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Magelis XBTG
User Manual

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Document Set

At a Glance

This manual describes the XBTG terminals series implementation.

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Safety Information



General Safety Precautions

NOTICE

Read these instructions carefully, and look at the equipment to become familiar with the device before trying to install, operate, or maintain it. The following special messages may appear throughout this documentation or on the equipment to warn of potential hazards or to call attention to information that clarifies or simplifies a procedure.



The addition of this symbol to a Danger or Warning safety label indicates that an electrical hazard exists, which will result in personal injury if the instructions are not followed.



This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.

⚠ DANGER

DANGER indicates an imminently hazardous situation, which, if not avoided, **will result** in death or serious injury.

⚠ WARNING

WARNING indicates a potentially hazardous situation, which, if not avoided, **can result** in death, serious injury, or equipment damage.

⚠ CAUTION

CAUTION indicates a potentially hazardous situation, which, if not avoided, **can result** in injury or equipment damage.

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AT a glance

This manual includes procedures that must be followed to operate the XBTG correctly and safely. Be sure to read this manual and any related materials thoroughly to understand the correct operation and functions of this unit.

General Safety Precautions

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION. LOSS OF CONTROL

Control system must be designed to avoid a malfunction caused by a communication fault between the XBTG and the host controller.

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

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION. BACKLIGHT BURNOUT

In case of backlight failure, make sure the “disable screen” feature is enabled.

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

- This equipment must be installed and operated by qualified personnel.
- Disconnect all power before working on or inside equipment.
- Ensure the power supply matches the power requirements of the XBTG.
- Do not strike the touch panel with a hard or pointed object, or press on the touch panel with excessive force, since it may damage the touch panel or the display.
- Do not use this unit in locations where large, sudden temperature changes may cause condensation inside.
- Do not store or use the XBTG where chemicals (such as organic solvents, etc.) and acids can evaporate, or where chemicals and acids are present in the air.
  - Corrosive chemicals : acids, alkalines, liquids containing salt.
  - Flammable chemicals : organic Solvents.
- Do not use paint thinner or organic solvents to clean the XBTG.
- Do not store or operate the LCD display in areas receiving direct sunlight, since the sun's UV rays may cause the LCD display’s quality to deteriorate.
- Storing this unit at temperatures higher or lower than specifications may damage the panel.
- Vertical mounting is recommended.
- After turning the XBTG OFF, be sure to wait 30 seconds before turning it ON again. If the XBTG started too soon, it may not start up correctly.
- For maximum product life allow 100mm ventilation space from energized components.
- Alterations beyond those specified in this manual will void the product warranty.

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- When using scripts to display screens, ensure that they are not displayed in a Popup window. Failure to follow this instruction may cause the image to be clipped within the Popup window.
- The vibrate mode is not available on the XBTG; this mode is reserved for a future use.
- While in the modification mode with the virtual keyboard displayed, any change of focus (outside of the virtual keyboard window) will close the virtual keyboard and input data will be lost.
- During the design phase of your project, ensure that only one protocol is configured to a communications port. Multiple protocols can not be assigned to a single port.
- If sound distortion is present, check the file format of the sound (*.wav) file used and ensure that it is formatted for 16 bits, 11 kHz.

Concerning the USB Data Transfer Cable XBTZG925

To prevent damage to the USB data transfer cable:

- Do not use or store this cable at very high temperatures, or in direct sunlight.
- Do not use or store this cable in excessively dusty or dirty environments.
- Do not use or store this cable in a environment where it may be exposed to chemical vapors or fumes.
- Do not allow water to enter the connector. Also, do not touch the connector if your hands are wet. This may cause an electrical shock.
- Do not connect or disconnect the USB data transfer cable during data transfer. Doing so may cause a data communication error.

⚠ WARNING

UNINTENDED EQUIPMENT OPERATION.

Care must be taken during design not to allow Pop up windows to overlay virtual keyboard.

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

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About the Book



At a Glance

Document Scope	This manual describes the XBTG terminals series implementation.
Validity Note	Contents
User Comments	We welcome your comments about this document. You can reach us by e-mail at techpub@ schneider-electric.com

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XBTG Panels

I

At a glance

Subject of this part

This part presents XBTG Panels.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
1	Overview	17
2	XBTG Device Connectivity	23
3	Specifications	29
4	Installation and wiring	61

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Overview

1

At a glance

Subject of this Chapter

This chapter presents series of XBTG Panels and devices connectable to the XBTG.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Series of XBTG Panels	18
Package contents	19
Series XBTG panels and standards	20
CE marking notes	21

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Series of XBTG Panels

Overview

This manuals presents the XBTG series of Human Machine Interface products. These products are graphical touchscreens and have an operating voltage of 24 Volts DC. The products offered in this series have various features and benefits listed below:

- screen size,
- resolution of the screen,
- technology and color of the screen,
- communication.

Part Number

The following table introduce the different XBTG Products:

Part number	Screen size	Resolution Pixels	Mono/Color	Screen technology	Serial link	Ethernet
XBTG2110	5.7"	QVGA 320x240	Blue mode	STN	1	No
XBTG2120	5.7"	QVGA 320x240	Monochrome	STN	1	No
XBTG2130	5.7"	QVGA 320x240	Monochrome	STN	2	Yes
XBTG2220	5.7"	QVGA 320x240	Color	STN	1	No
XBTG2330	5.7"	QVGA 320x240	Color	TFT	2	Yes
XBTG4320	7.4"	VGA 640x480	Color	TFT	1	No
XBTG4330	7.4"	VGA 640x480	Color	TFT	2	Yes
XBTG5230	10.4"	VGA 640x480	Color	STN	2	Yes
XBTG5330	10.4"	VGA 640x480	Color	TFT	2	Yes
XBTG6330	12.1"	SVGA 800x600	Color	TFT	2	Yes

STN and TFT

STN: Scan Twisted Neumatic also known as passive matrix.

TFT: Thin Film Transistors also known as active matrix.

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Package contents

At a glance

The following items are included in the XBTG's package. Before using the XBTG, please make sure that all items listed here are present:

- XBTG Unit,
- PLC cable adaptor XBTZG999, plugged on the serial interface (HOST -I/F 25 pin),
- Installation Guide,
- Installation Fasteners (4),
- Installation Gasket.

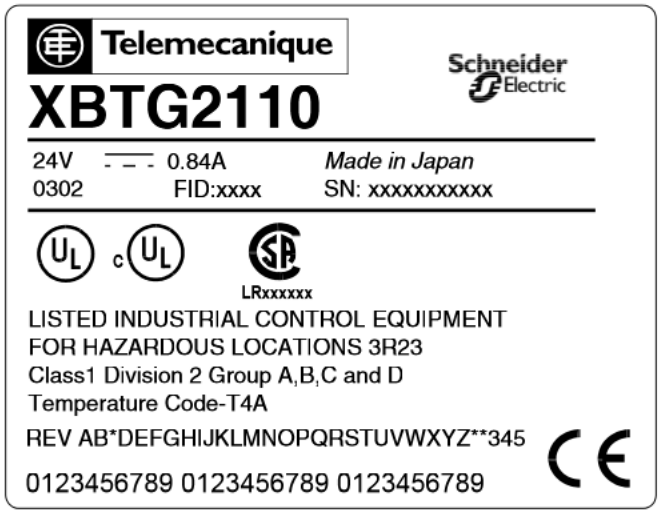
Options

XBTG optional items include cables, adapters, screen editor software and other items. For more information about these optional items, please refer to individual XBTG catalogues.

Revisions

You can identify the revision from the product label sticker pasted on the XBTG unit. Revision is consisted of letters and numbes at the location marked with "*" sign.

The following diagram show a example of unit revision. In this example the revision is C,1,2:



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Series XBTG panels and standards

At a glance

The XBTG are UL/C-UL listed and CSA products.

These units are conformed to the following standards:

- **UL 508** for Industrial Control Equipement,
- **UL 1604** Electrical Equipment for Use in Hazardous Location for use in Class I and Class II Division 2 and Class III Hazardous Locations,
- **UL 60950** Standard for Safety of Information Technology Equipment
- **CAN/CSA-C22.2 No.142 and No.213-M1987** Industrial Control Equipment-Miscellaneous Apparatus - For Hazardous Locations.

UL1604 Conditions of Acceptability and Handling Cautions:

- Power, input and output (I/O) wiring must be in accordance with Class I, Division 2 wiring methods - Article 501- 4(b) of the National Electrical Code, NFPA 70 or as specified in section 18-152 of the Canadian Electrical Code for installations within Canada and in accordance with the authority have jurisdiction.
- Suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations or non- Hazardous Locations only.
- Confirm that the power supply has been turned OFF before disconnecting equipment, or confirm that the location is not subject to the risk of explosion.
- WARNING: Explosion hazard - substitution of components may impair suitability for Class I, Division 2.
- WARNING: Explosion hazard - when in hazardous locations, turn power OFF before replacing or wiring modules.
- WARNING: Explosion hazard - do not disconnect equipment unless power has been switched OFF or the area is known to be non-hazardous.

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CE marking notes

At a glance

The XBTG units are CE marked products. They follow the standards bellow:

Environnement	Standards
Compliance with standards	IEC 61131-2, IEC61000-6-2,CISPR11(Class A) UL 508, CSA C22.2 n°142 & n°213
Product certification	CE, UL/cUL, CSA, Class 1 Div 2 T4A or T5* (UL & CSA) * : only for the references XBTG4•••
Operating temperature	0°C + 50°C (32°F 122°F)
Storage temperature	-20 °C + 60°C (-4°F 140°F)
Protection (front panel)	IP 65 - (IEC 60529) UL Type 4, 4X Indoor use
Protection (rear panel)	IP 20 - (IEC 60529)
ESD withstand	IEC 61000 - 4 - 2 level 3
Electromagnetic interference	IEC 61000 - 4 - 3 10 V / m
Electrical interference	IEC 61000- 4 - 4 level 3
High Energy Surges	IEC 61000 - 4 - 5 0.5KV (Differential Mode on power supply) 1KV (common mode on power supply)
Shocks	IEC 60068 - 2 - 27 1/2 sinusoidal pulse for 11ms, 15 g on 3 axes
Vibration	IEC 60068 - 2 - 6 0.075mm 10 Hz to 57 Hz 1 g. 57 Hz to 150 Hz
Pollution Degree	Pollution Degree 2

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XBTG Device Connectivity

2

At a glance

Subject of this chapter

This chapter presents for each XBTG unit the devices connectable to it.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
System design	24
Accessories	26

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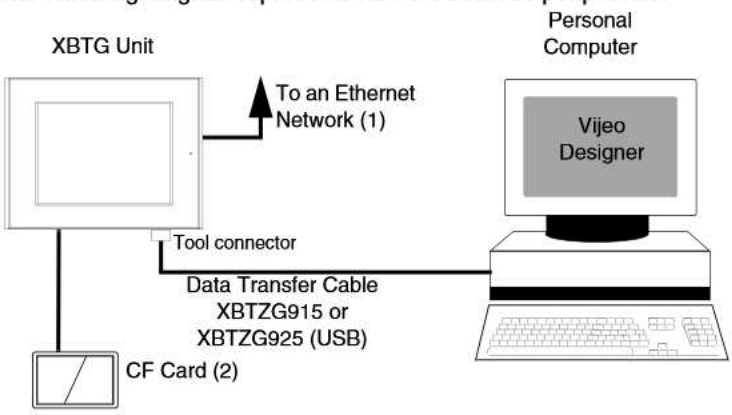
System design

At a glance

The following diagrams represent the main selection of devices connectable to the XBTG.

XBTG edit mode peripherals

The following diagram represents XBTG edit mode peripherals:

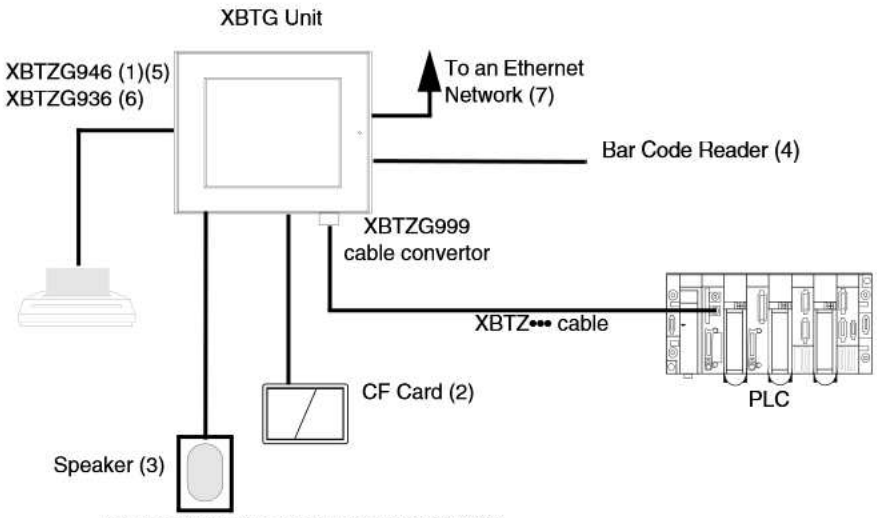


(1) not available on XBTG2110/2120/2220/4320
(2) not available on XBTG2110

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XBTG run mode peripherals

The following diagram represents XBTG run mode peripherals:



(1) not available on XBTG2110/2120/2220
(2) not available on XBTG2110
(3) not available on XBTG2110/2120/2130/2220/2330/4320
(4) not available on XBTG2110/2120/2220/4320 when COM1 is used
(5) for parallel printer
(6) for serial printer
(7) not available on XBTG2110/2120/2220/4320

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Accessories

Part number The following table presents all accessories used with XBTG:

Part number	Product name	Description	XBTG series
XBTZG915	Cable	Connects the XBTG to a personal computer (COM1, COM2,). Downloads user created program.	For all
XBTZG925	USB Cable	Connects the XBTG to a personal computer (USB port). Downloads user created program.	For all
XBTZG936	Serial Cable	To connect the XBTG to a printer thought serial port	For all
XBTZG946	Printer cable	To connect the XBTG to a printer through parallel port.	For all except XBTG2110/2120/ 2220
XBTZG999	XBTZ cable convertor	Adapt the XBTZ cable connector to XBTG COM1 port.	For all
XBTZG968 XBTZG9680 XBTZG9681	XBTZ cable	Cable to connect equipment to XBTG with XBTZ cable convector.	For all
XBTZG9710 XBTZG9711	XBTZ cable	Cable to connect equipment to XBTG with XBTZ cable convector.	For all
XBTZG918	XBTZ cable	Cable to connect equipment to XBTG with XBTZ cable convector.	For all
XBTZG908	XBTZ cable	Cable to connect equipment to XBTG with XBTZ cable convector and TSX SCA 62.	For all
TSX PCX 1031	XBTZ cable	Cable to connect equipment to XBTG (COM2).	For all
XBTZGM16	CF card (16MB)	XBTG series CF card (16MB).	For all except XBTG2110
XBTZGM32	CF card (32MB)	XBTG series CF card (32MB).	For all except XBTG2110
XBTZGM64	CF card (64MB)	XBTG series CF card (64MB).	For all except XBTG2110
XBTZGM128	CF card (128MB)	XBTG series CF card (128MB).	For all except XBTG2110
XBTZGM256	CF card (256MB)	XBTG series CF card (256MB).	For all except XBTG2110
MPCYN00CFE00N	CF card (512MB)	XBTG series CF card (512MB).	For all except XBTG2110
XBTZGADT	CF card adaptor	CF card adapter for the PCMCIA slot.	For all except XBTG2110

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Part number	Product name	Description	XBTG series
XBTZG12	Backlight	Replacement backlight.	For XBTG2120/2130/2220
XBTZG13			For XBTG5230
XBTZG14			For XBTG4320/4330
XBTZG15			For XBTG5330
XBTZG16			For XBTG6330 (REV AB*DEFGHIJKLMNOPQRSTUVWXYZ12345)
XBTZG46			For XBTG6330 (REV AB*DEFGHIJKLMNOPQRSTUVWXYZ*2345)
XBTZGSET	Installation fastener	Fasteners to attach the XBTG a panel.	For all
XBTZG21	Installation gasket.	Provides a moisture resistant seal when installing the XBTG. Same as the seal included the XBTG's original equipment package.	For XBTG2110
XBTZG22			For XBTG2120/2130/2230/2330
XBTZG24			For XBTG4320/4330
XBTZG26			For XBTG5230/5330/6330
XBTZG31	Screen protection sheet.	Disposable, dirt-resistant sheet for the XBTG's screen. The XBTG's touch panel can be operated with this cover sheet attached.	For XBTG2110
XBTZG32			For XBTG2130/2330
XBTZG34			For XBTG4320/4330
XBTZG36			For XBTG5230/5330/6330
XBTZGCOV	Connectors cover.	Attaches to XBTG rear face connectors.	For XBTG2130/2330/4320/4330/5230/5330/6330
XBTZGMBP	Connection module for ModBus Plus networks	Allows connection to a ModBus Plus network.	For all except XBTG2110

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Specifications

3

At a glance

Subject of this chapter

This chapter presents the different XBTG specifications (general, functional, interface).

What's in this Chapter?

This chapter contains the following sections:

Section	Topic	Page
3.1	General specifications	31
3.2	Functional specifications	35
3.3	Interface specifications	42
3.4	Part numbers and functions	48
3.5	Dimensions	54

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3.1 General specifications

At a glance

Subject of this section

This section presents general XBTG specifications (electrical, environmental and structural).

What's in this Section?

This section contains the following topics:

Topic	Page
Electrical specifications	32
Environmental specifications	33
Structural specifications	34

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Electrical specifications

At a glance This following table presents electrical specifications of XBTG:

Specifications	XBTG2110	XBTG2120 XBTG2130 XBTG2220 XBTG2330	XBTG4320	XBTG4330	XBTG5230 XBTG5330 XBTG6330
Input Voltage	24 V DC/30Vrms Class II				
Rated Voltage	20.4 V DC to 27.6 V	19.2 V DC to 28.8 V	19.2 V DC to 28.8 V	19.2 V DC to 28.8 V	19.2 V DC to 28.8 V
Allowable Voltage Drop	≤ 2ms	≤ 10ms	≤ 10ms	≤ 10ms	≤ 10ms
Power Consumption	≤ 20W	≤ 22W	≤ 28W	≤ 28W	≤ 50W
In-Rush Current	≤ 30A				
Voltage Endurance between charging and FG terminals (Dielectric withstand)	AC1,000V 10mA for 1 minute	AC1,000V 20mA for 1 minute	AC1,000V 20mA for 1 minute	AC1,000V 20mA for 1 minute	AC1,000V 20mA for 1 minute
Insulation Resistance between charging and FG terminals	20MΩ or higher at DC500V	20MΩ or higher at DC500V	10MΩ or higher at DC500V	10MΩ or higher at DC500V	10MΩ or higher at DC500V

Note: When using XBTG in an environment where the temperature becomes or exceeds 40°C for an extended period of time, the screen contrast level may decrease from its original level of brightness.

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Environmental specifications

At a glance This following table presents environmental specifications of XBTG:

Specifications	XBTG2110	XBTG2120 XBTG2130 XBTG2220 XBTG2330	XBTG4320	XBTG4330	XBTG5230 XBTG5330 XBTG6330
Ambient operating temperature	0°C to +50°C (32°F 122°F) (1)				
Storage temperature	-20°C to +60°C (-4°F 140°F)				
Ambient humidity	20%RH to 85%RH	10%RH to 90%RH	10%RH to 90%RH	10%RH to 90%RH	10%RH to 90%RH
	Non condensing, wet bulb temperature : ≤ 39°C				
Atmospheric endurance	800 to 1114hPa (≤ 2000meters) (23.62 to 32.9 inHg)				
Air purity level	≤ 0.1mg/m^3 non-conductive levels				
Atmosphere	Free of corrosive gasses				
Vibration resistance	Non-continuous vibration: 0.075mm 10Hz to 50Hz, 9.8m/s 57Hz to 150Hz Continuous vibration: 0.035mm 10Hz to 50Hz, 4.9m/s 57Hz to 150Hz x,y,z directions for 10 times (80min)				
Noise immunity (via noise simulator)	Noise voltage: 1000Vp-p Pulse duration: 1 sec Rise time:1nsec				
Electrostatic discharge immunity	Complies with IEC 61000-4-2 level 3				
(1): The LCD displays of XBTG2130/2120/2220/6330 may occasionally blur when they are used for hours at over 40°C ambient operating temperature. After the temperature returns to normal, the normal display will be restored. The XBTG's operation will not be affected even though the display is blurred.					

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Structural specifications

At a glance This following table presents structural specifications of XBTG:

Specifications	XBTG2110	XBTG2120 XBTG2130 XBTG2220 XBTG2330	XBTG4320	XBTG4330	XBTG5230 XBTG5330 XBTG6330
Grounding	≤100Ω or your country's applicable standard				
Ratings (front face of installed unit)	Equivalent to IP65 (JEM 1030) (1) NEMA#250 Type 4X/12				
Weight (main unit only)	≤1.1kg (2.4lb)	≤1.2kg (2.6lb)	≤1.7kg (5.5lb)	≤1.7kg (5.5lb)	≤3.5kg (7.7lb)
Cooling method	Natural air circulation				
External dimensions WxHxD **mm**	207 x 157 x 58	171 x 138 x 60	215 x 170 x 60	215 x 170 x 60	317 x 243 x 58
External dimensions WxHxD **in.**	8.17 x 6.18 x 2.28	6.73 x 5.43 x 2.36	8.46 x 6.69 x 2.36	8.46 x 6.69 x 2.36	12.48 x 9.57 x 2.28

Note: (1) the front face of the XBTG unit, installed in a solid panel, has been tested using conditions equivalent to the standards shown in the specification. Even though the XBTG unit's level of resistance is equivalent to these standards, oils that should have no effect on the XBTG can possibly harm the unit. This can occur in areas where either vaporized oils are present, or where low viscosity cutting oils are allowed to adhere to the unit for long periods of time. If the XBTG's front face protection sheet becomes peeled off, these conditions can lead to the ingress of oil into the XBTG and separate protection measures are suggested. Also, if non-approved oils are present, it may cause deformation or corrosion of the front panel's plastic cover. Therefore, prior to installing the XBTG be sure to confirm the type of conditions that will be present in the XBTG's operating environment. If the installation gasket is used for a long period of time, or if the unit and its gasket are removed from the panel, the original level of the protection cannot be guaranteed. To maintain the original protection level, you need to replace the installation gasket regularly.

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3.2 Functional specifications

At a glance

Subject of this section

This section presents functional specifications (display, memory, and interfaces).

What's in this Section?

This section contains the following topics:

Topic	Page
Display	36
Memory and clock	38
Interfaces	39

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Display

At a glance

The following table lists display specifications of XBTG units. The XBTG unit are grouped together in tables according to:

- STN screen technology,
- TFT screen technology.

STN Display XBTG unit

This following table lists the display specification of XBTG unit with STN screen technology.

Specifications	XBT-G2110	XBT-G2120 XBT-G2130	XBT-G2220	XBT-G5230
Type	Monochrome LCD		Color LCD	
Colors	Blue mode	B&W	64 colors	64 colors, 3-speed blink
Resolution (pixels)	320x240			640x480
Display area				
WxH (mm)	115.2 x 86.4			211.2 x 158.4
WxH (in.)	4.54 x 3.40			8.34 x 6.24
Backlight	CCFL (25,000 hrs at 25°C and 24hr. operation)	CFL (50,000 hrs at 25°C and 24hr. operation)		
Contrast Control	4 levels of adjustment available via touch panel			
Brightness adjust	Set to maximum			
Language fonts	ASCII: (Code page 850) Alphanumeric (incl. Eur. characters) Chinese: (GB2321-80 codes) simplified Chinese fonts Japanese: ANK 158, Kanji : 6962 (JIS Standards 1 & 2) Korean: (KSC5601 - 1992 codes) Hangul fonts Taiwanese: (Big 5 codes) traditional Chinese fonts			
Text				
8x8 dots	40 char. per row, 30 rows			80 char. per row, 60 rows
8x16 dots	40 char. per row, 15 rows			80 char. per row, 30 rows
16x16 dots	20 char. per row, 15 rows			40 char. per row, 30 rows
32x32 dots	10 char. per row, 7 rows			20 char. per row, 15 rows
Font sizes	Both height and width can be multiplied 1, 2, 4, or 8 times			
Text sizes	8x8, 8x16, 16x16, and 32x32 dot fonts			
Touch panel	16x12 keys/screen (1 or 2 point touch)			32x24 keys/screen (1 or 2 point touch)

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TFT Display XBT-G unit

This following table lists the display specification of XBTG unit with TFT screen technology.

Specifications	XBT-G2330	XBT-G4320 XBT-G4330	XBT-G5330	XBT-G6330
Type	Color LCD			
Colors	256 colors, no blink 64 colors, 3-speed blink (1)	256 colors, no blink (1) 64 colors, 3-speed blink		
Resolution (pixels)	320x240	640x480		800x600
Display area				
WxH (mm)	115.2 x 86.4	149.8 x 112.3	211.2 x 158.4	246 x 184.5
WxH (in.)	4.54 x 3.40	5.90 x 4.42	8.34 x 6.24	9.69 x 7.26
Backlight (Service life)	CFL (50,000 hrs at 25°C and 24hr. operation)			
Contrast Control	-			
Brightness adjust	4 levels of adjustment available via touch panel			
Languages fonts	ASCII: (Code page 850) Alphanumeric (incl. Eur. characters) Chinese: (GB2321-80 codes) simplified Chinese fonts Japanese: ANK 158, Kanji : 6962 (JIS Standards 1 & 2) Korean: (KSC5601 - 1992 codes) Hangul fonts Taiwanese: (Big 5 codes) traditional Chinese fonts			
Text				
8x8 dots	40 char. per row, 30 rows	80 char. per row, 60 rows		100 char. per row, 75 rows
8x16 dots	40 char. per row, 15 rows	80 char. per row, 30 rows		100 char. per row, 37 rows
16x16 dots	20 char. per row, 15 rows	40 char. per row, 30 rows		50 char. per row, 37 rows
32x32 dots	10 char. per row, 7 rows	20 char. per row, 15 rows		25 char. per row, 18 rows
Font sizes	Both height and width can be multiplied 1, 2, 4, or 8 times			
Text sizes	8x8, 8x16, 16x16, and 32x32 dot fonts			
Touch panel	16x12 keys/screen (1 or 2 point touch)	32x24 keys/screen (1 or 2 point touch)		40x30 keys/screen (1 or 2 point touch)
Legend				
(1)	Color swiching is done via software. Changing the "Colors" setting to "256 colors" will disable the blink feature on all of your project's screens. If you wish to use the blink feature, select "64 colors"			

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Memory and clock

Memory

The following table list the specifications memory of each XBTG unit.

Memory	XBTG2110	XBTG2120 XBTG2220	XBTG2130 XBTG2330	XBTG4320	XBTG4330 XBTG5230 XBTG5330 XBTG6330
Application Flash EPROM	4Mb	4Mb	6Mb	6Mb	8Mb
Data backup SRAM uses a lithium battery (1)	128Kb	128Kb	512Kb	128Kb	512Kb
Legend:					
(1) : a lithium battery's lifetime is: • 10 years when the battery's ambient temperature is under 40°C • 4.1 years when the battery's ambient temperature is under 50°C • 1.5 years when the battery's ambient temperature is under 60°C When used for backup: • Approximately 60 days, with a fully charged battery • Approximately 6 days, with a half-charged battery					

Clock

The internal clock accuracy of all XBTG units is **+/- 65 seconds/month** at ambient temperature.

The XBTG's internal clock has a slight error. At normal operating temperatures and conditions, with the XBTG operating from its lithium battery, the degree of error is 65 seconds per month. Variations in operating conditions and battery life can cause this error to vary from -380 to +90 seconds per month. For systems where this degree of error will be a problem, the user should be sure to monitor this error and make adjustments when required.

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Interfaces

Serial interface and Tool Port connector

The Serial interface and Tool Port connector are available for all XBTG units.

The following table list the specifications of Serial interface and Tool Port connector.

Interface	Description
Serial interface COM1 SUB-D 25	
Asynchronous Transmission	RS232C/RS485
Data length	7 or 8 bits
Stop bit	1 or 2 bits
Parity	None, Odd or Even
Data transmission	2400bps to 115200 bps
Tool Port connector Mini Din	Asynchronous TTL level non procedural command I/F Used for transferring data user program from Vijeo-Designer to the XBTG.

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Serial interface COM2 and Ethernet interface

The Serial interface COM2 and Ethernet interface are available for XBTG unit:

- XBTG2130,
- XBTG2330,
- XBTG4330,
- XBTG5230,
- XBTG5330,
- XBTG6330.

The following table list the specifications of Serial interface COM2 and Ethernet interface.

Interface	Description
Serial interface COM2 SUB-D 9	
Asynchronous Transmission	RS232C
Data length	7 or 8 bits
Stop bit	1 or 2 bits
Parity	None, Odd or Even
Data transmission	2400bps to 115200 bps
Ethernet RJ 45	IEEE802.3, 10BaseT

Compact Flash memory Card interface

All XBTG units except XBTG2110 have one slot for Compact Flash memory Card interface.

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Sound Output

The Sound Output is available for XBTG unit:

- XBTG4330,
- XBTG5230,
- XBTG5330,
- XBTG6330.

The following table list the specifications of Sound Output.

Interface	Description
Sound Ouput	
External Speaker Connection	Terminal Block
Sound channel	1 mono channel
Speaker Output	70mW (Rated Load: 8W, Frequency: 1kHz)
Sound Line out output	2.7Vp-p (Rated Load:10kohm)
Wire Gauge	AWG28 to AWG16

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3.3 Interface specifications

At a glance

Subject of this section

This section presents interface specifications of XBTG units (Serial interface COM1, COM2).

What's in this Section?

This section contains the following topics:

Topic	Page
Specification serial interface COM1	43
Specification of serial interface COM2	46
Other interfaces	47

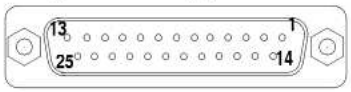
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Specification serial interface COM1

At a glance

This interface that is used to connect the XBTG to the Remote Equipment, via an RS-232C or RS-485 cable. All XBTG units are equiped with this interface. The connector used is a socket-type connector.

The figure following presents the connector:



The following table presents the description of each pin's serial interface.

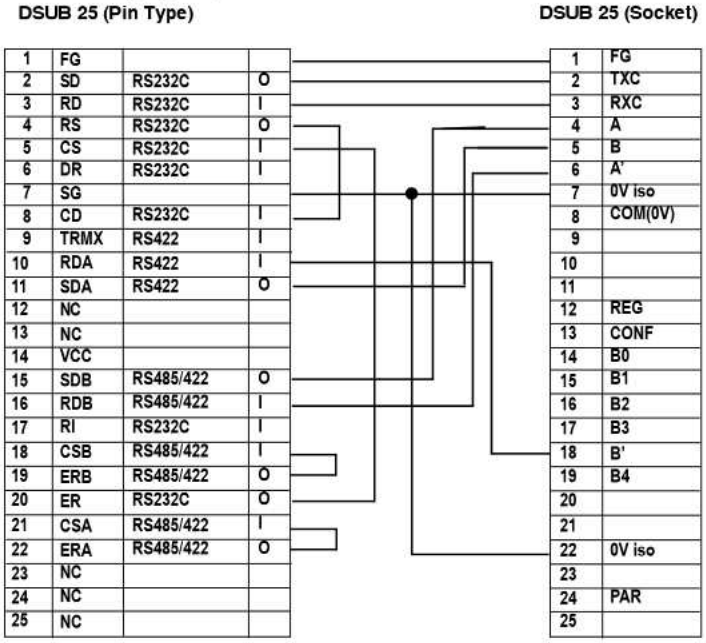
Pin	Signal name	Comm Descriptions	Meaning for XBTG2110
1	FG	Frame Ground	Frame Ground
2	SD	Send Data (RS-232C)	Send Data (RS-232C)
3	RD	Receive Data (RS-232C)	Receive Data (RS-232C)
4	RS	Request to Send (RS-232C)	Request to Send (RS-232C)
5	CS	Clear to Send (RS-232C)	Clear to Send (RS-232C)
6	DR or NC	Data Set Ready (RS-232C)	No Connection (Reserved)
7	SG	Signal Ground	Signal Ground
8	CD	Carrier Detect (RS-232C)	Carrier Detect (RS-232C)
9	TRMX	Termination (RS-485/RS-422)	Termination (RS-485/RS-422)
10	RDA	Receive Data A (RS-485/RS-422)	Receive Data A (RS-485/RS-422)
11	SDA	Send Data A (RS-485/RS-422)	Send Data A (RS-485/RS-422)
12	NC	No Connection(Reserved)	No Connection (Reserved)
13	NC	No Connection(Reserved)	No Connection (Reserved)
14	VCC	5V 5% Output 0.25A	5V 5% Output 0.25A
15	SDB	Send Data B (RS-485/RS-422)	Send Data B (RS-485)
16	RDB	Receive Data B (RS-485/RS-422)	Receive Data B (RS-485/RS-422)
17	RI or NC	Ring Indicate (RS-232C)	No Connection (Reserved)
18	CSB	Clear to Send B (RS-485/RS-422)	Clear to Send B (RS-485/RS-422)
19	ERB	Enable Receive B (RS-485/RS-422)	Enable Receive B (RS-485/RS-422)
20	ER	Enable Receive (RS-232C)	Enable Receive (RS-232C)
21	CSA	Clear to Send A (RS-485/RS-422)	Clear to Send A (RS-485/RS-422)
22	ERA	Enable Receive A (RS-485/RS-422)	Enable Receive A (RS-485/RS-422)
23	NC or BUZZ GND	No Connection(Reserved)	External Buzzer Ground
24	NC	No Connection(Reserved)	No Connection(Reserved)
25	NC or BUZZ OUT	No Connection(Reserved)	External Buzzer Output

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XBTZ-G999 cable adaptator

This cable adaptator is connected between XBTG unit (serial interface) and XBTZ••• cable.

The following figure presents XBTZ-G999's connections.



Note:

- This XBTG unit's serial port is not isolated. When the Remote Equipment unit is also not isolated, and to reduce the risk of damaging the RS-485 circuit, be sure to connect the #7 SG (Signal Ground) terminal.
- Pin #14 (VCC) DC 5V Output is not protected. To prevent damage or unit malfunction, use only the designated level of current.
- Be sure to connect the XBTG's SG/GND (Signal Ground) terminal to the other (host) unit's Signal Ground terminal.
- When connecting an external device to the XBTG with the SG terminal, ensure that no short-circuit loop is created when you setup the system.

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Creating own cable

When creating a cable, please be aware of the following (see figure above):

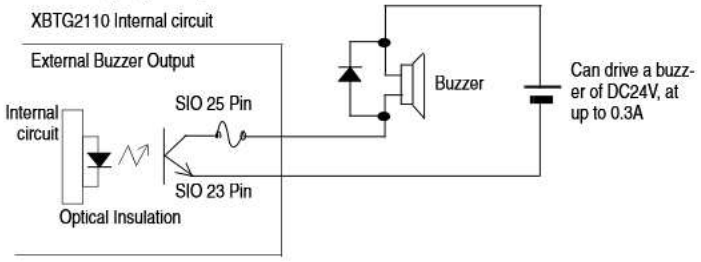
- For RS-485 Connectors:
  - The following pairs of pin no.s must be connected (shorted).
    #18 (CSB) <-> #19 (ERB)
    #21 (CSA) <-> #22 (ERA)
  - Connecting the #9 (TRMX) and #10 (RDA) wires, adds a termination resistance of 100 Ohm between RDA and RDB .
- For RS-232C Connectors:
  - Do not connect #9 (TRMX), #10 (RDA), #11 (SDA), #15 (SDB), #16 (RDB), #18 (CSB), #19 (ERB), #21 (CSA), and #22 (ERA).
  - The #1 (FG) terminal should only be connected if it is required by the device being connected to.

XBTG2110

You can use serial interface to connect Buzzer to XBTG2110 unit.

Use pins 23(BUZZ GND) and 25(BUZZ OUT) when producing external output for an alarm.

The following figure presents connection between XBTG2110 and Buzzer.



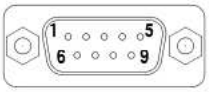
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Specification of serial interface COM2

At a glance

This interface is used for RS-232C data transfer, and uses a plug-type connector. Some XBTG units are not equiped with this interface (see *Serial interface COM2 and Ethernet interface, p. 40*).

The following figure presents the connector:



The following table presents the description of each pin's serial interface.

Pin	Signal name	Signal direction	Meaning
1	CD	Input	Carrier Detect (RS-232C)
2	RD	Input	Receive Data (RS-232C)
3	SD	Output	Send Data (RS-232C)
4	ER	Output	Enable Receive (RS-232C)
5	SG	-	Signal Ground
6	DR	Input	Data Set Ready (RS-232C)
7	RS	Output	Request to send (RS-232C)
8	CS	Input	Clear to Send (RS-232C)
9	RI/VCC	Input/Output	Ring Indicate (RS-232C) 5V 5% Output 0.25A

Note: Pin #9 (VCC) DC 5V Output is not protected. To prevent damage or unit malfunction, do not exceed specification of output current.

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Other interfaces

Ethernet interface

This interface complies with the IEEE802.3 standard for Ethernet (10BASE-T) connections. This interface uses an RJ-45 type modular jack connector (8 points).

Compact Flash memory Card Interface

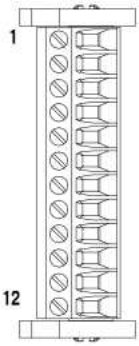
This slot accepts a Compact Flash memory Card (CF Card):

- XBTZGM16 (16 Mb),
- XBTZGM32 (32 Mb),
- XBTZGM64 (64 Mb)
- XBTZGM128 (128 Mb)
- XBTZGM256 (256 Mb)
- MPCYN00CFE00N (512 Mb).

Sound output

This interface is used for sound output.

The following figure presents the sound output connector:



The following table presents the description of each pin's sound output.

Pin	Signal name	Meaning
10	SP OUT	Speaker Output
11	GND	Ground
12	LINE OUT	Sound Lineout Output

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3.4 Part numbers and functions

At a glance

Subject of this section

This section presents part numbers and functions of XBTG unit.

What's in this Section?

This section contains the following topics:

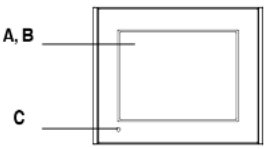
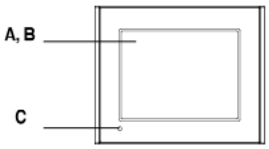
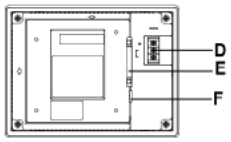
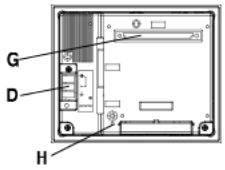
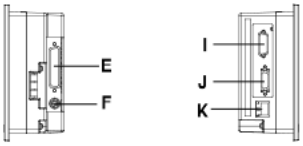
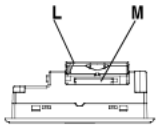
Topic	Page
Part numbers and functions	49
DIP Switches	53

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Part numbers and functions

At a glance

The following table presents all part numbers and functions of all XBTG unit.

Part numbers	XBTG2110	XBTG2120/2220 XBTG2130/2330
Front		
Rear		
Side		Only XBTG2130 and XBTG2330 
Bottom		

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Description

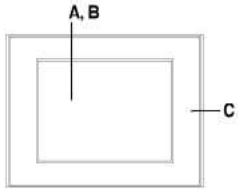
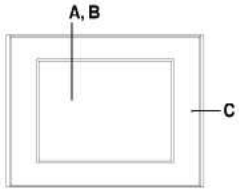
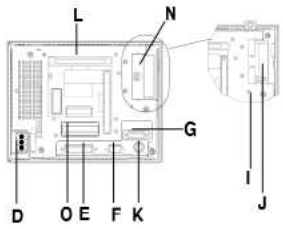
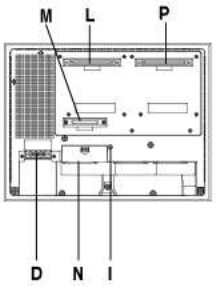
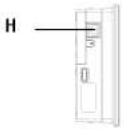
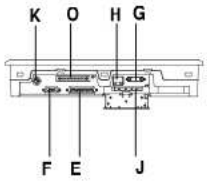
The following table present description of part numbers for XBTG2110/2120/2220/2130/2330.

Letter	Description
A	**Display**: displays User created screens and Remote Equipment Variables.
B	**Touch Panel**: performs screen change operations and sends data to the host (PLC).
C	**Power LED**: XBTG2110: LED "ON", when power is supplied (Green LED). XBTG2120/2220/2130/2330 status with LED status: ● Led Green: normal operation, ● Led Orange: backlight is not functionning.
D	**Power Input Terminal Block**: connects the XBTG power cable's input and ground wires to the XBTG.
E	**Serial I/F (host I/F 25 pin)**: connects an RS-232C or RS-422 (Serial) cable (from the host/PLC) to the XBTG. Also for connecting a barcode reader.
F	**Tool Port Connector**: connects the Data Transfer Cable to the XBTG.
G	**Expansion Unit I/F**: connects expansion units with communication features.
H	**CF Card Access LED**: if the CF Card Cover is closed when the CF Card is inserted, the LED lamp turns ON. The LED lamp will remain turned ON even if the CF Card Cover is opened while the XBTG accesses the CF Card.
I	**Expansion Serial Interface (SubD 9-pin)**. Only XBTG2130 and XBTG2330. Also for connecting a barcode reader.
J	**Printer connector,** except XBTG2110/2120/2220/4320.
K	**Ethernet Interface (10Base T)**. Only XBTG2130and XBTG2330.
L	**CF Card Cover**: open this cover to the CF Card Slot. When accessing the CF Card, this cover must be closed.
M	**CF Card I/F**: insert the CF Card in this slot.

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Description

The following table presents all part numbers and functions of all XBTG unit.

Part numbers	XBTG4320/4330	XBTG5230/5330 XBTG6330
Front		
Rear		
Side		
Bottom		

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At a glance

The following table present description of part numbers for XBTG4320/4330/5230/5330/6330.

Letter	Description
A	**Display**: displays User created screens and Remote Equipment Variables.
B	**Touch Panel**: performs screen change operations and sends data to the host (PLC).
C	**Power LED**: XBTG status with LED status: ● Led Green: normal operation, ● Led Orange: backlight is not functionning.
D	**Power Input Terminal Block**: connects the XBTG power cable's input and ground wires to the XBTG.
E	**Serial I/F (host I/F 25 pin)**: connects an RS-232C or RS-422 (Serial) cable (from the host/PLC) to the XBTG. Also for connecting a barcode reader.
F	**Serial Interface (SubD 9-pin)**: connects an RS-232C cable. Also for connecting a barcode reader. Except XBT-G4320.
G	**Not available.**
H	**Ethernet Interface (10Base T)**. Except XBTG4320.
I	**CF Card Access LED**: if the CF Card Cover is closed when the CF Card is inserted, the LED lamp turns ON. The LED lamp will remain turned ON even if the CF Card Cover is opened while the XBTG accesses the CF Card.
J	**CF Card slot**: insert the CF Card in this slot.
K	**Tool Port Connector**: connects the Data Transfer Cable to the XBTG.
L	**Expansion Unit interface 1**: not available.
M	**CF Card Expansion interface**: except XBTG4320 and XBTG4330.
N	**CF Card Cover**: open this cover to the CF Card Slot. When accessing the CF Card, this cover must be closed.
O	**Screw Lock Terminal Block**: Sound output interface. Used for sound output. Except XBTG4320.
P	**Expansion Unit interface 2**: not available.

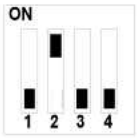
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DIP Switches

At a glance

Below the CF card cover, you can find DIP switches. Except for XBTG2110 all XBTG units have DIP switches.

Illustration



The following table explains XBTG units' DIP switch parameters.

Dip switch	Function	ON	OFF	Note
1	When there is no user application in the XBTG memory.	If the CF card includes an user application, downloads the application to the XBTG. Then, the XBTG runs the application.	A system message appears.	-
	When there is an user application in the XBTG memory.	f the CF card includes an user application, downloads the application to the XBTG. Then, the XBTG runs the application.	Runs the user application on the XBTG.	
2	Reserved.	-	-	-
3	Reserved	-	-	-
4	This setting controls the forced closing of the CF Card cover.	Forced close enabled.	Forced close disabled.	Used when CF Card cover is damaged.

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3.5 Dimensions

At a glance

Subject of this section

This section presents all dimensions' XBTG units.

What's in this Section?

This section contains the following topics:

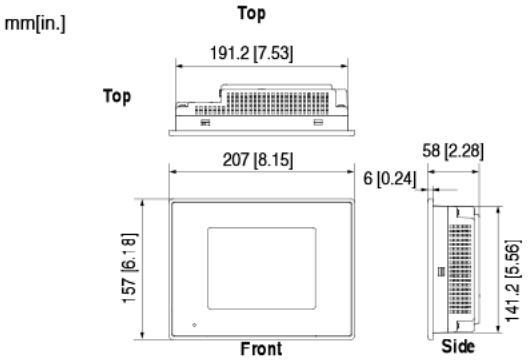
Topic	Page
XBTG2110 dimensions	55
XBTG2120, XBTG2130, XBT-G2220, and XBTG2330 dimensions	56
XBTG4320 and XBTG4330 dimensions	57
XBTG5230, XBTG 5330 and XBTG6330 dimensions	58
Panel cut dimensions	59
Installation Fasteners	60

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XBTG2110 dimensions

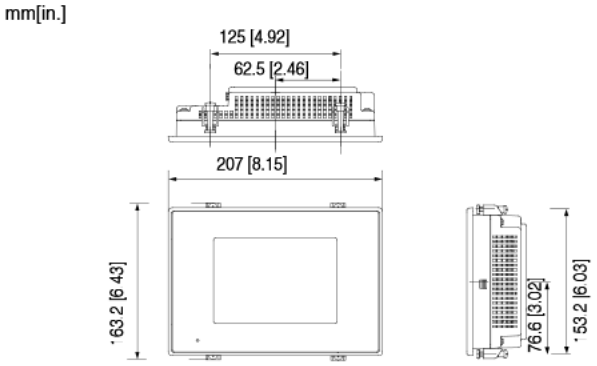
XBTG2110

The following figures present all dimensions of XBTG2110 unit.



Installation with fasteners

The following figures present all external dimensions of XBTG2110 unit with installation **fasteners**.



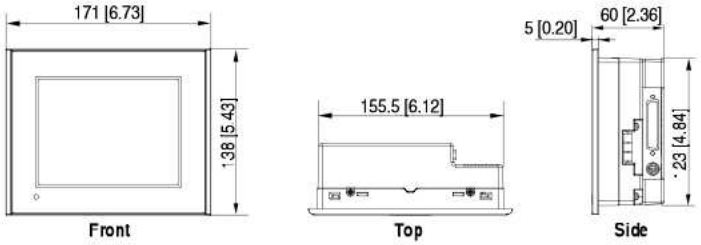
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XBTG2120, XBTG2130, XBT-G2220, and XBTG2330 dimensions

XBTG2120, XBTG2130, XBTG2220, and XBTG2330

The following figures present all external dimensions of XBTG2120, XBTG2130, XBTG2220, and XBTG2330 unit.

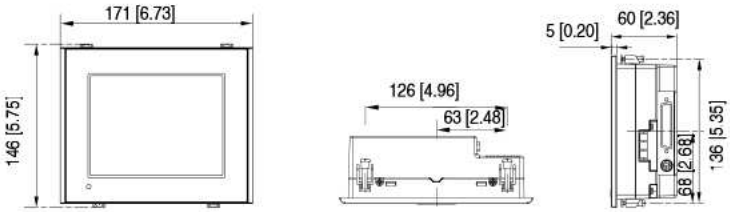
mm[in.]



Installation with fasteners

The following figures present all external dimensions of XBTG2120, XBTG2130, XBT-G2220, and XBTG2330 unit with installation **fasteners**.

mm[in.]

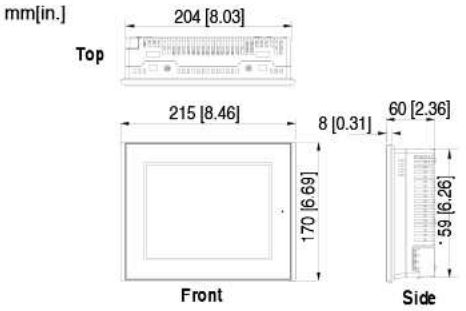


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XBTG4320 and XBTG4330 dimensions

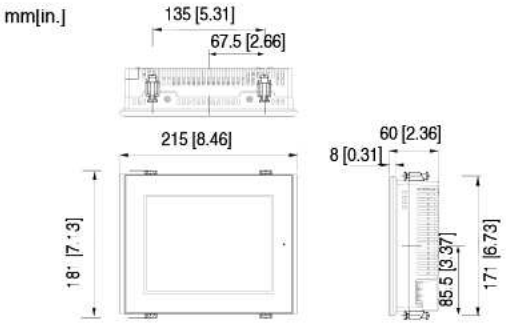
XBTG4320 and XBTG4330

The following figures present all external dimensions of XBTG4320 and XBTG4330 units.



Installation with fasteners

The following figures present all external dimensions of XBTG4320 and XBTG4330 units with installation **fasteners**.

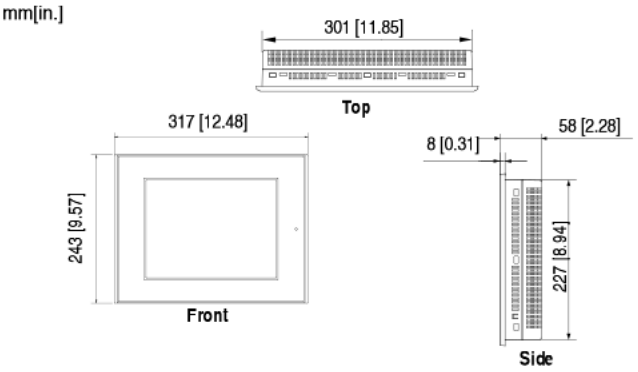


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XBTG5230, XBTG 5330 and XBTG6330 dimensions

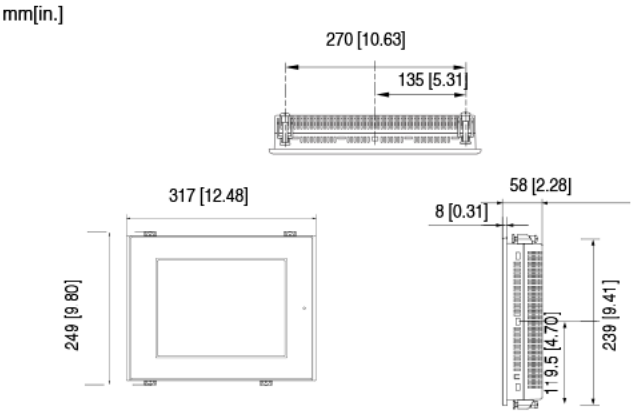
XBTG5230, XBT-G5330 and XBT-G6330

The following figures present all external dimensions of XBTG5230, XBTG5330 and XBTG6330 unit.



Installation with fasteners

The following figures present all external dimensions of XBTG5230, XBTG5330 and XBTG6330 unit with installation **fasteners**.



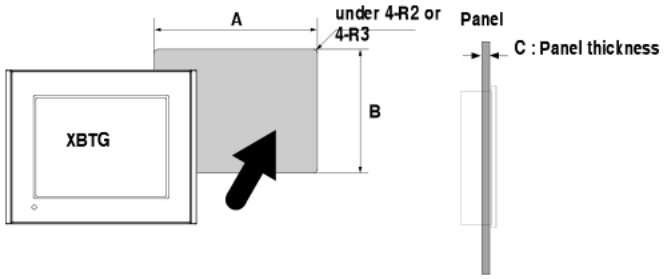
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Panel cut dimensions

At a glance

Create a panel cut-out and insert the XBTG into the panel from the front.

The following figure presents principle of panel cut.



Dimensions

The following table presents all panel cut's dimensions in function of XBTG unit.

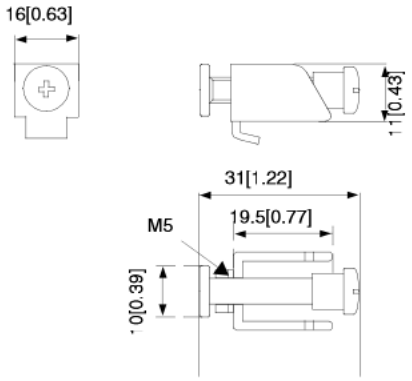
XBTG	A (mm)	B (mm)	A (in.)	B (in.)	C (mm)	C (mm)	4-R2/R3
XBTG2110	191.5^{+1}_{-0}	141.5^{+1}_{-0}	$7.54^{+0.04}_{-0}$	$5.57^{+0.04}_{-0}$	1.6 to 5.0	0.06 to 0.195	4-R2
XBTG2120 XBTG2220 XBTG2130 XBTG2330	156.0^{+1}_{-0}	123.5^{+1}_{-0}	$6.14^{+0.04}_{-0}$	$4.86^{+0.04}_{-0}$	1.6 to 5.0	0.06 to 0.195	4-R3
XBTG4320 XBTG4330	204.5^{+1}_{-0}	159.5^{+1}_{-0}	$8.05^{+0.04}_{-0}$	$6.28^{+0.04}_{-0}$	1.6 to 10.0	0.06 to 0.39	4-R3
XBTG5230 XBTG5330 XBTG6330	301.5^{+1}_{-0}	227.5^{+1}_{-0}	$11.87^{+0.04}_{-0}$	$8.96^{+0.04}_{-0}$	1.6 to 10.0	0.06 to 0.39	4-R3

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Installation Fasteners

At a glance

The following drawing details the dimensions of the fasteners XBTZGSET.



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Installation and wiring

4

At a glance

Subject of this chapter

This chapter describes installation procedures and wiring principle.

What's in this Chapter?

This chapter contains the following sections:

Section	Topic	Page
4.1	Installation	63
4.2	Wiring Precautions	65
4.3	Tool Port Connector	72
4.4	Ethernet Cable Connector	77
4.5	Printer Cable Connector	78
4.6	CF Card Installation and Removal	81
4.7	Sound Output	84

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4.1 Installation

Installation procedures

At a glance

Before installing the XBTG into a cabinet or panel read the notes below.

The installation gasket, installation brackets and attachment screws are all required when installing the XBTG.

Note

Gasket's precautions:

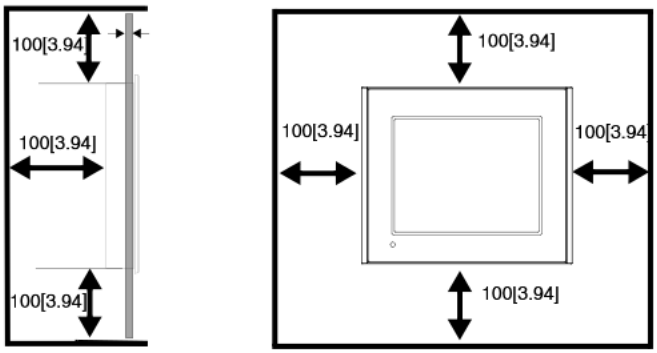
- Before installing the XBTG into a cabinet or panel, check that the Installation gasket is securely attached to the unit.
- A gasket which has been used for a long period of time may have scratches or dirt on it, and could have lost much of its dust and drip resistance. Be sure to change the gasket periodically, or when scratches or dirt become visible.
- Do not insert the joint of the installation gasket in the corner of the XBTG. If you do it, the joint will be pulled so that it may cause the installation gasket to be torn.

Panel's precautions:

- Check that the installation panel or cabinet's surface is flat, in good condition and has no jagged edges. Also, if desired, metal reinforcing strips can be attached to the inside of the panel, near the Panel Cut, to increase the panel's strength.
- Panel thickness (see *Panel cut dimensions, p. 59*) depends of XBTG unit. Decide the panel's thickness based on the level of panel strength required.
- Be sure that the ambient operation temperature and the ambient humidity are within their designated ranges. (When installing the XBTG in a cabinet or enclosure, the term "ambient operation temperature" indicates the cabinet or enclosure's internal temperature.
- Be sure that heat from surrounding equipment does not cause the XBTG to exceed its standard operating temperature.
- When installing the XBTG in a slanted panel, the panel face should not incline more than 30°.
- When installing the XBTG in a slanted panel, and the panel face inclines more than 30°, the ambient temperature must not exceed 40 °C. You may need to use forced air cooling (fan, A/C) to ensure the ambient operating temperature is 40 °C or below.
- When installing the XBTG vertically, position the unit so that the Power Input Terminal Block is also vertical.

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For easier maintenance, operation, and improved ventilation, be sure to install the XBTG at least 100 mm [3.94 in.] away from adjacent structures and other equipment.



Fastener's precautions:

- The minimum number of fasteners required to install a XBTG unit is four (4).
- Ten fasteners can be used only on a XBTG5230/5330/6330 unit.
- For XBTG2110 two additional slots for fasteners on both sides of the XBTG unit can be used, if greater strength is needed.
- For XBTG4320 do not use the attachment holes in the middle of sides panels.

Procedure

The following table presents procedure for installing the XBTG.

Step	Action
1	It is strongly recommended that you use the installation gasket, since it absorbs vibration in addition to repelling water. Place the XBTG on a level surface with the display panel facing downward.
2	Check that the XBTG's installation gasket (see *Regular Cleaning, p. 106*) is seated securely into the gasket's groove, which runs around the perimeter of the panel's frame.
3	Create the correct sized opening required to install the XBTG, using the installation dimensions (see *Panel cut dimensions, p. 59*) given.
4	Insert the XBTG into the panel cut out, as shown here.
5	Insert the installation fasteners into the XBTG's insertion slots, at the top and bottom of the unit (total: 4 slots). Be sure to pull the fastener back until it is flush with the rear of the attachment hole.
6	Tighten each fastener with a screwdriver. The necessary torque is 0.5 Nm (4.4 lb-in).

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4.2 Wiring Precautions

At a glance

Subject of this section

This section presents principle of XBTG wiring.

What's in this Section?

This section contains the following topics:

Topic	Page
Connecting the Power Cord	66
Connecting the Power Supply	68
Grounding	69
Input/Output Line placement	71

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Connecting the Power Cord

At a Glance

Note:

- When the FG terminal is connected, be sure the wire is grounded. Not grounding the XBTG unit will result in excessive noise. Grounding is required to assure EMC level immunity.
- To prevent the Ring Terminals from causing a short when the terminal block attachment screws are loosened, be sure to use insulating-type Ring Terminals.
- The SG and FG terminals are connected internally in the XBTG unit.
- When connecting the SG line to another device, be sure that the design of the system/connection does not produce a shorting loop.

Ring terminal

Note:

- Wherever possible, use thick wires (max. 2 mm [AWG 12 max]) for power terminals, and twist the wire ends before attaching the ring terminals.
- Be sure to use the following size ring terminals.
- To avoid a short caused by loose ring terminals, be sure to use ring terminals with an insulating sleeve.

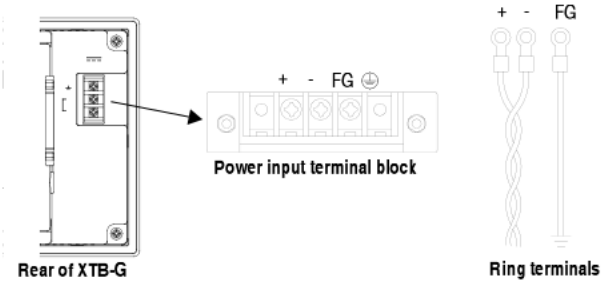
Size of ring terminal:



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Power input terminal block

Each XBTG unit has a Power input terminal block (see *Part numbers and functions, p. 49*).



The following table presents description of Power input terminal block elements.

Element	Description
+	Positive terminal.
-	Negative terminal.
FG	Grounding Terminal connected to XBTG chassis.

Connecting the Power Supply Terminals

When connecting the power cord, be sure to follow the procedures given below.

Step	Action
1	Remove all power to XBTG.
2	Remove the Clear plastic cover on the terminal block.
3	Remove the screws from the middle three terminals.
4	Insure the proper wire is installed into the correct position on the terminal block using ring terminals on the wire ends.
5	Confirm the correct connection points.
6	Torque the mounting screws to the required torque.
7	Replace the terminal cover.

Note: The torque required to tighten these screws is 0.5 Nm (4.4 lb-in).

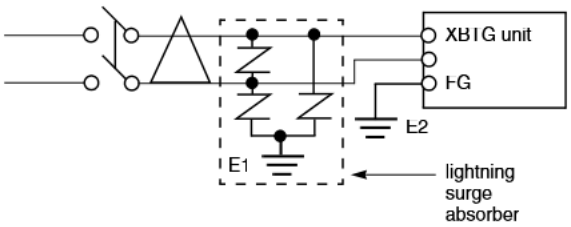
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Connecting the Power Supply

At a glance

Precaution:

- To increase the noise resistance quality of the power cable, simply twist each power wire before attaching the Ring Terminal.
- The power supply cable must not be bundled or positioned close to main circuit lines (high voltage, high current), or input/output signal lines.
- Connect a lightning surge absorber to deal with power surges.



Be sure to ground the surge absorber (E1) separately from the XBTG unit (E2). Select a surge absorber that has a maximum circuit voltage greater than that of the peak voltage of the power supply.

- To avoid excess noise, make the power cable as short as possible.

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Grounding

⚠ CAUTION

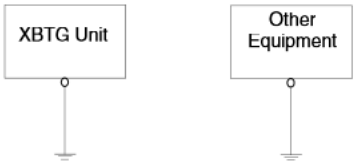
GROUDING

Donot use common grouding, since it can lead to an accident or machine breakdown.

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

Exclusive Grounding

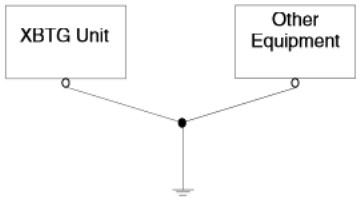
Connect the FG terminal found at the back of the XBTG to an isolated ground.



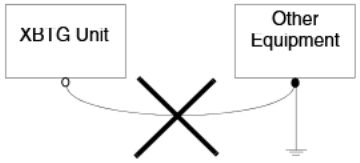
Common Grounding

If exclusive grounding is not possible, use a common connection point.

This grounding is OK:



This grounding is not OK:



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Note:

- Check that the grounding resistance is less than 100Ω (1).
- The SG and FG terminals are connected internally in the XBTG unit.
- When connecting the SG line to another device, be sure that the design of the system/connection does not produce a grounding loop.
- The grounding wire should have a cross sectional area greater than 2mm (1). Create the connection point as close to the XBTG unit as possible, and make the wire as short, as possible. When using a long grounding wire, replace the thin wire with a thicker wire, and place it in a duct.
- If the equipment does not function properly when grounded, disconnect the ground wire from the FG terminal.

(1): Use a grounding resistance of less than 100Ω and a 2mm or greater thickness wire, or your country's applicable standard. For details, contact your local Schneider Electric distributor.

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Input/Output Line placement

At a glance

Input and output signal lines must be separated from the power control cables for operating circuits.

If this is not possible, use a shielded cable and connect the shield to the XBTG's frame.

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4.3 Tool Port Connector

At a glance

Subject of this section

This section presents principle of Tool Port Connector installation.

What's in this Section?

This section contains the following topics:

Topic	Page
Tool Port Connector	73
USB Data Transfer Cable (XBTZG925) - Installation	74

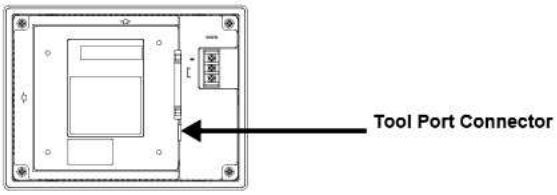
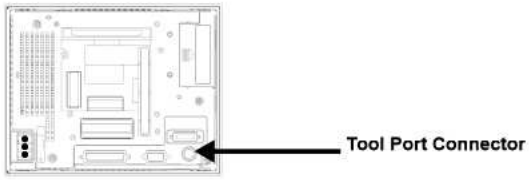
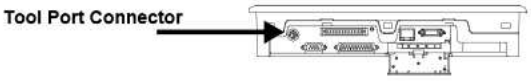
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Tool Port Connector

At a Glance

The XBTG's Data Transfer Cables **XBTZG915** and **XBTZG925** can be attached to the XBTG unit's Tool Port Connector (see *Part numbers and functions, p. 49*).

The following table presents Tool Port Connector location.

XBTG Unit	Tool Port Connector location
Rear face of: XBTG2110	
Right face of: XBTG2120 XBTG2130 XBTG2220 XBTG2330	
Rear face of: XBTG4320	
Bottom face of: XBTG4330 XBTG5230 XBTG5330 XBTG6330	

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USB Data Transfer Cable (XBTZG925) - Installation

Overview

The USB Data Transfer Cable is used to download data from the PC where Vijeo-Designer runs to the XBTG unit. It connects to the Tool Port of the XBTG.

Installation requirements

The PC must run on Microsoft Windows 2000 or Windows XP

You will need the installation CD for Vijeo-Designer.

⚠ CAUTION

USB CABLE CONNECTING/DISCONNECTING

When connecting the USB Data Transfer Cable to the PC or to the XBTG unit, be sure to insert the cable's connector at the correct 90° angle. Failure to do so may damage either the connector or the unit.
When disconnecting the cable, be sure to hold the connector, not the cable itself.
If the cable is unplugged from the port designated during installation and connected to a different port, the Operating System (OS) will recognize the new port. Therefore, be sure to always use the port designated during installation.
If the installation does not complete successfully, restart the PC and quit all resident applications before re-installing the software.

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

Installation procedure for Windows 2000

Use the following procedure with Windows 2000

Step	Action
1	Start Windows, and connect the XBTZG925 cable to your PC's USB port at one end, and to the XBTG's tool port at the other end.
2	Insert the Vijeo-Designer CD into the CD-ROM drive.
3	The **New Hard Wizard** dialog box appears. Click **Next**.
4	Check the **Search for a suitable driver for my device [recommended]** option, and click **Next**.
5	In the following dialog box, check the **Specify a location** option, and click **Next**.
6	Click **Browse** in the following dialog box, select the **SERWPL.INF** file located in the CD-ROM's folder **XBTZG925**, and click **Open**.
7	The driver for the **XBTZG925** appears in the following dialog box. Click **OK**.
8	Confirm that **The wizard found a driver for the following device:** is **Telemecanique XBTZG925**, and click **Next**.
9	Click **Finish** to complete the installation.

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Installation procedure for Windows XP

Use the following procedure with Windows XP

Step	Action
1	Start Windows, and connect the XBTZG925 cable to your PC's USB port at one end, and to the XBTG's tool port at the other end.
2	Insert the Vijeo-Designer CD into the CD-ROM drive.
3	The **Found New Hard Wizard** dialog box appears. Check the **Install from a list or specific location (Advanced)** option, and click **Next**.
4	In the following dialog box, check the **Include this location in the search:** option, and click **Browse**.
5	Select the **XBTZG925** folder in the installation CD-ROM, and click **OK**.
6	In the **Found New Hardware Wizard** screen, click **Next**.
7	The **Telemecanique XBTZG925** driver now appears in the **Hardware Installation** screen. Click **Continue Anyway**.
8	Click **Finish** in the following screen to complete the installation.

Post-Installation Check

It is a good idea to do the following check after installation

Step	Action
1	In the **Configuration Panel**, click on **System Properties** and select **Device Manager**.
2	Confirm that **Telemecanique XBTZG925 COM3** is available in the **Ports [COM & LPT]** sub-folder.

Changing the COM Port Number

The COM number 3 is assigned automatically by the OS. If the OS had previously allocated COM numbers for other devices (Internal modems, IrDA ports, etc), the XBTZG925 will be allocated to the next available COM number. It is possible however to change the COM port number if required. To do so:

Step	Action
1	In the **Configuration Panel**, click on **System Properties** and select **Device Manager**.
2	Click on **Ports [COM & LPT]**, select **Telemecanique XBTZG925 COM3** and click on **Properties**.
3	In the **Telemecanique XBTZG925 [COM3] Properties** dialog box, click on the **Port Settings** tab, and click the **Advanced** button.
4	At the bottom of the following dialog box (**Advanced Settings for COM1**), select an unused number for the **COM Port Number** and click **OK**.
5	When the following **Communication Port Properties** dialog box appears, click **Yes**.

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Troubleshooting

The following table describes errors that may occur and their possible solutions.

Problem/Symptom	Solution
The USB cable is not recognized.	Connect the cable correctly. Or restart you PC. Also, when connecting a USB hub, be sure to connect it directly to your PC's USB port.
Overcurrent occurred	
The Plug and Play is not functioning correctly	
You are unable to use the USB cable after connecting it to a USB hub.	The power supplied from the hub may be insufficient. Be sure the hub is self-powered.
	Connect the cable directly to the PC USB port.
After installation, a "?" is displayed when you try to confirm the cable's status via the Device Manager.	The driver has not been installed correctly. Uninstall the driver and re-install it.

Uninstalling the Driver

Unplug the USB Data Transfer Cable the PC and double-click on the CD-ROM's **DRemover98_2K.exe** file to start the uninstallation process.

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4.4 Ethernet Cable Connector

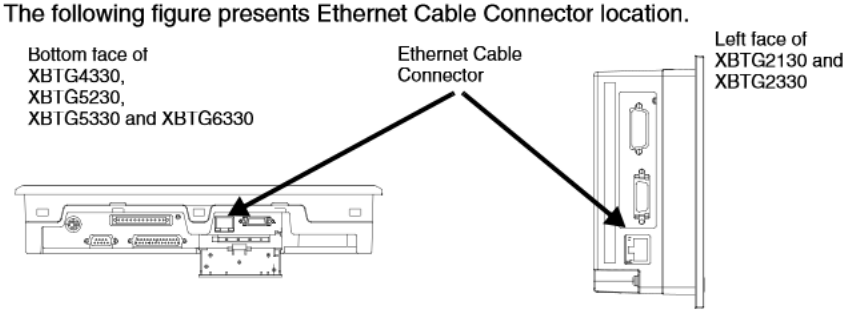
Ethernet Cable Connector

At a Glance

The XBTG Ethernet interface is IEEE802.3 compliant, and transmits data at 10Mbps. XBTG units wich have got a RJ-45 Ethernet Cable Connector (see *Part numbers and functions, p. 49*), are:

- XBTG2130,
- XBTG2330,
- XBTG4330,
- XBTG5230,
- XBTG5330,
- XBTG6330.

The following figure presents Ethernet Cable Connector location.



Note: It is strongly recommended that your Ethernet network is installed by a trained engineer.
You may be able to use the 1:1 connection by a cross cable depending on PCs or network cards. Be sure to connect those with a hub or a switch.

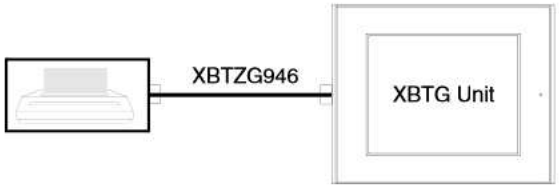
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4.5 Printer Cable Connector

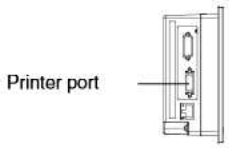
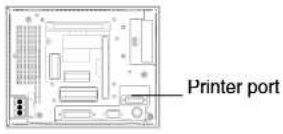
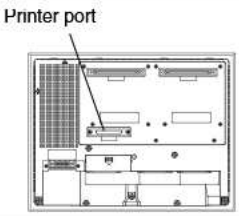
Printer cable connector

Connection with parallel port

For parallel printer connection, respect following diagram:



The following table show the printer interface connector location:

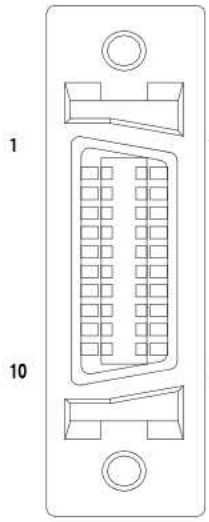
XBTG2130 and XBTG2330	
XBTG4320/4330	
XBTG5230/5330 and XBTG6330	

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Printer interface

When connecting a printer on parallel port, use XBTZG946 cable.

The printer interface is centronics compliant.

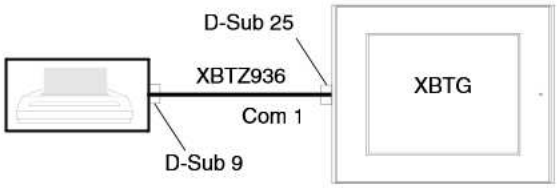
Pin Assignments	Pin #	Signal Name	Condition
	1	GND	Ground
	2	RESERVE	Reserved
	3	PDB5	Data Signal
	4	PDB4	Data Signal
	5	PDB3	Data Signal
	6	GND	Ground
	7	SLCT	Select Status (Input)
	8	PDB0	Data Signal
	9	PST B	Strobe Signal (Onput)
	10	BUSY	Busy Signal (Input)
	11	PDB7	Data Signal
	12	PDB6	Data Signal
	13	GND	Ground
	14	ERROR	Printer Error (Input)
	15	GND	Ground
	16	PDB2	Data Signal
	17	PDB1	Data Signal
	18	PE	Paper Runout
	19	INIT	Initialization Signal (Output)
	20	GND	Ground

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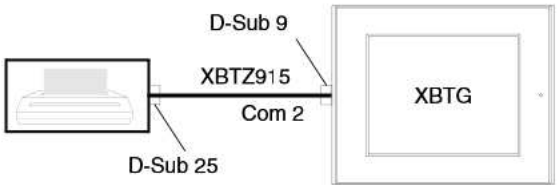
Connection with serial port

For serial printer connection, see the connection diagrams below. Serial printing is only available by using "script driver". In this case, user is required to manage by itself printer communications.

Com 1:



Com 2:



Compatible printers

Supported printers have to be compatible with EPSON ESC/P24-J84(C) command printers, text (ASCII) or their equivalent that are designed for MS-DOS (example: EPSON LX-300). Printers designed solely for Windows may not be used. Certain printers containing both Windows and DOS drivers may be used. For details, please contact your printer's manufacturer or sales outlet.

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4.6 CF Card Installation and Removal

CF Card Installation and Removal

Precautions

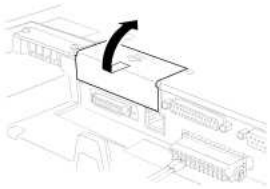
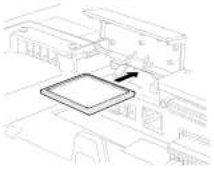
When using the XBTG Unit and a CF Card, follow the precautions below:

- Prior to inserting or removing a CF Card, be sure to turn the XBTG unit's CF Card ACCESS switch OFF and to confirm that the ACCESS lamp is not lit. If you do not, CF Card internal data may be damaged or lost.
- Check that the DIP switch setting is appropriate. See *DIP Switches, p. 53*
- While a CF Card is being accessed, NEVER turn OFF or reset the XBTG, or insert or remove the CF Card. Prior to performing these operations, create and use a special XBTG application screen that will prevent access to the CF Card.
- Prior to inserting a CF Card, familiarize yourself with the CF Card's front and rear face orientation, as well as the CF Card connector's position. If the CF Card is not correctly positioned when it is inserted into the Mulit Unit, the CF Card's internal data and the XBTG unit may be damaged or broken.
- Be sure to use only CF Cards manufactured by Schneider Electric. XBTG unit performance cannot be guaranteed when using another manufacturer's CF Card.
- Once XBTG data is lost, it cannot be recovered. Since accidental data loss can occur at any time, be sure to back up all XBTG screen and CF Card data regularly.
- Be sure to follow the instructions given below to prevent the CF Card's internal data from being destroyed or a CF Card malfunction from occuring:
  - DO NOT bend the CF Card.
  - DO NOT drop or strike the CF Card against another object.
  - Keep the CF Card dry.
  - DO NOT touch the CF Card connectors.
  - DO NOT disassemble or modify the CF Card.

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Inserting the CF Card

Use the following steps to insert the CF Card in the XBTG unit (except XBT-G2110).

Step	Action
1	Slide the CF Card Cover in the direction shown here, then upwards to open the cover.. 
2	Insert the CF Card in the CF Card Slot, until the ejector button is pushed forward.. 
3	Close the cover. (As shown.). 
4	Confirm that the CF Card Access LED turns ON. You cannot access to the CF Card with the CF Card cover opened. However, if the CF Card is being accessed, the access will be continued even if you open it on the way.

Removing the CF Card

Simply reverse the steps shown in the previous "Inserting CF Card" explanation. Prior to removing the CF Card, confirm that the CF Card Access LED is turned OFF.

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CF Card Handling

The CF card has a life expectancy of 100,000 write cycles. Therefore, be sure to back up all CF Card data regularly to another storage media. (100,000 times assumes the overwriting of 500KB of data in DOS format).

The following table presents two methods to back up data.

If	Then	And
your PC is equiped with a PC Card Slot	To view CF Card data on a personal computer, first, insert the CF Card into a CF Card Adaptor **XBTZGADT**.	Save data CF Card on the PC.
your PC is not equiped with a PC Card Slot	Use a standard type PC Card or CF Card reader.	Save data CF Card on the PC.

Note: Depending on the setup of your PC, it's possible that the Card reader may not operate corretly
The connection between a personal computer and CF Card reader has been tested using an Windows® compatible machine. Check that CF Card reader is correctly installed and configured. Please contact your PC or CF Card reader manufacturer directly for details.

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4.7 Sound Output

Sound Output

At a Glance

This Procedure does apply to XBTG unit:

- XBTG4330,
- XBTG5230,
- XBTG5330,
- XBTG6330.

Procedure

Use the following steps to connect the speaker.

Step	Action
1	Rotate the screw lock terminal block's two (2) levers in the direction downward, and remove the screw lock terminal block.
2	Unscrew #11 pin and #10 pin set screws (2nd and 3rd screws from the left).
3	Insert the Speaker's GND line in #11 pin connector, and the SP OUT line in #10 pin connector.
4	Confirm that each line (cable) is inserted completely, and retighten the two (2) set screws.
5	Reattach the screw lock terminal block to the XBTG.

Note: The torque required to tighten these screws is 0.5 Nm (4.4 lb-in).
Sound file format is .wav, PCM 16 bits, 11,025 Khz mono.

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Settings and debugging

II

At a Glance

Subject of this part

This part describes types of settings and how to debug XBTG unit.

What's in this Part?

This part contains the following chapters:

Chapter	Chapter Name	Page
5	Settings	87
6	Troubleshooting	97
7	Maintenance	105

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Settings

5

At a Glance

Subject of this chapter

This chapter presents types of settings.

What's in this Chapter?

This chapter contains the following sections:

Section	Topic	Page
5.1	XBTG settings	89

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5.1 XBTG settings

At a Glance

Subject of this section

This section describes types of settings for all XBTG units.

What's in this Section?

This section contains the following topics:

Topic	Page
Types of Settings	90
Offline settings	91
System settings	93

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Types of Settings

At a Glance

The settings required for the XBTG unit, when starting Vijeo-Designer Runtime or when in RUN mode, are found in the Settings Menu.

The following table presents procedure how to call up Settings menu.

Step	Action
1	Connect the XBTG unit's power supply.
2	Depending of the "To configuration" property value configured under Vijeo-designer for the target. You can access or not to the settings menu by the following manner: • after the XBTG starts up, touch the upper left corner of the screen within 10 seconds to call up the menu, • you can also enter Setting mode at any time by simultaneously touching the upper right corner, bottom right corner, and bottom left corner of the screen. Vijeo Designer Runtime will restart and the Settings Menu will appear.
3	In this mode, the two tabs, **Offline** and **System** are available. Simply touch the desired tab to bring up those settings.

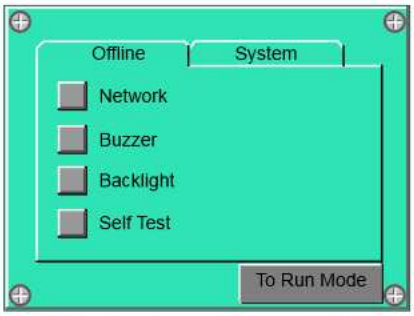
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Offline settings

Offline tab

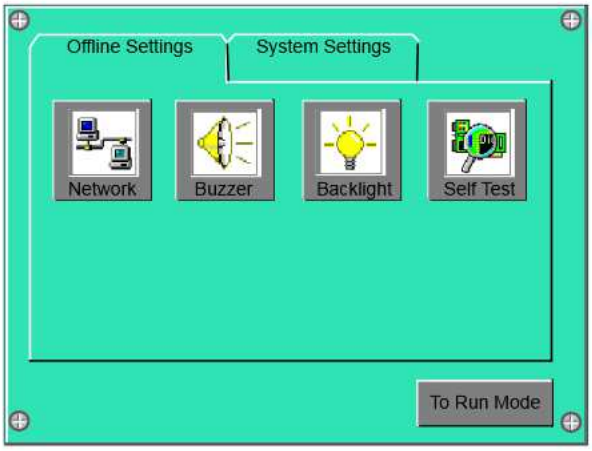
The following figure presents Offline tab for units:

- XBTG2110,
- XBTG2120,
- XBTG2130,
- XBTG2220,
- XBTG2330.



The following figure presents Offline tab for units:

- XBTG4320,
- XBTG4330,
- XBTG5320,
- XBTG5330,
- XBTG6330.



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Network settings

The following table explains how to enter XBTG unit's network settings. This cannot be set XBTG2110/2120/2220/4320 Series units.

Step	Action
1	In the **Settings** menu, touch the **Offline** tab.
2	Touch the **Network** icon.
3	Touch/select any of the three fields (**IP Address**, **Subnet Mask**, or **Default Gateway**) and a keypad will appear for data entry.

Note: After making a change to the Network settings, be sure to restart the XBT-G unit. Touching the Network screen's XBTG key will automatically restart the XBT-G.

Touch Buzzer

The following table explains how to enter XBTG unit's buzzer sound settings.

Step	Action
1	In the **Settings** menu, touch the **Offline** tab.
2	Touch the **Buzzer** icon.
3	Touch/select the desired buzzer mode. The factory setting is **When Press Touch Object**. • **None**: Selecting this will turn the buzzer off. • **When Press Touch Object**: The buzzer will only sound when a Touch Object is touched.

Backlight Control

The following table explains how to enter XBTG unit's Backlight Control settings.

Step	Action
1	In the **Settings** menu, touch the **Offline** tab.
2	Touch the **Backlight** icon.
3	Touch/select the desired backlight brightness. Here, two selections (modes) are available. • **Wait**: to preserve the XBTG unit's screen display elements and extend the life of the backlight, the backlight can be set to automatically turn off after a designated period of inactivity (idle time) elapses. The factory setting for this item is **OFF**. • **Enable Touch if Backlight is Burned Out:** this setting designates if the touch panel is enabled or disabled when a backlight burnout is detected. When this feature is set to OFF, touch panel touch input is ignored, while the backlight is off, thereby preventing touch panel operation errors. The factory setting is **OFF**. (Checkbox is not set.)
4	To automatically turn the backlight off after a specified period of time, touch the **Wait** selection and set the **idle time** period.

Self Test

Performs the XBTG unit's self test (see *Self Test, p. 101*).

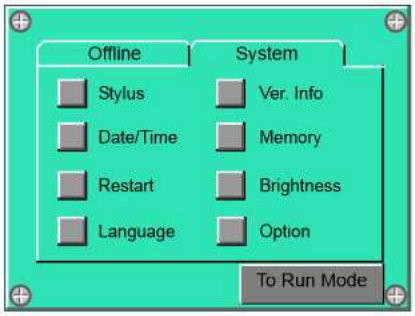
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System settings

System tab

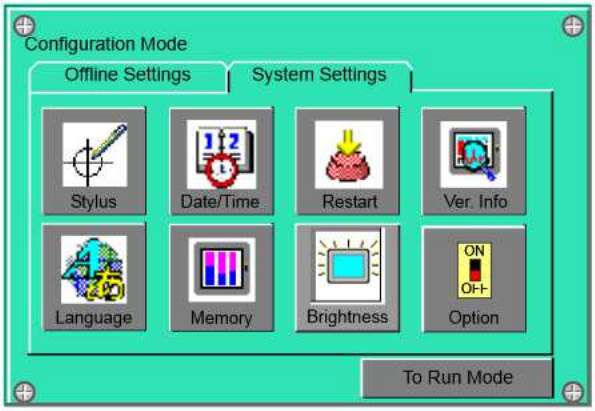
The following figure presents System tab for units:

- XBTG2110,
- XBTG2120,
- XBTG2130,
- XBTG2220,
- XBTG2330.



The following figure presents System tab for units:

- XBTG4320,
- XBTG4330,
- XBTG5320,
- XBTG5330,
- XBTG6330.



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Stylus

This setting is not supported now for XBTG series units.

Date/Time

The following table explains how to enter XBTG unit's Date/Time settings.

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Date/Time** icon.
3	Touch/select the Date or Time field to call up a data entry keypad. Use this keypad to enter all time settings.

Restart System

The following table explains how to restart XBTG unit.

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Restart** icon.
3	Touch/select the **Restart** button to restart the XBTG unit.

Version Information

The following table explains how to access XBTG unit's Version Information.

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Ver. Info** icon. Calls up the Vijeo Designer runtime version, and the version and build numbers for the Vijeo-Designer version used to design the project.

Language Selection

The following table explains how to designates the language used with System screens and User Applications in XBTG unit's.

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Language** icon. Touch/select the desired language for the **System** and **User Application** items.

Memory

The following table explains how to displays the total amount of memory, and the amount of memory currently being used.

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Memory** icon.

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Brightness Adjusts the screen brightness and contrast settings.

Option The following table explains how to invert black and white colors on monochrom tagets. This option is only revelant for monochrom targets.

Step	Action
1	In the **Settings** menu, touch the **System** tab.
2	Touch the **Option** icon. Touch/select the desired option to invert black and white colors.

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Troubleshooting

6

At a Glance

Subject of this Chapter

This chapter explains how to find and resolve XBTG unit problems.

What's in this Chapter?

This chapter contains the following sections:

Section	Topic	Page
6.1	Troubleshooting Checklists	99
6.2	Self Test	101

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6.1 Troubleshooting Checklists

Troubleshooting Checklists

At a glance

When a problem occurs, be sure to follow each checklist item and follow the instructions given.

The main problems that occur during use of the XBTG unit are:

- the panel display is blank,
- connected devices cannot be used.

Note: If this does not solve the problem, please contact your local Schneider Electric distributor.
For hardware and software problems, contact the Schneider Electric distributor where you bought the XBTG unit.

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No display

The table below presents a procedure to follow and countermeasure associated when the panel display is blank.

Step	Check Item/Operation	Countermeasure
1	Are all Vijeo Designer screens downloaded to the XBTG unit?	If not, download to the XBTG.
2	Is the Initial Panel ID set up correctly in Vijeo Designer?	If not, enter the Initial Panel ID and re-download the screen data.
3	Is the XBTG unit's status LED lit?	If the LED is orange, the backlight is burned out. Please change the backlight (see *Replacing the backlight, p. 109*).
4	Is the voltage level within the designated range?	Voltage level (see *Electrical specifications, p. 32*).
5	Turn the power supply OFF.	-
6	Are the power cable terminals correctly connected?	If not, connect the terminals correctly (see *Wiring Precautions, p. 65*).
7	Turn the power supply ON.	-
8	Is the power lamp lit?	If not lit -> Hardware problem.
9	Is the backlight lit?	If the backlight is burned out, please change the backlight (see *Replacing the backlight, p. 109*).
10	Did the above procedure correct the problem?	If not, -> Hardware problem.

Devices cannot be used

The table below presents a procedure to follow and countermeasure associated when the connected devices cannot be used.

Step	Check Item/Operation	Countermeasure
1	Turn the power supply OFF.	-
2	Are the power cable terminals correctly connected?	If not, connect the terminals correctly (see *Wiring Precautions, p. 65*).
3	Is the correct Device/PLC protocol and driver information set up in Vijeo Designer?	If not, enter the correct protocol and driver information.
4	Is the Device/PLC connection cable correctly connected?	Refer to the Device/PLC's manual and correctly (see *Wiring Precautions, p. 65*) connect the cable.
5	Did the above procedure correct the problem?	If not, -> Hardware problem.

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6.2 Self Test

Self test item list

At a glance

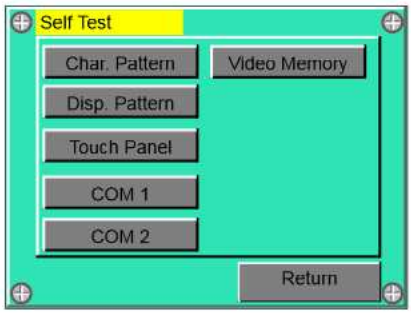
The XBTG unit is equipped with a number of self diagnosis features used to check its System and Interfaces for any problems.

Self Test

On **Offline tab** press on **Self Test** icon, Self Test tab appears.

The following figure presents Self Test tab for units:

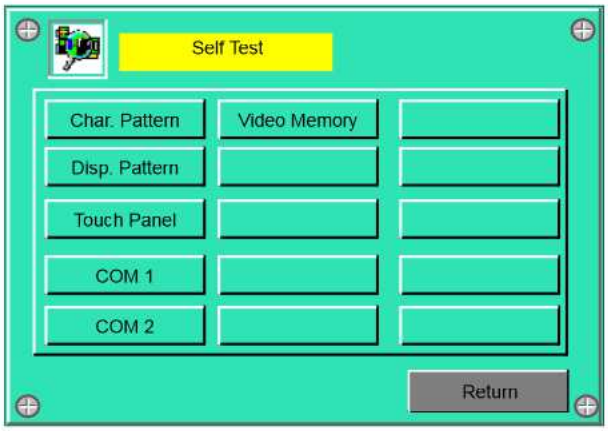
- XBTG2110,
- XBTG2120,
- XBTG2130,
- XBTG2220,
- XBTG2330.



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The following figure presents Self Test tab for units:

- XBTG4320,
- XBTG4330,
- XBTG5320,
- XBTG5330,
- XBTG6330.



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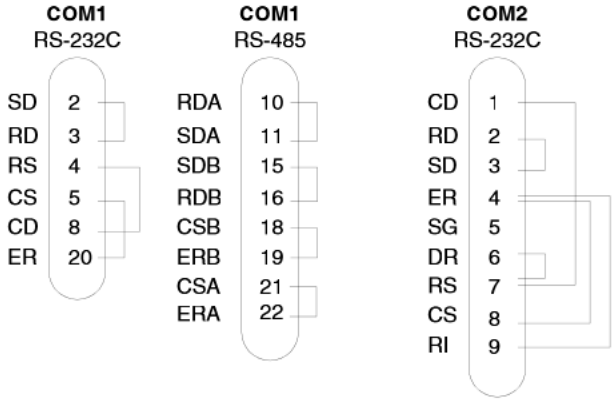
Details

This following table describes all icon's Selt Test tab.

Icon	Description
Char. Pattern	Checks each font's pattern and kanji-characters'ROM. Used when kanji-characters do not display. If there is no error, the message **OK** will appear, if there is an error, the message **NG** will appear.
Disp Pattern	Used when the device contents will not display correctly to check the drawing function.
Touch Panel	Touch Panel check. Checks if each touch cell highlights when pressed.
COM 1, COM 2 (1)	Checks the RS-232C and RS-485 SIO lines for areas where communication problems develop. To run the check, connecting the SIO cable is necessary. If all is normal, OK displays; if there is a problem, an error message appears.
Video Memory	This item is used to check video memory (memory used for screen display). Use this feature when your screen display is not correct. This result of this test will be either **OK** (no problem) or **NG** (problem).
Legend	
(1): not available for XBTG2110/2120/2220/4320.	

SIO Cable wiring

The following figure presents loopback wiring for testing COM ports (COM1, COM2).



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Maintenance

7

At a glance

Subject of this section

This section presents the maintenance principle of XBTG unit.

What's in this Chapter?

This chapter contains the following topics:

Topic	Page
Regular Cleaning	106
Periodic check points	108
Replacing the backlight	109

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Regular Cleaning

Cleaning the dispplay

When the surface or the frame of the display gets dirty, soak a soft cloth in water with a neutral detergent, wring the cloth tightly, and wipe the display.

Note: Do not use paint thinner, organic solvents, or a strong acid compound to clean the unit.

Do not use hard or pointed objects to operate the touch-screen panel, since it can damage the panel surface.

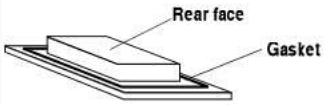
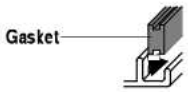
Installation Gasket

The installation (see *Installation procedures, p. 63*) gasket protects the XBTG and improves its water resistance.

Note: A gasket which has been used for a long period of time may have scratches or dirt on it, and could have lost much of its water resistance. Be sure to change the gasket at least once a year, or when scratches or dirt become visible.

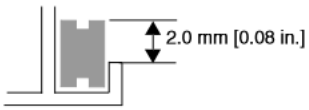
Procedure

The following table presents operating mode to installation gasket.

Step	Action
1	Place the XBTG on a flat clean, level surface facing the display face downwards. 
2	Remove the gasket from the XBTG.
3	Attach the new gasket (see *Accessories, p. 26*) to the XBTG. Be sure to insert the gasket into the XBTG's groove so that the gasket's groove sides are vertical. 
4	Check if the gasket is attached to the XBTG correctly.

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Note: The gasket must be inserted correctly into the groove for the XBTG's moisture resistance to be equivalent to IP65f.
Be sure the gasket's seam is not inserted into any of the unit's corners, only in the straight sections of the groove. Inserting it into a corner may lead to its eventually tearing.
The upper surface of the gasket should protrude approximately 2mm out from the groove. Be sure to check that the gasket is correctly inserted before installing the XBTG into a panel.



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Periodic check points

At a glance

To keep your XBTG unit in its best condition, please inspect the following points periodically.

XBTG Operation Environment

- Is the operating temperature within the allowable range (0°C to 50°C)(32°F 122°F)?
- Is the operating humidity within the specified range ((20%RH to 85%RH for XBTG2110) or 10%RH to 90%RH, dry bulb temperature of 39°C(102.2°F) or less)?
- Is the operating atmosphere free of corrosive gasses ?

Electrical Specifications

- Is the input voltage within Ratings?
  - XBTG2110: 20.4 to 27.6 Volts dc,
  - All other XBTG models: 19.2 to 28.8 Volts dc.

Related Items

- Are all power cords and cables connected properly? Have any become loose?
- Are all mounting brackets holding the unit securely?
- Are there many scratches or traces of dirt on the installation gasket?

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Replacing the backlight

At a glance

You can replace XBTG's backlight (see *Accessories, p. 26*) except for XBTG2110/2330.

For backlight replacement details, refer to the replacement backlight unit's installation guide.

XBT-G2110/2330

The XBTG2110 and XBTG2330's backlight can not be replaced by a user.

For backlight replacement, contact your local Schneider Electric distributor.

Principle

When the unit's backlight burns out, the unit's status LED will turn orange. If the **OFFLINE** menu's **USE TOUCHPANEL AFTER BACKLIGHT BURNS OUT** feature is set to **NO**, the XBTG's touch panel will be disabled.

XBTG Series units use a CFL, long-life type backlight. The actual life of the backlight however, will vary depending on the XBTG's operating conditions, and replacement may be required.

A XBTG Series backlight has a life, when the backlight is lit continuously (time required for brightness to fall to half its normal level.),

- for XBTG2110 of 25,000 hours (approx. 2.8 years, at 25°C and 24 hour operation),
- for other XBTG of 50,000 hours (approx. 5.7 years, at 25°C and 24 hour operation).

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