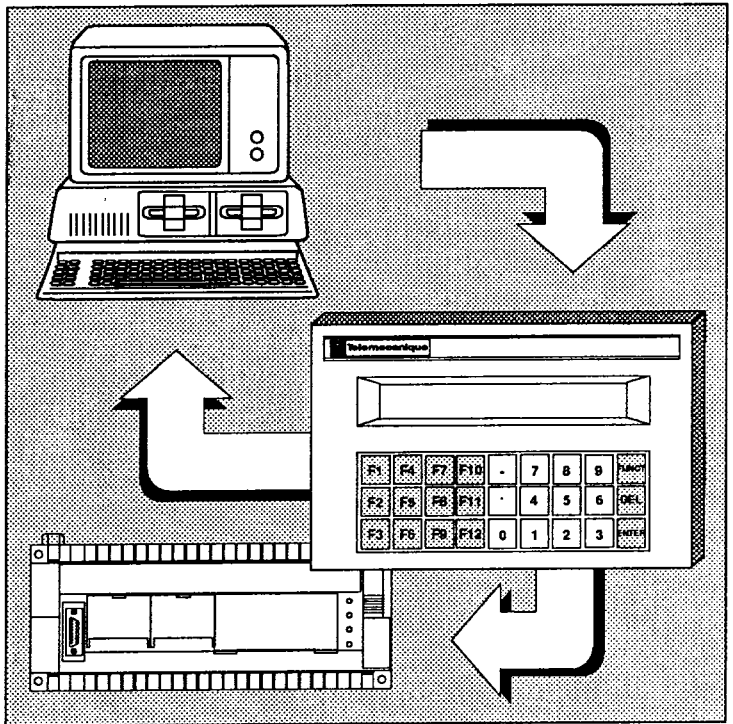




XBT-A Compact Terminal

Guide 1989

27391



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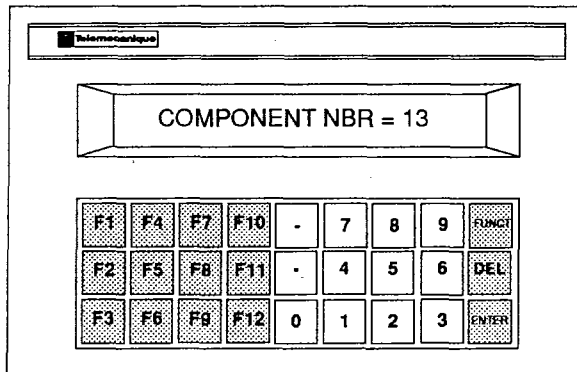
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Operator dialog:

The demands for increased machine productivity require that automation systems controlling these machines provide the operator with even more information and self-explicit messages. Operator dialog requires a simple dialog in the language of the production facility.



XBT-A operator dialog terminals are designed to provide:

USER-FRIENDLY OPERATOR DIALOG

- PLAIN LANGUAGE display of information (e.g. parameters, instructions and messages),
- COMMANDS accessed by configurable function keys,
- DATA ENTRY by numeric keypad,
- SELECTION of operating modes.

OPERATION IN INDUSTRIAL ENVIRONMENTS

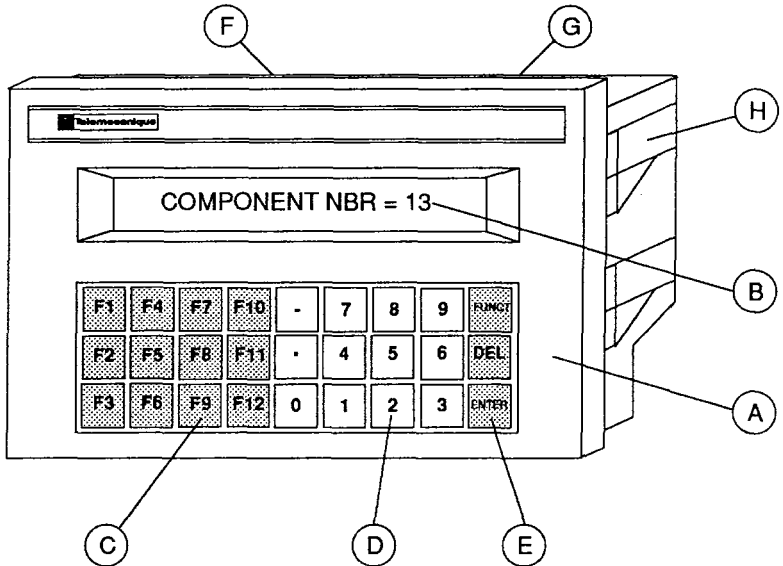
- PROTECTED: IP65 standard front panel,
- CLEAR: flourescent green alphanumeric displays, 10 mm character height, readable from 4 meters,
- CONFORTABLE: keyboard with tactile feedback,
- COMPACT: dimensions 246 x 158 x 49 mm
- PRATICAL: flush-mounting with 4 mounting clamps,
- STURDY: zinc alloy case,
- RELIABLE: isolated serial links - self-tests - disconnectable under power

CAN BE USED WITH ANY AUTOMATION SYSTEM

- Asynchronous serial link exchange protocol
 ASCII or Adjust modes (for TSX Series 7 PLCs),
 - Type of data link
 - . point-to-point (RS 232C / 20mA CL / RS 422-485),
 - . multipoint (20 mA CL / RS 422-485).
-

2.1 XBT-A Terminal Description

General Description



- (A) : Zinc alloy front panel,
- (B) : Display (16 green fluorescent characters)
- (C) : Function keys
- (D) : Numeric keys
- (E) : Edit keys
- (F) : Supply (removable terminal block)
- (G) : Serial link (25-pin connector)
- (H) : Mounting system (flange and removable clamps)

XBT-A Terminal Description

• Display:

The XBT-A terminal has 16 green fluorescent, 14 segment (plus decimal point) display characters that are 10 mm high.



• Keyboard:

The XBT-A terminal has a 27-key keyboard that is split into 3 zones:

- a 12-key zone for function keys that can be customized for direct operator access, depending on the version selected:

- . XBT-A70101: 12 function keys marked **F1** to **F12**
- . XBT-A71101: 12 function keys with label holders,
- . XBT-A72101: 12 function keys with LEDs and label holders,
- . XBT-A73101: 4 red LEDs and 8 function keys with label holders.

- a 12 numeric key a zone for operator inputs:

- . keys **0** to **9** and **.** for numeric entries
- . **-** (toggle) key to enter a negative or positive sign value

- a 3 edit key zone:

- . **FUNCT** key for indirect operator access and selection in Configuration mode
- . **DEL** key to delete
- . **ENTER** to validate

Note: the combination of **ENTER** + **FUNCT** keys enables selection of operating modes (Operation or Configuration).

XBT-A Terminal Description

• Message Memory:

The XBT-A terminal has a EEPROM (non-volatile) memory that can store 100 messages of 16 alphanumeric characters.

Storing the operator dialog messages in the XBT-A terminal reduces the data stored in the PLC and the exchanges on the serial data link.

These messages can be, for example:

- operator requests: RUN BELT
- automated system requests: VALUE = 435?
- instructions — — — : CHECK VOLTAGE
- faults — — — — : PUMP FAULT

The messages are stored using either:

- A PC/PS microcomputer and XBTL-100 software. The applications (messages) can be entered in local mode and transferred to the XBT-A terminal at any time. XBTL-100 also performs file storage and printing. In addition, an application in an XBT terminal in operation can be copied to the microcomputer and stored,
- A standard CRT terminal,
- A TSX T407 programming terminal.

XBT-A Terminal Description

• Communication:

The XBT-A terminal is equipped as standard with isolated serial links for connection to PLCs, microcomputers and all microcomputer systems.

- RS 232C serial link,
- Current loop link (passive, passing or blocked),
- RS 422-485 serial link.

The parameters of these data links can be set in Configuration mode. The various transmission modes are mutually exclusive.

The exchange modes that can be used are:

- ASCII mode: PLCs and various automation systems,
 - Adjust mode for TSX Series 7 PLCs.
-

2.2 The Operator Dialog Concept

Control of automated systems requires that operators be provided with industrial terminals that perform operator dialog functions in the operator's own language.

While providing high level performance, operator dialog must require minimal application programming.

By using distributed intelligence, XBT-A terminals meet these requirements through:

- **Message memory:** (organization)

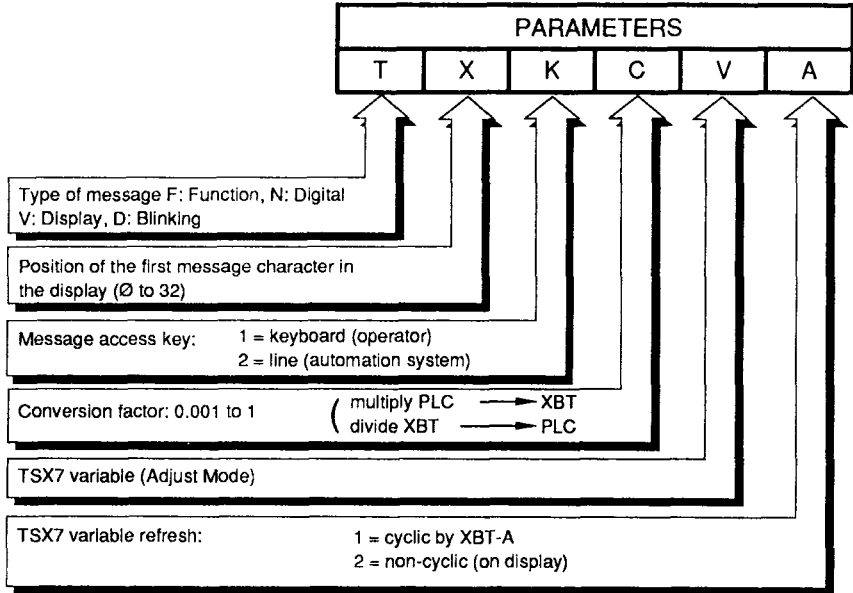
MESSAGE		ASCII MODE	TSX7 ADJUST MODE
Nbr.	TEXT + PARAMETERS		
001 to 012		OPERATOR INITIATED: NO ASSOCIATION OF THE MESSAGE NUMBER WITH THE CORRESPONDING KEY FOR DIRECT OR INDIRECT ACCESS	OPERATOR INITIATED: DIRECT OR INDIRECT MESSAGE NUMBER ACCESS BY THE CORRESPONDING FUNCTION KEY OR PLC INITIATED
013 to 100		OR AUTOMATED SYSTEM INITIATED	OPERATOR INITIATED: DIRECT OR INDIRECT MESSAGE ACCESS BY FUNCNT + X + X ENTER OR AUTOMATED SYSTEM INITIATED

- the number locates the message in the memory space,
- the text shows what will be displayed by the XBT-A terminal,
- the parameters define the type of dialog provided by the message.



The Operator Dialog Concept

• The message memory (parameters)

The parameters define the type of dialog required from the message



The Operator Dialog Concept

TYPE	TSX7 VARIABLE	COMMENTS	MESSAGE EXAMPLE
F (FUNCTION)	DISCRETE (BIT) OR WORDS	- Write a bit and display a message when a function key is pressed (Adjust mode) - Enter the key number	007 RUN PUMP TFVB35
N (DIGITAL)	DIGITAL (WORDS, PRESET, etc.)	Operator response by entering a numerical value in the (in the message field) sent by pressing 	045 VALUE =TNVW50
V (DISPLAY)	DISCRETE (BIT) OR DIGITAL (WORDS, PRESET, etc.)	Display the message text (with or without a digital bit or value) no operator acknow- ledgement	023 AUTO CYCLE TV 033 TIME = ... STV VT5,V
D (BLINKING)	DISCRETE (BIT) OR DIGITAL (WORDS, PRESET, etc.)	Blinking display of the message text (with or without a digital bit or value) Operator acknowledgement by pressing 	092 TD VALVE FAULT 048 TOO LONG =... MTDV6,V

The Operator Dialog Concept

• Commands and transmissions:

assigned to messages stored in memory, these enable all types of dialog between the operator and the automated system.

command = ESC (ESCAPE) request sent to the XBT

transmission = answer to a command or operator initiated

Examples of types of dialog:

PURPOSE	STORED MESSAGE	XBT TRANSMISSIONS	AUTOMATED SYSTEM COMMANDS
OPERATOR REQUEST TO START A MOTOR	005 RUN MOTOR TF VB015	ADJUST MODE = transparent exchange (write bit 015 and display the text) by pressing key 5	
	005 RUN MOTOR TV	ASCII MODE PRESS KEY 9	ESC C091 LFCR → ← ESC V005 LFCR PLC processing and display message 005
OPERATOR REQUEST TO CHANGE A PARAMETER	010 VALUE = ----- TN VW50	ADJUST MODE = transparent exchanges - display the text with the value of word W50 by pressing key 10 - send the answer by pressing ENTER	
	010 VALUE = ----- TN	ASCII MODE PRESS KEY 1 Operator changes the value: sent by pressing ENTER	ESC C011 LFCR → ← ESC R01057354 LFCR ESC R5740 LFCR → PLC request to display message 010 with value 57354 (blinking) An operator response is expected
AUTOMATED SYSTEM REQUEST TO DISPLAY A VALUE	063 TIME = --- STV	← ESC V063545 LFCR	PLC request to display message 063 with value 545
AUTOMATED SYSTEM REQUEST TO DISPLAY A FAULT	083 FAULT VALVE TD	← ESC V083 LFCR	PLC request to display message 083