
10.1 General

The XBT-K has two levels of diagnostics :

- an internal test is automatically started each time the equipment is powered-up,
- a test of the serial link and of the display can be initiated using special command codes over the parallel interface.

10.2 Automatic self-tests

On power-up, the following automatic self-tests are made in the order described:

- normal test messages are transient (indicated by \textcircled{T})
- fault messages are permanent (indicated by \textcircled{P})
- to quit a permanent fault, it is necessary to cut the supply voltage.

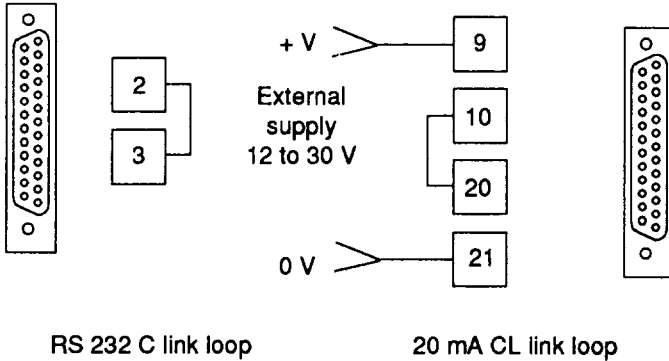
Automatic self-tests

TESTS	XBT-K DISPLAY	COMMENTS
Program memory	***** (P)	Internal fault on the equipment
	CHECKSUM PROG = (P)	XBT-K program memory checksum fault
	XBT-K70101 V 1.3 (T)	Normal display
Serial connector address	CONFIG. FAULT (P)	Simultaneous presence of a multidrop address and adjustment strap
Multidrop address	ADDR. PARITY FAULT (P)	The value of the parity bit does not correspond to the address read
	ASC H 9600 8B OD 1S (T)	Normal display
Stored messages	STORED MESS. NO = X X X	MESS. CKSUM ERROR (T) Checksum error of message space : (updating of checksum)
Parallel bus	PARALLEL INTERFACE FAULT (T)	Parallel interface control circuit fault
	OPERATING MODE	Normal message XBT-K waiting for commands

10.3 Self-test commands

• **Serial link test**

The serial link test is made by applying command codes to the parallel interface and externally looping the serial link on the SUB D connector.



ACTION											XBT-K DISPLAY		COMMENTS																						
<table border="1"> <tr> <td>OP2</td> <td>OP1</td> <td>D8</td> <td>D7</td> <td>D6</td> <td>D5</td> <td>D4</td> <td>D3</td> <td>D2</td> <td>D1</td> <td>D0</td> </tr> <tr> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>0</td> <td>1</td> </tr> </table>											OP2	OP1	D8	D7	D6	D5	D4	D3	D2	D1	D0	0	0	0	0	0	0	0	0	0	0	1	TESTING		The XBT-K tests the serial link loop. This message appears as soon as the loop is correctly detected.
OP2	OP1	D8	D7	D6	D5	D4	D3	D2	D1	D0																									
0	0	0	0	0	0	0	0	0	0	1																									
											TEST CORRECT																								

Self-test commands

• Display test

ACTION										XBT-K DISPLAY	COMMENTS	
										D D D D	Cyclic display test. 5 characters successively shifted	
										Y. Y. Y. Y. Y.		
										E E E E E		
										X. X. X. X. X.		
										* * * * *		20 characters
										□□□□□□□□	20 characters	
										⊗⊗⊗	20 characters (all the segments are lit)	
OP2	OP1	D8	D7	D6	D5	D4	D3	D2	D1	D0		
0	0	0	0	0	0	0	0	0	1	0		

THE COMMAND SHOULD REMAIN PRESENT FOR THE DURATION OF THE SELF-TESTS

11.1 Messages displayed on the XBT-K

MESSAGE DISPLAYED	OPERATING MODE	PROBABLE CAUSE	REMEDY
> LINE FAULT <	ADJUSTMENT MODE	Malfunction of the line TSX ↔ XBT-K	<ul style="list-style-type: none"> - Check the link cable XBT ↔ TSX. - Test the XBT-K serial link. - Test the TSX terminal port with a T407 programming terminal. - Check if the text block transmission period ≥ 50 ms.
> TSX VAR. FAULT <	ADJUSTMENT MODE	Variable not available in TSX. Variable too large for the numeric field. Rejection of the PLC request.	<ul style="list-style-type: none"> - Check the program cartridge, TSX configuration. <p>e.g. : read W500 in TSX-27.</p>
XXX: MESS. ABSENT ** **	ADJUSTMENT MODE OR ASCII MODE	No message programmed in the memory at address XXX.	<ul style="list-style-type: none"> - Check the command - Program the message.
(IN THE NUMERIC FIELD)	ADJUSTMENT MODE OR ASCII MODE	Value corrected by the conversion coefficient greater than acceptable by the numeric field in the message.	<ul style="list-style-type: none"> - Check the length of the numeric field. - Check the conversion coefficient.
> PROGRAM ERROR <	CONFIGURATION MODE	Incorrect writing of message in memory.	<ul style="list-style-type: none"> - Check message syntax.
> MESSAGE ABSENT <	Control using parallel interface (scan)	No message programmed at the address.	<ul style="list-style-type: none"> - Program the message if necessary
> ADDR. PARITY FAULT <	ASCII MODE (multidrop)	Incorrect address wiring.	<ul style="list-style-type: none"> - Check the wiring of the serial link connector.
> CHECKSUM ERROR <	CONFIGURATION MODE	CONFIGURATION MODE exited out of procedure.	<ul style="list-style-type: none"> - Check the configuration.

11.2 Messages transmitted over the line

MESSAGE DISPLAYED	PROBABLE CAUSE	REMEDY
ESC @ LF CR	Line transmission fault. Parity error.	<ul style="list-style-type: none">- Check the line parameters for the XBT-K and the PLC.- Check for parasites on the line. Use opto-isolation for the line if not isolated.- Reduce the transmission speed.- Shield the transmission cable.
ESC ? LF CR	Syntax fault. Message number not programmed.	<ul style="list-style-type: none">- Check the message syntax transmitted by the control system to the XBT-K.
	Multidrop address detection fault.	<ul style="list-style-type: none">- Check the coding of the addresses in the connector (multidrop).

12.2 ASCII character table

(ASCII : American Standard Code for Information Interchange).

BINARY				b ₈				b ₇				b ₆				b ₅																															
				b ₈				b ₇				b ₆				b ₅																															
b ₈	b ₇	b ₆	b ₅	HEXADECIMAL				0	1	2	3	4	5	6	7																																
0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	1	1	0	0								
0	0	0	1	1	0	0	0	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1	0	1				
0	0	1	0	2	STX	DC ₂	"	2	B	R	b	r	2	B	R	b	r	2	B	R	b	r	2	B	R	b	r	2	B	R	b	r	2	B	R	b	r	2	B	R	b	r					
0	0	1	1	3	ETX	DC ₃	#	3	C	S	c	s	3	C	S	c	s	3	C	S	c	s	3	C	S	c	s	3	C	S	c	s	3	C	S	c	s	3	C	S	c	s	3	C	S	c	s
0	1	0	0	4	EOT	DC ₄	\$	4	D	T	d	t	4	D	T	d	t	4	D	T	d	t	4	D	T	d	t	4	D	T	d	t	4	D	T	d	t	4	D	T	d	t	4	D	T	d	t
0	1	0	1	5	ENQ	NAK	%	5	E	U	e	u	5	E	U	e	u	5	E	U	e	u	5	E	U	e	u	5	E	U	e	u	5	E	U	e	u	5	E	U	e	u	5	E	U	e	u
0	1	1	0	6	ACK	SYN	&	6	F	V	f	v	6	F	V	f	v	6	F	V	f	v	6	F	V	f	v	6	F	V	f	v	6	F	V	f	v	6	F	V	f	v	6	F	V	f	v
0	1	1	1	7	BEL	ETB	'	7	G	W	g	w	7	G	W	g	w	7	G	W	g	w	7	G	W	g	w	7	G	W	g	w	7	G	W	g	w	7	G	W	g	w					
1	0	0	0	8	BS	CAN	(8	H	X	h	x	8	H	X	h	x	8	H	X	h	x	8	H	X	h	x	8	H	X	h	x	8	H	X	h	x	8	H	X	h	x					
1	0	0	1	9	HT	EM)	9	I	Y	i	y	9	I	Y	i	y	9	I	Y	i	y	9	I	Y	i	y	9	I	Y	i	y	9	I	Y	i	y	9	I	Y	i	y					
1	0	1	0	A	LF	SUB	*	:	J	Z	j	z	:	J	Z	j	z	:	J	Z	j	z	:	J	Z	j	z	:	J	Z	j	z	:	J	Z	j	z										
1	0	1	1	B	VT	ESC	+	;	K	[	k	{	;	K	[	k	{	;	K	[	k	{	;	K	[	k	{	;	K	[	k	{	;	K	[	k	{				
1	1	0	0	C	FF	FS	,	<	L	\	l	|	<	L	\	l	|	<	L	\	l	|	<	L	\	l	|	<	L	\	l	|	<	L	\	l	|										
1	1	0	1	D	CR	GS	-	=	M	]	m	}	=	M	]	m	}	=	M	]	m	}	=	M	]	m	}	=	M	]	m	}	=	M	]	m	}				
1	1	1	0	E	SO	RS	.	>	N	^	n	~	>	N	^	n	~	>	N	^	n	~	>	N	^	n	~	>	N	^	n	~	>	N	^	n	~										
1	1	1	1	F	SI	US	/	?	O	_	o	DEL	?	O	_	o	DEL	?	O	_	o	DEL	?	O	_	o	DEL	?	O	_	o	DEL	?	O	_	o	DEL										

Control characters

Displayable characters

Characters displayed by XBT

1

2

3

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