connecté à COM (OV) (8)** / Inactive if connected to COM (OV) (8) /
 Nicht aktiv, wenn angeschlossen an COM (OV) (8) / Inattivo se connesso
 a COM (OV) (8) / Activo si está conectado con COM (OV) (8)

16 - B2 : 2²

17 - B3 : 2³

19 - B4 : 2⁴

24 - PAR: **parité** / parity / Parität / parità / paridad /

MAGELIS terminals XBT-F

Les XBT-F Magelis se connectent aux automates Schneider et à ceux des principaux offreurs du marché. Pour les références des câbles et leurs connectiques, reportez vous aux IS protocoles /

The XBT-F Magelis can be connected to Schneider PLCs and those of other main suppliers. For the references of the cables and their connections, please refer to the IS protocols./

Die XBT-F Magelis passen zu den SPS der Marke Schneider und der meisten marktgängigen SPS. Zur Verdrahtung siehe IS-Protokoll. /

Gli XBT-F Magelis si collegano agli automi Schneider ed a quelli dei principali offerenti del mercato. Per i riferimenti dei cavi di collegamento, vedere i protocolli IS. /

Los XBT-F Magelis se conectan a autómatas Schneider y a los de los principales proveedores del mercado. Para las referencias de cables de conexión, véase las IS protocolos./



- CONNECTER LA LIAISON SERIE DU TERMINAL HORS-TENSION

TURN THE POWER OFF BEFORE CONNECTING THE SERIAL LINK CONNECTOR/ ANSCHLUß AN DIE SERIELLE SCHNITTSTELLE NUR BEI ABGESCHALTETEM GERÄT VORNEHMEN / NON INSERIRE LA CONNESSIONE SERIALE DEL TERMINALE SOTTO TENSIONE / CONECTAR EL ENLACE SERIE DEL TERMINAL SIN TENSIÓN.

- NE RACCORDER QU'UN TYPE DE LIAISON SERIE A LA FOIS

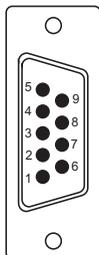
CONNECT ONLY ONE TYPE OF SERIAL COMMUNICATION AT A TIME / JEWEILS IMMER NUR EINE SERIELLE SCHNITTSTELLE BELEGEN / NON UTILIZZARE PIU' DI UN TIPO DI COLLEGAMENTO CONTEMPORANEAMENTE / NO CONECTAR MÁS QUE UN TIPO DE ENLACE SERIE A LA VEZ

- VISSER LES DEUX VERROUS DU CONNECTEUR

TIGHTEN JACK SCREWS / DEN SCHNITTSTELLENSTECKER MIT BEIDEN SCHRAUBEN BEFESTIGEN / AVVITARE LE DUE VITI DEL CONNETTORE / ATORNILLAR LOS DOS PESTILLOS DEL CONECTOR /

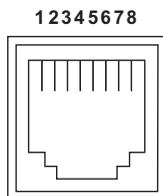
MAGELIS terminals XBT-F

- ③ - **LIAISON SERIE CONFIGURATION ET IMPRIMANTE (RS 232 C) /**
 - SERIAL COMMUNICATION AND PRINTER CONNECTOR (RS232C) /
 - SERIELLE KONFIGURATIONS- UND DRUCKERSCHNITTSTELLE (RS232C) /
 - SERIALE CONFIGURAZIONE STAMPANTE (RS232C) /
 - UNIÓN SERIE CONFIGURACIÓN E IMPRESORA (RS232C) /



1	DCD	Réservée / Reserved / Reserve / Riservato / Reservado
2	RXD	Réservée / Reserved / Reserve / Riservato / Reservado
3	TXD	Emission RS 232 C / RS 232 C transmission / Senden RS 232 C / Emissione RS 232 C / Emisión RS 232 C
4	DTR	XBT sous-tension / Power up XBT / XBT betriebsbereit / XBT in tensione / XBT en tensión
5	COM (OV)	Commun RS 232 C / Common RS 232 C / Gemeinsamer RS 232 C / Comune RS 232 C / Comœn RS 232 C
6	DSR	Imprimante prête / Printer ready / Drucker betriebsbereit / Stampante pronta / Impresora lista
7	RTS	Demande pour émettre / Request to send / Sendeanforderung XBT / Richiesta emissione XBT / Petición de emisión
8	CTS	Imprimante prête à recevoir / Printer ready / Drucker empfangsbereit / Stampante pronta a ricevere / Impresora lista para recibir
9	RI	Réservée / Reserved / Reserve / Riservato / Reservado

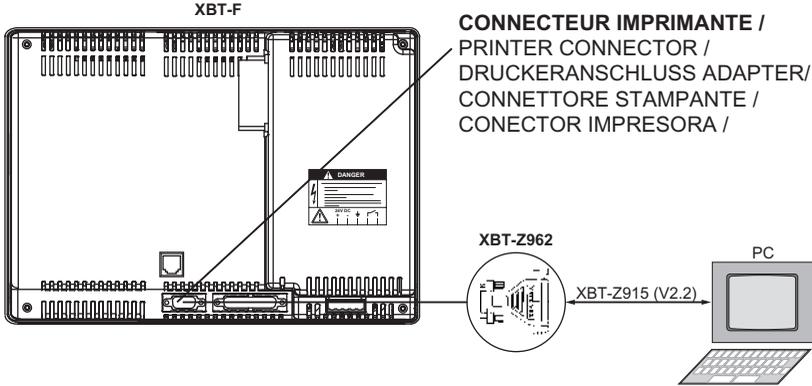
- ④ - **LIAISON RJ 45 / (POUR LES PRODUITS XBTF...6...)/**
 - RJ 45 COMMUNICATION (FOR PRODUCTS XBTF...6...)/
 - RJ 45 SCHNITTSTELLE (FÜR DIE PRODUKTEN XBTF...6...)/
 - COMUNICAZIONE RJ45 (PER I PRODOTTI XBTF...6...)/
 - UNIÓN RJ45 (PARA LOS PRODUCTOS XBTF...6...)/



1	TX +
2	TX-
3	RX+
6	RX-
4	Reserved
5	Reserved
7	Reserved
8	Reserved

MAGELIS terminals XBT-F

CONFIGURATION ET TRANSFERT APPLICATION (par liaison série imprimante) /
CONFIGURATION AND APPLICATION TRANSFER (serial printer connector) /
 Konfiguration und Applikationsübertragung (über serielle Druckerschnittstelle) /
CONFIGURAZIONE E TRASFERIMENTO APPLICAZIONE (tramite collegamento seriale stampante) /
CONFIGURACIÓN Y TRANSFERENCIA DE APLICACIÓN (por unión serie impresora) /



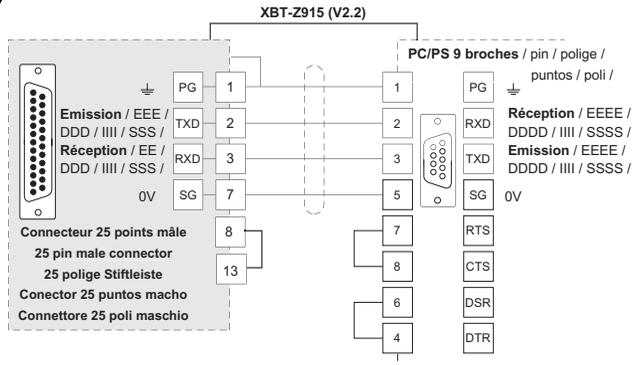
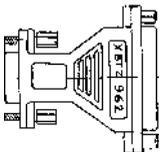
Câble / Cable / Kabel / Cavo / Cavo: XBT-Z915 (V2.2)
Adaptateur / Adaptor / Adapter / Adattatore / Adaptador / : XBT-Z962

Côté / Side / Seite / Lato / Lado /
XBT-F

Côté / Side / Seite / Lato / Lado /
PC

9 pts femelle /
 9 pin female /
 9-poliger Buchsenstecker
 9 poli femmina /
 9 puntos hembra /

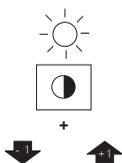
25 pts femelle /
 25 pin female /
 25-poliger Buchsenstecker /
 25 poli femmina /
 25 puntos hembra /



MAGELIS terminals XBT-F

REGLAGE CONTRASTE ET LUMINOSITE / CONTRAST AND BRIGHTNESS ADJUSTMENT / EINSTELLUNG VON HELLIGKEIT UND KONTRAST / REGOLAZIONE CONTRASTO E LUMINOSITÀ / REGLAJE DEL CONTRASTE Y LUMINOSIDAD

XBT-F01 & XBT-F023



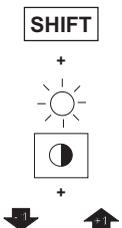
Réglage contraste (écran TFT): appuyer sur la touche de réglage et tout en maintenant cette touche, utiliser les touches "flèches" haute et basses pour effectuer le réglage /

Contrast adjustment (TFT Screen) : press the adjustment key and while holding it depressed, use the up and down "arrow" keys for adjustment /

Kontrasteinstellung (TFT Display) : Drücken Sie auf die entsprechende Regeltaste und halten Sie sie gedrückt, während Sie mit den Pfeiltasten die Einstellung vornehmen /

Regolazione contrasto (Display TFT) : premere il tasto di regolazione e, mantenendolo premuto, usare i tasti con la freccia verso l'alto e verso il basso per regolare il contrasto /

Reglaje del contraste (Pantalla TFT) : pulse la tecla de ajuste y, mientras la pulsa, ajuste el contraste utilizando las teclas flechas arriba y abajo. /



Réglage luminosité : appuyer sur la touche SHIFT et sur la touche de réglage et tout en maintenant ces deux touches, utiliser les touches "flèches" haute et basse pour effectuer ce réglage /

Brightness adjustment: press the SHIFT key and the adjustment key and while holding both keys depressed, use the up and down "arrow" keys for adjustment /

Helligkeitseinstellung: Drücken Sie auf die SHIFT-Taste und die entsprechende Regeltaste und halten Sie beide Tasten gedrückt, während Sie mit den Pfeiltasten die Einstellung vornehmen /

Regolazione luminosità: premere il tasto SHIFT e il tasto di regolazione, mantener i tasti premuti, usare i tasti con la freccia verso l'alto e verso il basso per regolare il contrasto /

Ajuste de la luminosidad: pulse la tecla SHIFT y la tecla de ajuste y, mientras las mantiene pulsadas, ajuste utilizando las teclas flechas arriba y abajo /

MAGELIS terminals XBT-F

REGLAGE LUMINOSITE / BRIGHTNESS ADJUSTMENT / EINSTELLEN DER HELLIGKEIT /
REGOLAZIONE LUMINOSITÀ / AJUSTE DE LUMINOSIDAD

XBT-F03 & XBT-FC



Appuyer sur la zone tactile de service / Press on the service touch key pad / Touchscreen-Schaltfläche berühren / Premere la zona tattile di servizio / Pulsar en la zona táctil de servicio.



Sur le menu déroulant appuyer sur la zone système / In the pull-down menu, press on the system key pad / Auf dem Abrollmenü auf die Schaltfläche System drücken / Sul menù scorrevole, premere la zona sistema / En el menù emergente pulsar en la zona sistema.



Dans la page système choisir le menu paramètres du terminal / On the system page, select the terminal parameters menu / Auf der Bildschirmseite System das Menù «Parameter des Terminals» anwählen / Nella pagina sistema, scegliere il menù parametri del terminale / En la página sistema elegir el menù de parámetros del terminal.



En utilisant ces 2 zones tactiles effectuer vos réglages /

Make the adjustment required using these 2 key pads /

Einstellungen mit diesen beiden Schaltflächen vornehmen /

Utilizzando queste 2 zone tattili, effettuare le vostre regolazioni /

Utilizando estas 2 zonas táctiles, efectuar los ajustes.

NETTOYAGE DE LA DALLE TACTILE OU ENTRETIEN DE LA VITRE / CLEANING THE TOUCH PAD OR WINDOW MAINTENANCE / REINIGEN DER TOUCHSCREEN-FLÄCHE ODER REINIGUNG DER SCHEIBE / PULITURA DELLA PIASTRA TATTILE O MANUTENZIONE DEL VETRO / LIMPIEZA DE LA PLACA TACTIL O LIMPIEZA DEL VIDRIO :



A partir de la page système, l'appui sur cette icône verrouille la dalle pour le nettoyage / On the system page, press this icon to lock the touch pad for cleaning /

Auf der System-Bildschirmseite auf diese Schaltfläche drücken, um die Touchscreen-Fläche zu verriegeln / A partire dalla pagina sistema / la pressione di quest'icona blocca la piastra per la pulitura. A partir de la página sistema, al pulsar en este icono se bloquea la placa táctil para la limpieza.

Pour nettoyer la dalle tactile appliquer un chiffon doux imprégné de Methanol / Clean the touch pad with a soft cloth moistened with methanol / Zum Reinigen der Touchscreen-Fläche mit Methanol getränkten weichen Lappen verwenden / Per pulire la piastra tattile, applicare uno straccio morbido imbevuto di metanolo / Para limpiar la placa táctil, aplicar un trapo suave impregnado con Methanol.



Pour le déverrouillage il faut appuyer simultanément, sur les 2 icônes de verrous /

To release the touch pad, press both locking icons at the same time / Zum Entriegeln gleichzeitig auf die beiden Verriegelungsschaltflächen drücken / Per lo sbloccaggio, occorre premere simultaneamente le 2 icone di chiavistelli / Para desbloquear hay que pulsar simultáneamente en los 2 iconos de pestillos.

10 GOLDEN SUGGESTIONS FOR A SUCCESSFUL MAGELIS APPLICATION

- 1 Avoid superposing bitmaps in XBT-L1000 application; use a picture processing software (Paint,...) to do this and import only a single bitmap in XBT-L1000 application.
- 2 Place the alphanumeric fields on a self colored frame. Don't place it on a big bitmap or on an animated object. If needed, insert a self colored rectangular shape between the background picture and the alphanumeric field. The legibility will be better.
- 3 An image box is better than the gathering of several animated lines, ellipses and rectangles.
- 4 For placing a background picture, place it in the model page rather than in the application page.
- 5 To improve the imported pictures processing, use a picture processing software (Paint,...) to adjust size and colors of pictures (use colorpal.pal or grey_pal.pal files in the XBT-L1000 installation directory).
- 6 To speed up the unitelway communication, change the number of addresses used by the terminal (2 becomes 3).
- 7 Don't try to minimize at all cost the dialog table period. In all events, the operator actions are processed immediately, independent of the value of the dialog table period.
- 8 Do not use words with floating point if a simple word is enough.
- 9 Avoid the use of different fonts or different type of fields on the same page.
- 10 Only store the useful alarms.

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