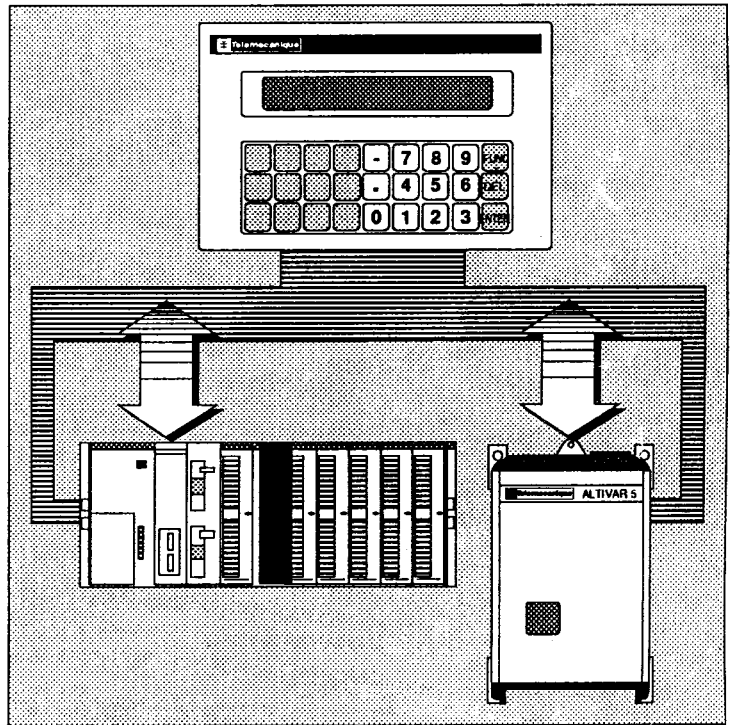


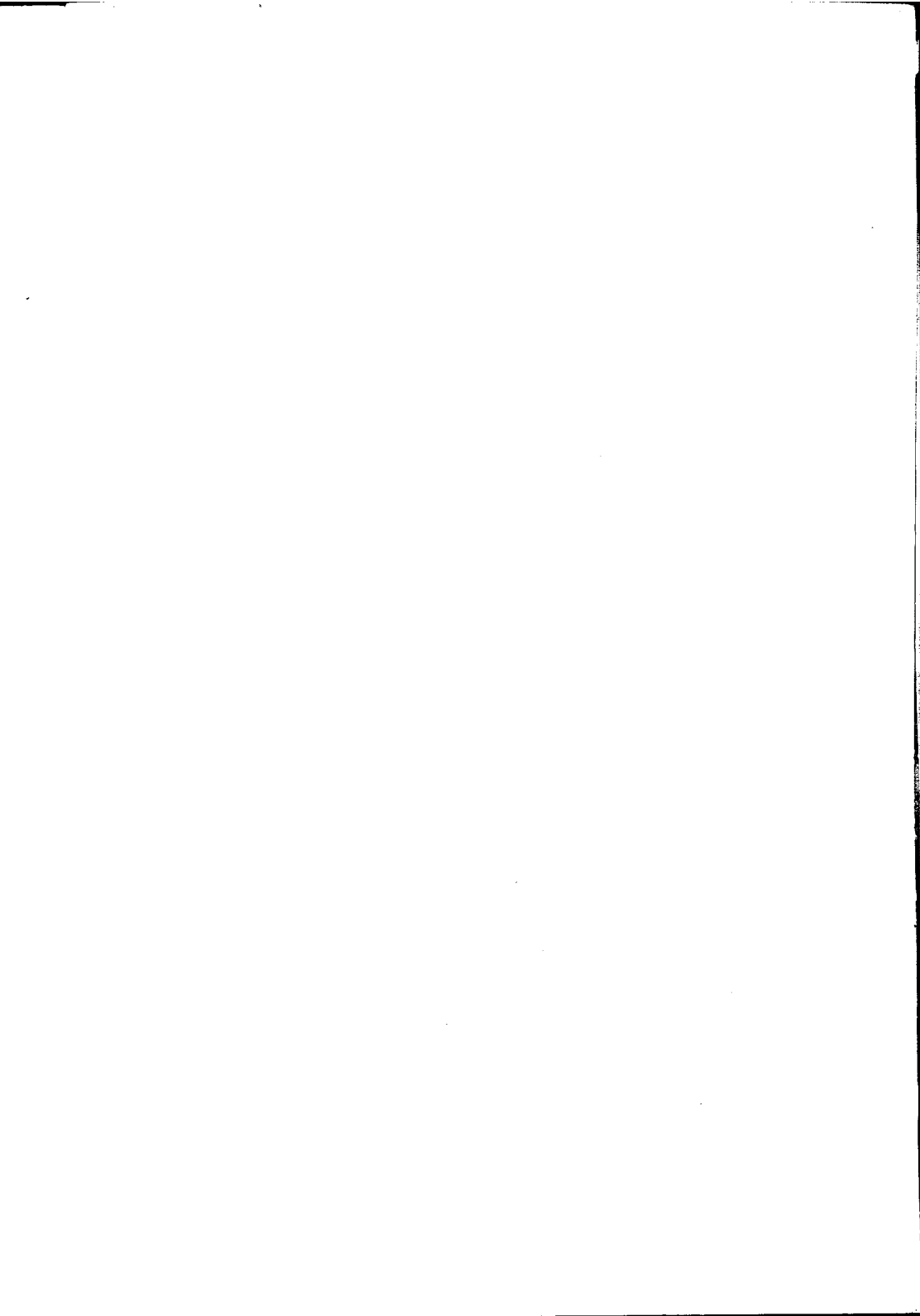


XBT-A8 Compact Terminal

UNI-TE[®] protocol

User guide 1991





NOTICE

There are three modes of operation for the XBT-A8 :

- ASCII : used by all programmable systems
- ADJUST protocol : when used with the terminal port of TSX7 PLCs.

For information about these two types of operation, refer to the XBT-XA700E user guide.

- UNI-TE protocol : used when the XBT-A8 is connected to the UNI-TELWAY bus as described in this manual.

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PS/2 is a registered trademark of International Business Machines Corporation.

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1 Introduction

1.1 General

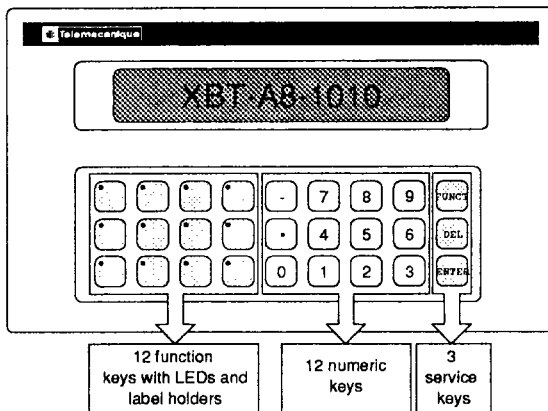
The XBT-A8 industrial terminals are designed to provide:

- **Ergonomic operator dialogue**
 - Clear display (parameters, settings, messages, etc.)
 - Personalized function keys for control
 - Numeric keypad for entering values
 - Selection of function modes

- **Operation in an industrial environment**
 - Protected against dust and liquids
 - Readable, fluorescent green, 10 mm high alphanumeric display
 - Easy to use keypad entry with tactile response (2 mm depression)
 - Reliable isolated serial links, self-tests and removable when powered

- **An interface to control systems**
 - ASCII, ADJUSTMENT mode, UNI-TE communication protocols via an asynchronous serial line,
 - Types of serial interface : RS 232C/20 mA current loop/RS 422/485,
 - 2 types of connection :
 - . Point-to-point (RS 232C/20 mA current loop/RS 422/485),
 - . Multidrop (20 mA current loop/RS 422/485).

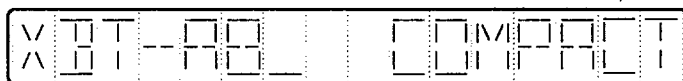
1.2 Introduction to the XBT-A8 compact terminal



The XBT-A8 terminal consists of :

- **A single line display**



consisting of 16 green fluorescent characters, each with 14 segments plus decimal point, 10 mm high and 6.4 mm wide,



- **A keyboard**

consisting of 27 keys divided into 3 zones:


- Up to 12 function keys for user-definable operator access depending on which of the 4 models is used:

- XBT-A80101•* : 12 function keys engraved  to  ,
 - XBT-A81101• : 12 function keys with label-holders,
 - XBT-A82101• : 12 function keys with LEDs and label-holders
 - XBT-A83101• : 4 red lights and 8 function keys with label-holders.
- * 0 = Latin version * 9 = Cyrillic version

- 12 numeric keys for operator responses :

-  to  and  for entering numbers,
-  (bistable) for entering a plus or minus sign.

- 3 service keys

-  :
 - in CONFIGURATION mode, used to move from one menu to another,
 - in RUNNING mode, allows indirect access to functions.

1 Introduction

Introduction to the XBT-A8 compact terminal

- **DEL** : in CONFIGURATION mode, **accesses** the parameters in a sub-menu, in RUNNING mode, **erases** the last digit of a numerical value.
- **ENTER** : in CONFIGURATION mode, **accesses** a sub-menu in RUNNING mode, **confirms** a numeric response, **accepts** a blinking display or **stops** the buzzer.

Note : Hold down **ENTER** and then press **FUNCT** to move between CONFIGURATION mode and RUNNING mode.

• Message memory

The EEPROM type memory (non-volatile) may store up to 101 messages using 16 alphanumeric characters.

Storing the operating messages in the XBT-A8 decreases the memory requirement in the PLC and reduces data communication over the serial line.

These messages may be for example :

- operator requests

CLOSE VALVE 4

- settings

VALUE = ---

- control system requests

CHECK VALVE 12

- faults

PRESSURE FAULT

Messages to be displayed are sent to the XBT-A8 in UNI-TE protocol following a UNI-TE request.

By associating SERVER device (e.g. Altivar) addresses with TSX7 variables, the XBT-A8 can access either local or remote variables (via TELWAY).

These messages can be stored by using :

- dumb video terminals
- TSX-T407 programming terminals
- PC-PS/2 computers with XBTEL programming software. The applications (message listings) may be stored in local mode in the PC-PS/2 RAM and then transferred at any time to the XBT-A8. XBTEL can archive applications to diskette or hard disk, print applications and also perform other services such as loading and editing.

1 Introduction

Introduction to the XBT-A8 compact terminal

The system messages have been programmed in five languages (English, French, German, Spanish and Italian) to simplify all stages from design right up to operation.

Note : There is one version which supports Cyrillic characters as well as the five languages.

DESIGN	OPERATION
SYSTEM MESSAGES : Configured in the language of the designer.	MESSAGES IN THE LANGUAGE OF THE OPERATOR
APPLICATION MESSAGES : Stored in the language of the operator	

An application message consists of an operator display zone, (text which can be followed by a numeric field) together with a parameter zone used for managing the terminal.

Each message has a number.

MESSAGES		
NUMBER	TEXT	PARAMETERS
000	STOP MACHINE	
..		
012	AUTO OPERATION	
..		
084	CHECK VALVE 12	
..		
090	FAULT MOTOR 4	
..		
100	PRESSURE = _ _ _ B	W000 type N

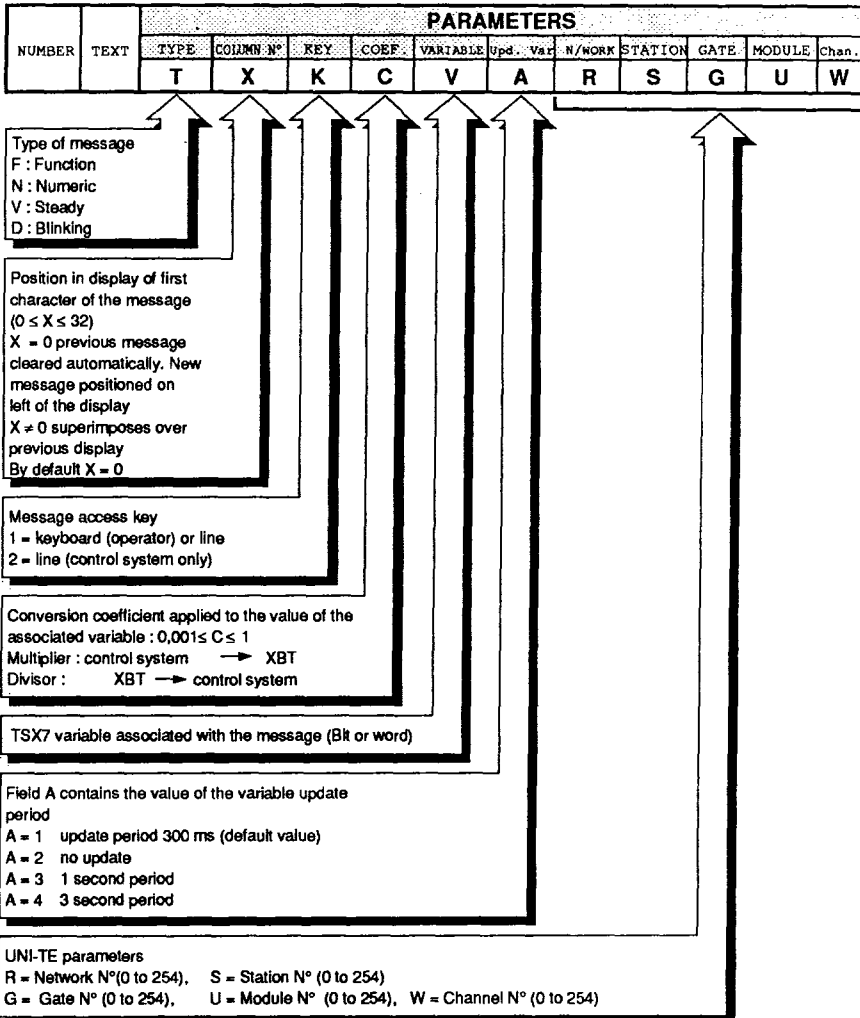
1 Introduction

Introduction to the XBT-A8 compact terminal

• Message parameters

These define :

- The type of dialogue for the message (Type : T)
- The position of the first character in the display (Column : X)
- The access key for the message (Key : K)
- The conversion factor to be applied (Coefficient : C)
- The associated TSX7 variable in ADJUST or UNI-TE mode (Variable : V)
- Periodic reading or not of the TSX7 variable (Updating of variable : A)
- UNI-TE address of the variable (Network, Station, Gate, Module, Channel)



2.1 Environmental characteristics

Standards	IEC 801-2 to 801-4/UL 508/CSA C22-2 n°142
Degree of protection	To IEC 529/NF C 20010 : IP 653 (front face with seal)
Ambient temperature	Operation : 0° C to + 50° C Storage : - 40° C to + 70° C
Humidity	0 to 95 % without condensation
Electrical interference	Immunity to : IEC 65 / IEC 801.4 level 3
Electromagnetic interference	IEC 801.3 level 3
ESD withstand (electrostatic discharges)	To IEC 801.2 level 4
Shocks	To IEC 68-2-27 (1/2 sinusoidal pulse on 3 axes, 50g for 11ms).
Vibrations	To IEC 68-2-6 : Amplitude : ± 1 mm : 2 to 25 Hz ± 75 µm : 25 to 57 Hz Acceleration : 1g : 57 to 150 Hz.

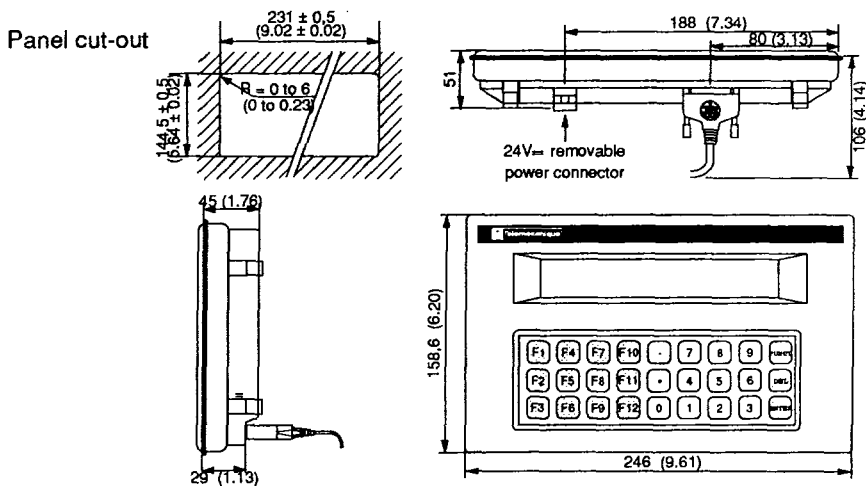
2.2 Mechanical characteristics

Mounting	Method : flush mounting fixed by securing flange and 4 clamping screws with watertight seal. Section thickness (min. = 1.5 mm. max. = 6.0 mm). Orientation : any.
Case	Treated zinc alloy. Front face : black satin polyurethane paint.
Keyboard	27 keys (19.05 mm spacing), 2 mm depression and tactile response (2 Newtons) : - 12 function keys (with or without red LEDs) or 8 function keys and 4 red lights. - 12 numeric keys, - 3 service keys.
Connections	- Power : removable screw terminal block with 5.08 mm spacing between terminals. Clamping capacity : 1.5 mm ² . - Serial port: 25-pin female SUB D connector type HE 50 NF C 93425.
Weight	2.0 kg (4.4 lb) (without securing flange) 2.3 kg (5.1 lb) (with securing flange).

2 Technical characteristics

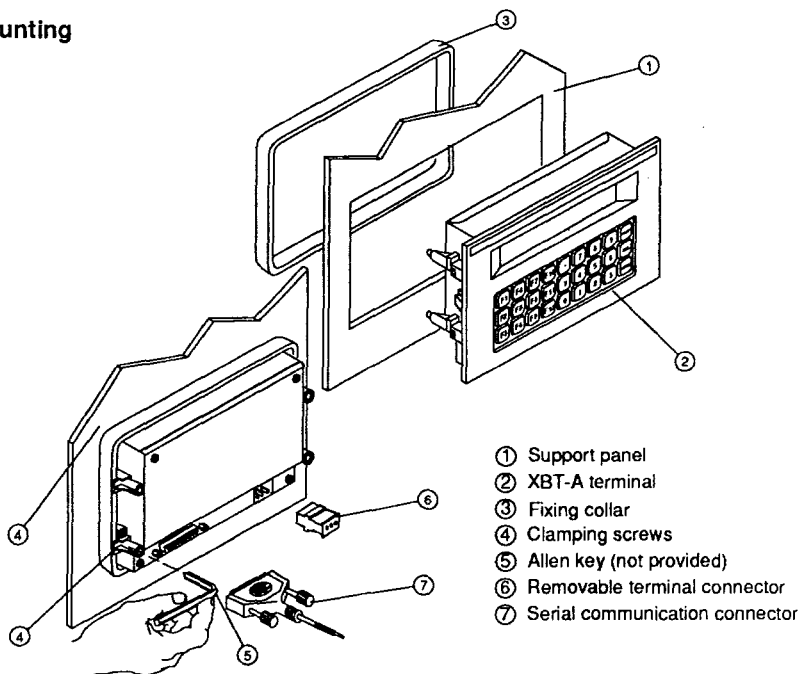
Mechanical characteristics

Dimensions in mm (and inches)



Thickness of support panel 1.5 mm to 6 mm (0.06" to 0.23")

Mounting



2 Technical characteristics

2.3 Electrical characteristics

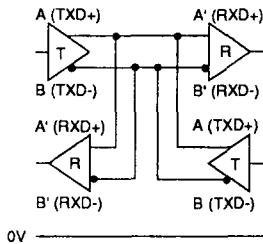
• Supply	Nominal voltage	24 VDC
	Maximum ripple	25 %
	Voltage limits	18 ... 30 VDC (including ripple)
	Maximum consumption	10 W
• Display	Capacity	1 line of 16 characters
	Type	Fluorescent green, 14 segments (with decimal point)
	Size (character)	Height = 10 mm Width = 6.4 mm

• Serial link

The XBT-A8 is provided with an RS 422 interface

RS 422 OPTO ISOLATED ELECTRICAL CHARACTERISTICS :
CONFORM TO THE STANDARD

In UNI-TELWAY, RS 485 is used



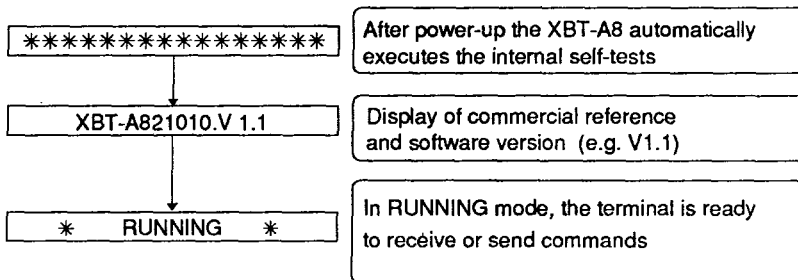
RS 485 serial link : 2-wire differential mode +
0V

**MAXIMUM TRANSMISSION SPEED OF UNI-TELWAY
NETWORK IS 19 200 BAUDS**

3 Operating modes

3.1 General

When powered-up, the XBT-A8 carries out a series of self-tests (see section 8 Appendices, SELF-TESTS) and displays the following sequence :

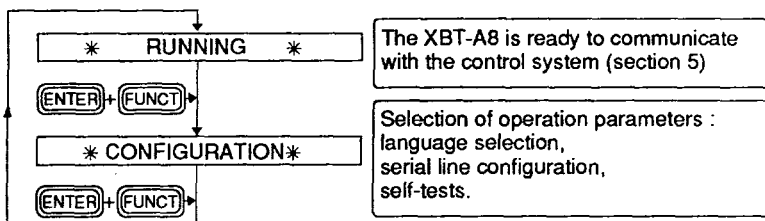


ON FIRST POWER-UP THE XBT-A8 SETS ITSELF TO ENGLISH AND AT THE END OF THE SELF-TESTS DISPLAYS

* RUNNING *

3.2 Selecting modes

Moving from one operating mode to another is achieved by holding down **(ENTER)** and then pressing **(FUNCT)** once.



WARNING : IN CONFIGURATION MODE THE XBT-A8 TERMINAL DOES NOT COMMUNICATE WITH THE CONNECTED CONTROL SYSTEM (PLACED OFF-LINE)

ACCESS TO CONFIGURATION MODE CAN BE INHIBITED
(see section 5.5 "Access requests for XBT-A8 resources : global management of the keyboard")