

# 1 Description

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## 1.1 General

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To meet the over-riding need for machine productivity, control systems are required to provide ever increasing amounts of detailed data.

The processing power of programmable controllers allows an increasing number of parameters to be used in their applications.

In order to be able to control machines during operation, with a minimum of application programming, the operator needs a simple form of dialogue in the language of production.

The XBT-K8 industrial displays have been developed for :

### • Display, in the language of the user

The XBT-K8 has a memory for 160 messages of 20 characters (with scrolling of 40 characters) to store information. It enables the operator to be informed about the states of the machine :

- Operating settings

PROGRAM 7. COMPONENT 3

- Physical parameters (varying or fixed)

MACHINE TEMP. = + 478.5 C

- Fault messages

OIL PRESSURE FAULT

### • Operation in industrial environments

- PROTECTED : flush mounted, IP65 front facia,
- READABLE : fluorescent green alphanumeric display, 10mm high, readable at 4 metres,
- RUGGED : zinc alloy casing,
- PRACTICAL : fixed with two concealed screws (with flange),
- SAFE : isolated serial and parallel links, integrated self-tests, can be disconnected under power.

### • Can be used with all control systems

- ASCII, ADJUSTMENT, UNI-TE communication protocols using asynchronous serial links
- 3 types of serial link available : RS 232 C / 20 mA current loop / RS 422/485
- 1 parallel interface.

# 1 Description

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## 1.2 Introduction to the XBT-K8 industrial displays

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### • Display

The XBT-K8 has a single line of 20 fluorescent green, 14 segment characters, together with decimal point, 10 mm high and 6.4 mm wide.



### • Message memory

The XBT-K8 display is equipped with an SRAM memory (STATIC RAM) with capacity for 160 messages, protected by a lithium battery for five years.

Storing operating messages in the XBT-K reduces the memory requirement for the PLC and also reduces the information exchange over the serial line.

By simply sending a message number, the message is displayed as follows :

- a setting

CHECK VALVE 12

- a varying value

TEMPERATURE = 842 C

- a fault message

PRESSURE FAULT

Displaying these messages is achieved by :

- An ASCII message via an asynchronous link,
  - . in ASCII mode, the parameters of the variable must be defined,
  - . with ADJUSTMENT protocol, an associated TSX7 can be interrogated by the XBT-K8,
  - . with UNI-TE protocol, the equipment server address associated with TSX7 variables, enables the XBT-K8 to access both local and remote variables (via TELWAY).
- By signals applied to the parallel interface.

Storing the messages can be achieved by :

- dumb visual display terminals,
- TSX-T407 programming terminals,
- PC, PS/2 and the XBTEL program. The applications (list of messages) can be prepared locally and then transferred at any time to the XBT-K8. XBTEL can archive applications to floppy disk (or hard disk) and can print them.

# 1 Description

## Introduction to the XBT-K8 Industrial displays

Functional (guidance) messages are configured in five languages (English, French, German, Spanish, Italian), simplifying use from development through to operation :

DESIGN	OPERATION
<b>FUNCTIONAL MESSAGES :</b> Configured in the language of the designer.	<b>MESSAGES IN THE NATURAL LANGUAGE OF THE OPERATOR</b>
<b>OPERATING MESSAGE :</b> Stored in the language of the user	

An operating message is defined as the zone visible to the operator, (text which may or may not be followed by a numeric field), in conjunction with parameters enabling control of the terminal.

Each message is identified by a number.

MESSAGES		
NUMBER	TEXT	PARAMETERS
000		
..		
012	AUTO START	
..		
084	CHECK CHANNEL 12	
..		
130	MOT. 4 FAULT	
..		
159	PRESSURE = _ _ _ B	

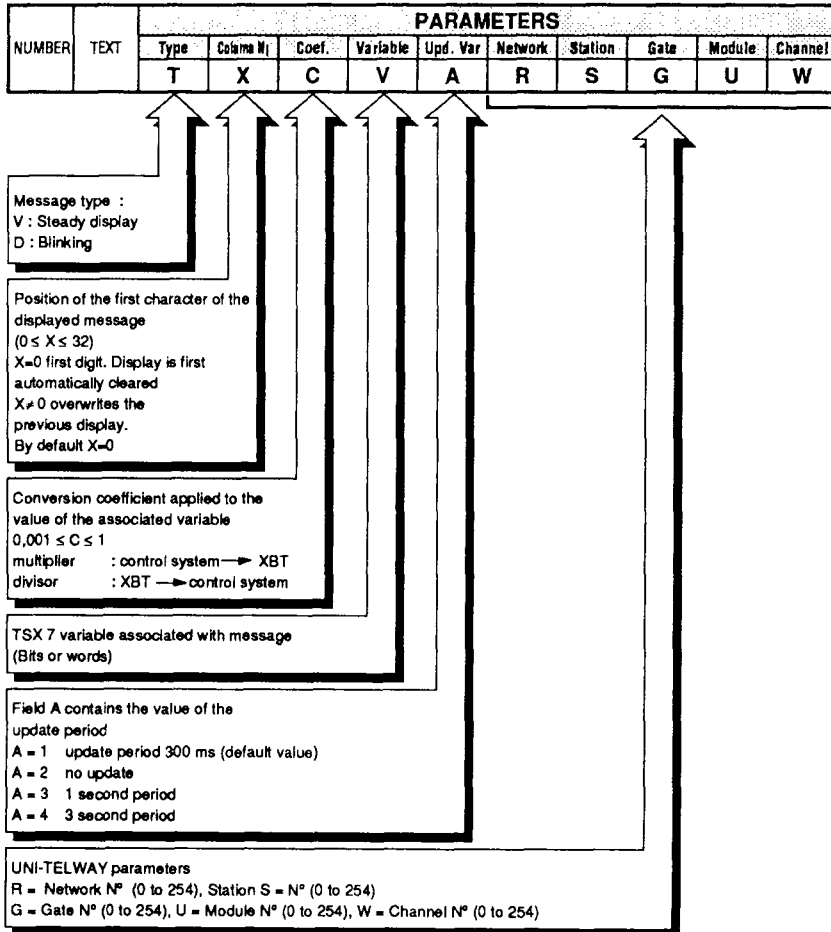
# 1 Description

## Introduction to the XBT-K8 industrial displays

### • Message parameters

These define :

- The type of dialogue used with the message (Type : T),
- The position of the first character (Column : X),
- The conversion to be made (Coefficient : C),
- The associated TSX7 variable in ADJUSTMENT or UNI-TE mode (Variable : V),
- The periodic update or not of the TSX7 variable (UPD. Var : A),
- The UNI-TE address (Variable, Network, Station, Gate, Module, Channel).



## 2 Technical characteristics

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### 2.1 Environmental characteristics

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Degree of protection	According to IEC 529/NF C 20010 : IP 653 (front fascia with seal)
Ambient temperature	Operation : 0° C to + 50° C Storage : from - 40° C to + 70° C
Humidity	0 to 95 % without condensation
Shock	According to IEC 68-2-27 Degree 3. (1/2 sinusoidal pulse on 3 axes 50 g for 11 ms).
Vibrations	According to IEC 68-2-6 : Amplitude : 2 mm : from 2 to 25 Hz ; 0.15mm : from 25 to 57 Hz Acceleration : 1g : from 57 to 150 Hz.

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### 2.2 Mechanical characteristics

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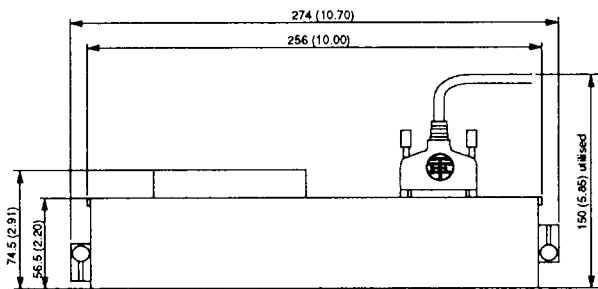
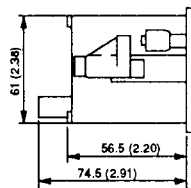
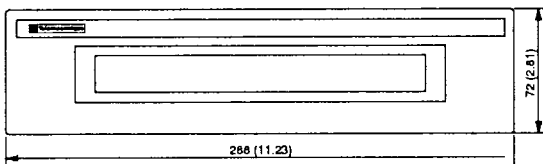
Mounting	Method : flush mounting fixed by a securing flange and 2 clamping screws with watertight seal. Panel thickness (min = 1.5 mm, max = 6.0 mm). Sense : any
Casing and rear cover	Black treated zinc alloy. Front fascia painted black satin polyurethane.
Connections	- Supply and parallel link : 17 terminal removable connector (5.08 mm spacing) Clamping capacity : 1.5 mm <sup>2</sup> .  - Serial link : 25 pin SUB D female connector, type HE 50 NF C 93425.
Weight	1.7 kg (3.7 lb) (without retaining flange), 1.9 kg (4.2lb) (with retaining flange).

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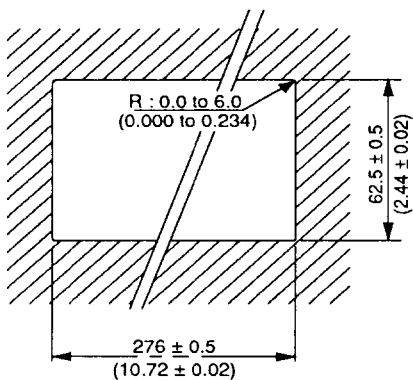
## 2 Technical characteristics

### Mechanical characteristics

#### Dimensions in mm (inches)

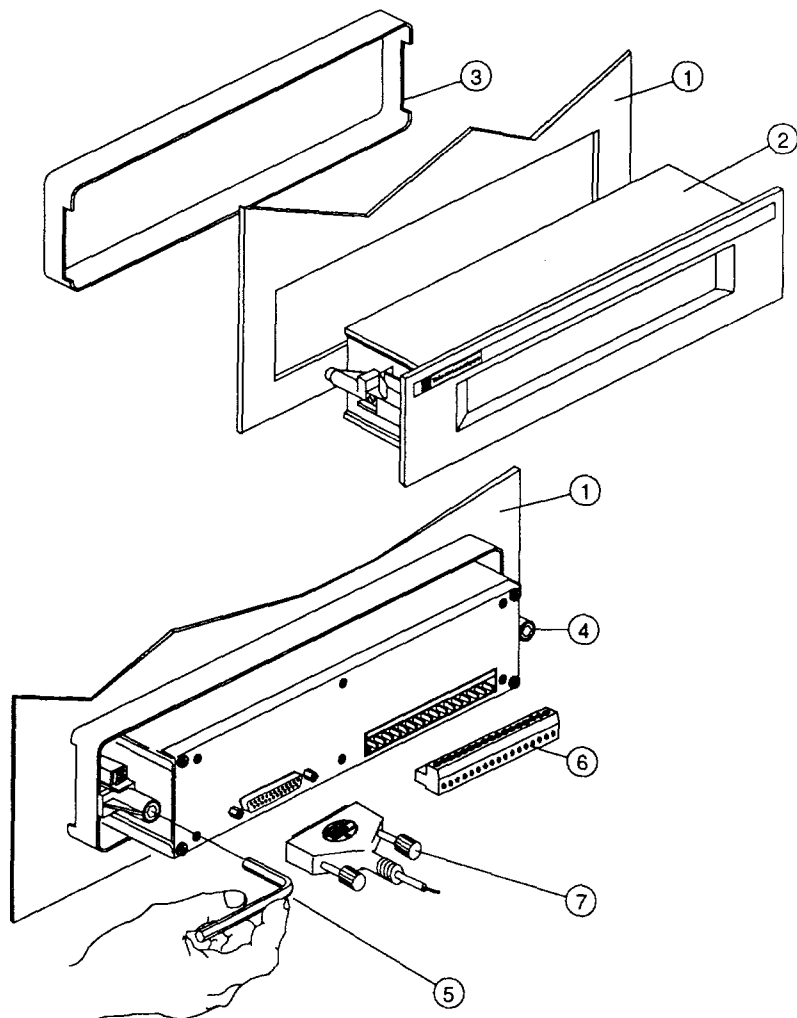


Panel cut out (minimum thickness = 1.5 mm (0.059"), max = 6.0 mm (0.234"))



## 2 Technical characteristics

### 2.3 Mounting



- ① Pre-cut support panel
- ② XBT-K casing
- ③ Fixing collar
- ④ Clamping screw
- ⑤ Allen key
- ⑥ Removable terminal connector : (17 terminals) supply and parallel link
- ⑦ Cable and 25 pin SUB D male serial transmission connector

## 2 Technical characteristics

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### 2.4 Electrical characteristics

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• Supply	Nominal voltage	24 V $\equiv$
	Maximum ripple	25 %
	Voltage limits (ripple included)	18 ... 30 V $\equiv$
	Maximum consumption	10 W
• Displays	Capacity	1 line of 20 characters
	Type	14 segment fluorescent (with decimal point)
	Size (per digit)	height = 10 mm width = 6.4 mm
	Colour	green

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#### • Message memory

Messages in the SRAM memory (STATIC RAM) are protected by a lithium battery.

They are protected for five years, with no voltage supplied, under normal conditions of use of the product (ambient temperature : see chapter 2.1).

When the XBT-K8 is powered, the battery is not used. The maximum life of the battery is ten years.



## 2 Technical characteristics

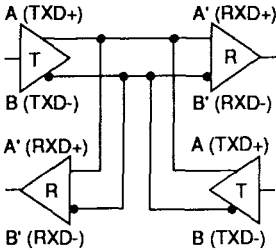
### Electrical characteristics

#### • Serial operation

The XBT-K8 is equipped with an RS 422 link.

#### RS 422 OPTO-ISOLATED ELECTRICAL CHARACTERISTICS CONFORMING TO THE STANDARD

In UNI-TELWAY RS 485 is used.



RS 485 LINK :  
2 WIRE DIFFERENTIAL MODE

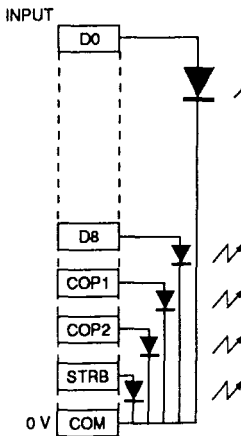
FOR THE UNI-TELWAY NETWORK MAXIMUM TRANSMISSION SPEED  
IS FIXED AT 19200 BAUDS

#### • Parallel link

- Electrical characteristics of the inputs

Isolation :

All inputs are opto-coupled



Common mode voltage:  
42V  $\pm$  (including ripple)

Input characteristics :

logic level 0 : 0V to + 5V

logic level 1 : + 16V to + 30V

current consumed per input :

8.5 mA at 24V

USE WITH UNI-TELWAY :  
THE 12 INPUTS ARE READ  
AT THE REQUEST OF THE TERMINAL  
(STATUS)

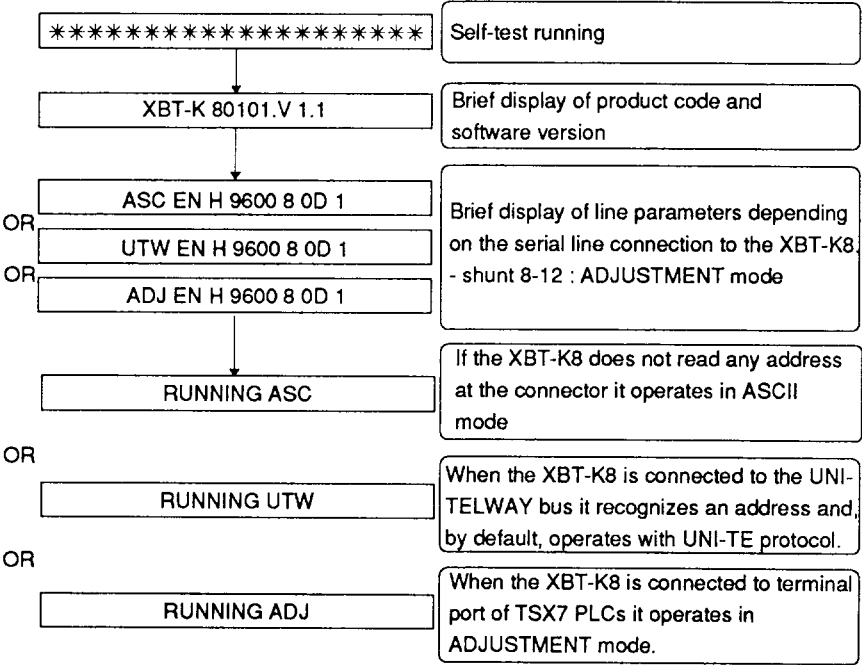
(see chapter 5 : General usage requests)

# 3 Selecting the operating modes

## 3.1 Selecting with the connector

When the XBT-K8 is powered up it executes a series of self-tests (see chapter 8: SELF-TESTS).

The operating protocol selected for the XBT-K8 depends on the type of connection made on the serial line.



Connections for the various operating protocols are described in chapter 7 : CONNECTIONS.

DEFAULT PARAMETERS (INITIAL POWER-UP)						
UTW	EN	H	9600	8	OD	1
UNI-TE PROTOCOL	ENGLISH LANGUAGE	HALF-DUPLEX EXCHANGE	9600 BAUDS TRANSMISSION SPEED	8 bit data format	Odd parity	1 Stop bit

### 3 Selecting the operating modes

#### 3.2 Selecting manually

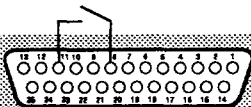
By means of a manual wiring procedure on the serial link, the user can modify all the configuration parameters of the XBT-K8.

CONFIGURABLE PARAMETERS		
TYPE	DISPLAY	SIGNIFICANCE
PROTOCOL	ASC	Operates in ASCII asynchronous module link
	REG	Operates in ADJUSTMENT TSX7 terminal port link
	UTW	Operates in UNI-TE connected to UNI-TELWAY bus
LANGUAGE	EN/FR/DE/ IT/ES/RU	English/French/German/ Italian/Spanish/Russian language
TRANSMISSION SPEED	110/300/600/ 1200/2400/ 4800/9600 19200	Selection of serial line transmission speed in Bauds  FOR UNI-TELWAY SPEED = 19200 Bauds
FORMAT	7/8	Selection of number of bits for transmitted characters (data) : 7 or 8 bit format
PARITY	N0/SP/MK/ EV/OD	Selection of parity (1 bit) N0 = No parity SP = Space (bit at 0). MK = Mark (bit at 1). EV = Even (bit at 1 if the number of data bits is odd) OD = Odd (if the number of data bits is even)
STOP BITS	1/2	Selection of the number of stop bits : 1 or 2

#### Procedure for modifying parameters

- Before powering up the XBT-K8, connect two wires to pins 8 and 11 of the serial link connector.

**WARNING !**



**CHECK CONNECTIONS  
BEFORE POWERING UP THE DEVICE**

- On power-up of the terminal, a succession of displays shows the configuration parameters saved.
- On first opening circuit 8-11, the type of parameter to be modified can be chosen.
- Opening of circuit 8-11 a second time, the parameter setting can be selected.

**ACTIVATION OCCURS ONLY ON THE OPENING OF CIRCUIT 8-11  
(FALLING EDGE)**

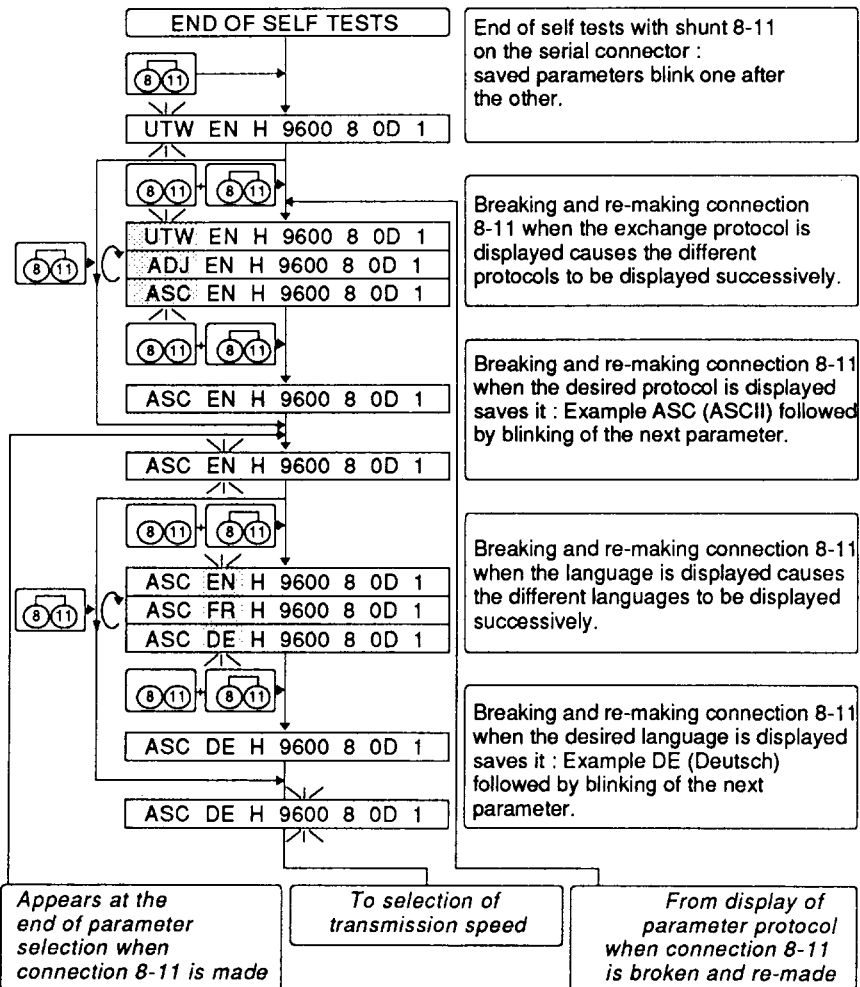
### 3 Selecting the operating modes

#### Selecting manually

##### • Example of selecting the parameters :

Objective : Configuration of the XBT-K8 with the following parameters :  
 ASCII operating mode  
 German language  
 Transmission speed 1200 Bauds  
 8 bit format  
 Odd parity (OD)  
 1 stop bit

Procedure : Connect 8-11 before power-up  
 Power-up the XBT-K8  
 The self-tests run.





## 3 Selecting the operating modes

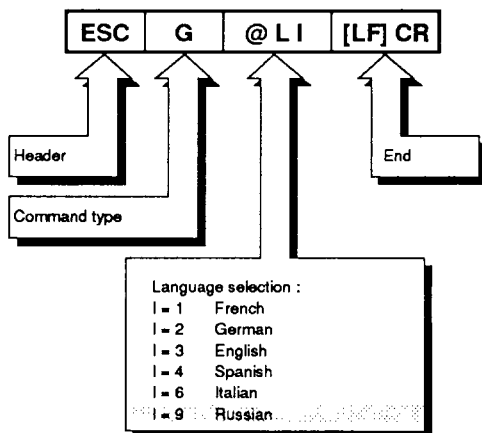
### 3.3 Selecting by command

The serial line configuration parameters can also be modified by line commands. These commands can be sent from a visual display terminal or a TSX-T407 terminal.

The serial line parameters of the terminal to be used should be adapted to those of the XBT-K8 display terminal.

#### • Configuring the language

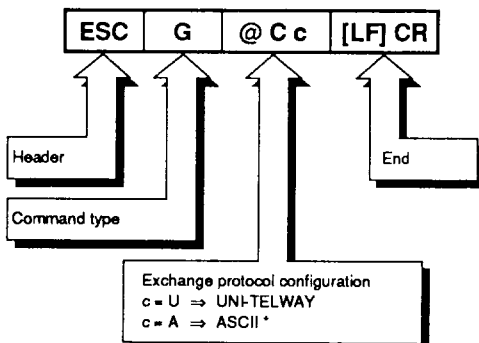
Command syntax:



\* Only available with Cyrillic devices

#### • Configuring the XBT-K8 exchange protocol

Command syntax :



\* ASCII multidrop - See address wiring chapter 6-8 of the XBT-X63240 manual.