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WARNING

UNINTENDED EQUIPMENT OPERATION

Loss of control

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

Backlight Burnout

In case of backlight failure, enable the “disable screen” feature.

Failure to follow these instructions can result in serious injury or equipment damage.

- This equipment must be installed and operated by qualified personnel.
- Disconnect all power before working on or inside equipment.
- Always use a properly rated voltage to supply this equipment.
- 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 XBT-G 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 XBT-G.
- 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 XBT-G OFF, be sure to wait 30 seconds before turning it ON again. If the XBT-G 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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Presentation

The XBT-G are UL/cUL listed and CSA certified products.
These units conform to the following standards :

• UL 508
Industrial Control Equipment.

• UL 1604
Auxiliary Devices for use in Hazardous Location for use in Class I and Class II Division 2 and Class III, Hazardous Locations.

• CAN/CSA-C22.2 No.14 and No.213 Class 3218-06
Industrial Control Equipment- Miscellaneous Apparatus - For Hazardous Locations.

UL 1604 Conditions of Acceptability and Handling Cautions:

1. 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.
2. Suitable for use in Class I, Division 2, Groups A, B, C and D Hazardous Locations or non-Hazardous Locations only.
3. 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.
4. WARNING: Explosion hazard - substitution of components may impair suitability for Class I, Division 2.
5. WARNING: Explosion hazard - when in hazardous locations, turn power OFF before replacing or wiring modules.
6. 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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Specifications

Environment	XBT-G series
Compliance with standards	IEC 61131-2, IEC61000-6-2,CISPR11(Class A) UL 508, CSA C22.2 n°14 & n°213
Product certification	CE, UL/cUL, CSA, Class 1 Div 2 T4A (UL & CSA)
Operating temperature	0°C … + 50°C (32°F … 122°F)
Storage temperature	-20 °C… + 60°C (-4°F … 140°F)
Humidity (without condensation)	0 … 85%
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

Power Supply	
Supply voltage/ Power consumption	24VDC/30Vrms ClassII XBTG2110 - 20W XBTG21xx/22xx/23xx - 22W XBTG4xxx - 28W XBTG5xxx - 50W XBTG6xxx - 50W
Voltage limits	19.2 . . . 28.8 VDC

Package Contents

The following items are included in the XBT-G's package. Before using the XBT-G, please confirm that all items listed here are present:

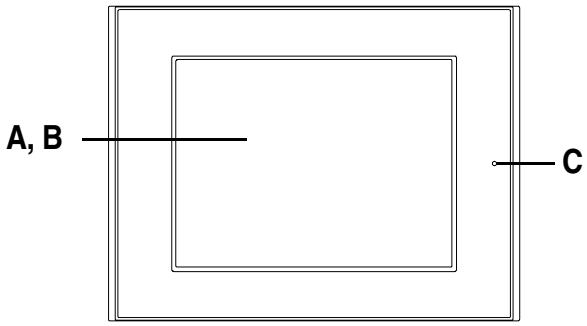
- XBT-G Unit
- PLC cable adaptor XBTZG999, plugged on the serial interface (HOST -I/F 25 pin)
- Installation Guide
- Installation Fasteners (4)
- Installation Gasket

This unit has been carefully packed, with special attention to quality. However, should you find anything damaged or missing, please contact your local Schneider Electric distributor immediately.

Options

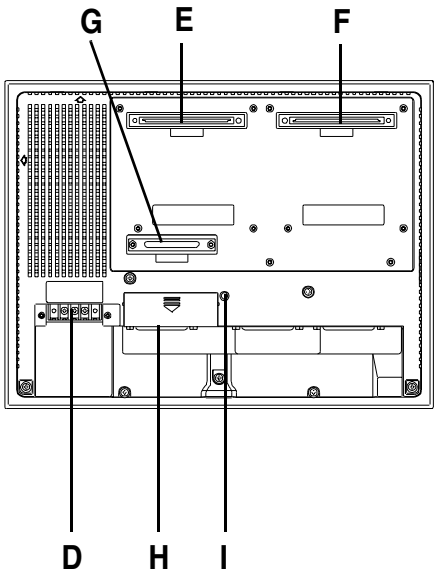
XBT-G optional items include cables, adapters, screen editor software and other items.
For more information about these optional items, please refer to individual XBT-G catalogs.

XBT-G5330 and XBT-G6330

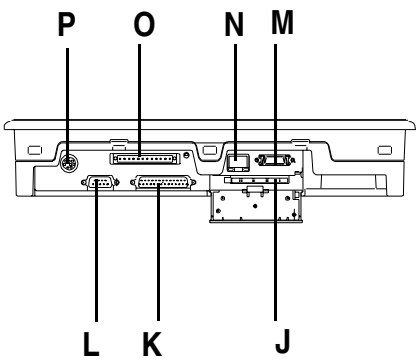


A : Display
B : Touch Panel
C : Status LED

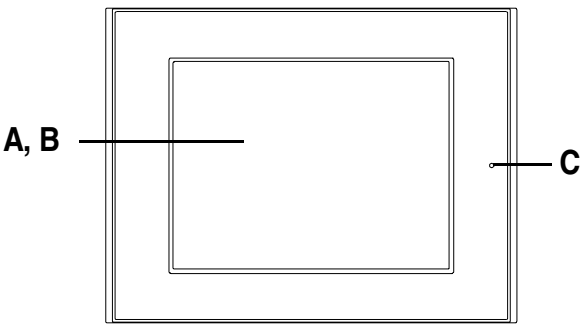
LED	XBT-G Status
Green	Normal operation
Orange	Backlight is not functioning. (Refer to Replacing the Backlight.)



D : Power Input Terminal Block
E : Expansion Unit Interface 1
F : Expansion Unit Interface 2
G : CF Card Expansion Interface
H : CF Card Cover
I : CF Card Access LED
J : CF Card Slot
K : Serial Interface (HOST-I/F 25-pin)
L : Serial Interface (SUB-SIO 9-pin)
M: Printer Interface (Half Pitch 20-pin)
N : Ethernet Interface (10 Base T)
O : Screw Lock Terminal Block
P : Tool Connector Connects a Data Transfer Cable

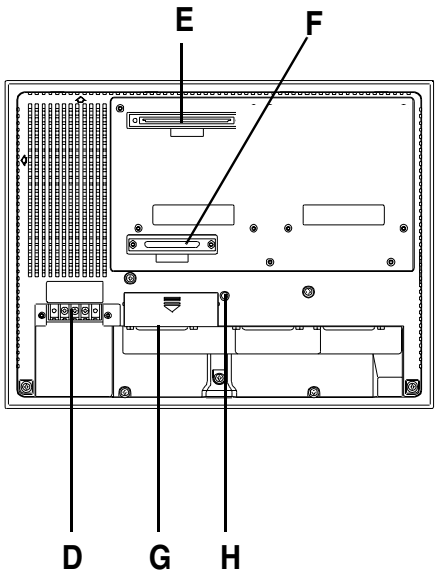


XBT-G5230

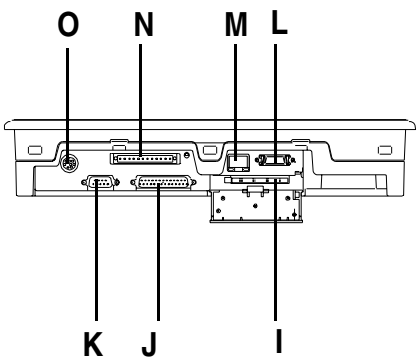


A : Display
B : Touch Panel
C : Status LED

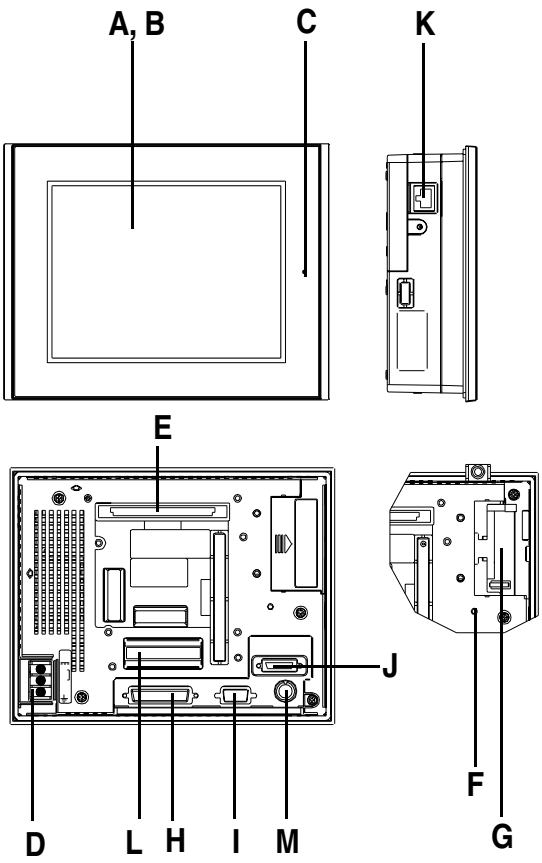
LED	XBT-G Status
Green	Normal operation
Orange	Backlight is not functioning. (Refer to Replacing the Backlight.)



D : Power Input Terminal Block
E : Expansion Unit Interface 1
F : CF Card Expansion Interface
G : CF Card Cover
H : CF Card Access LED
I : CF Card Slot
J : Serial Interface (HOST-I/F 25-pin)
K : Serial Interface (SUB-SIO 9-pin)
L: Printer Interface (Half Pitch 20-pin)
M : Ethernet Interface (10 Base T)
N : Screw Lock Terminal Block
O : Tool Connector Connects a Data Transfer Cable



XBT-G4320 and XBT-G4330

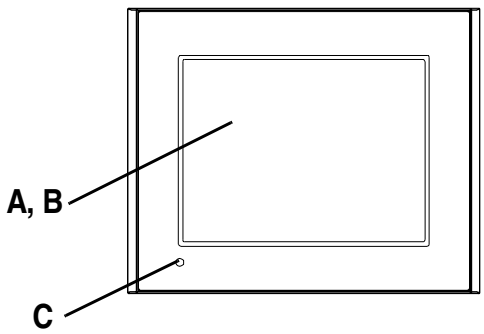


A : Display
B : Touch Panel
C : Status LED

LED	XBT-G Status
Green	Normal operation
Orange	Backlight is not functioning. (Refer to Replacing the Backlight.)

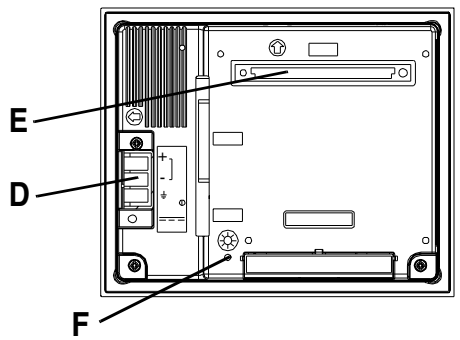
D : Power Input Terminal Block
E : Expansion Unit Interface
F : CF Card Access LED
G : CF Card Slot
H : Serial Interface (HOST-I/F 25-pin) only for XBT-G4330
I : Serial Interface (SUB-SIO 9-pin)
J : Printer Interface (Half Pitch 20-pin)
K : Ethernet Interface (10 Base T) only for XBT-G4330
L : Sound and AUX Connector
M : Tool Connector Connects a Data Transfer Cable

XBT-G2130 and XBT-G2330

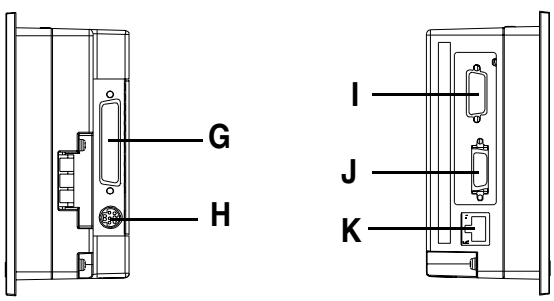


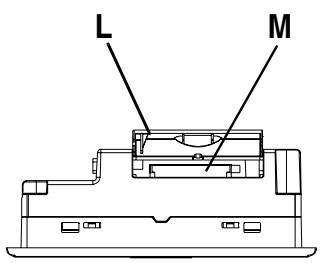
A : Display
B : Touch Panel
C : Status LED

LED	XBT-G Status
Green	Normal operation
Orange	Backlight is not functioning. (Refer to Replacing the Backlight.)

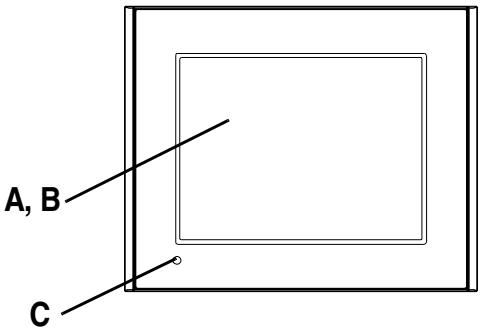


D : Power Input Terminal Block
E : Expansion Unit I/F
F : CF Card Access LED
G : Serial I/F (HOST-I/F 25-pin)
H : Tool Connector Connects a Data Transfer Cable
I : Expansion Serial Interface (SubD 9-pin)
J : Printer Interface (Half Pitch 20-pin)
K : Ethernet Interface (10 Base T)
L : CF Card Cover
M : CF Card I/F



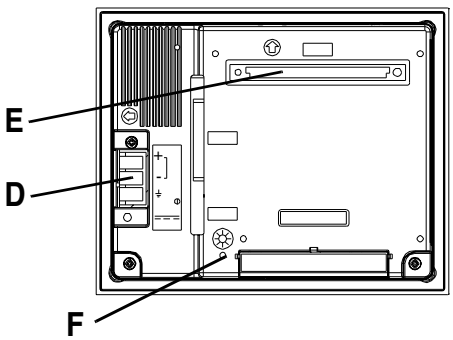


XBT-G2120 and XBT-G2220

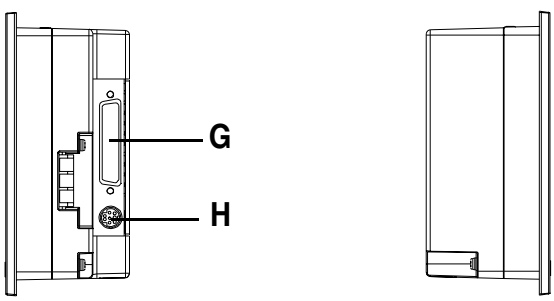


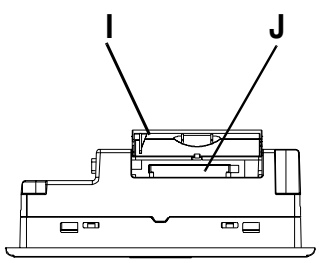
A : Display
B : Touch Panel
C : Status LED

LED	XBT-G Status
Green	Normal operation
Orange	Backlight is not functioning. (Refer to Replacing the Backlight.)

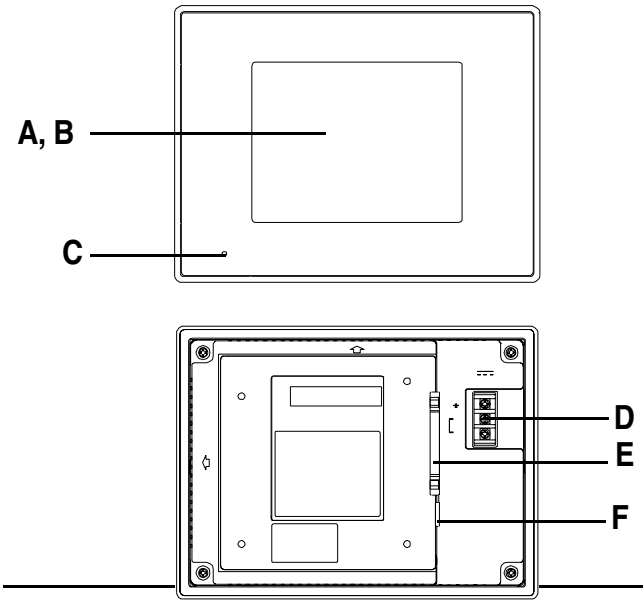


D : Power Input Terminal Block
E : Expansion Unit I/F
F : CF Card Access LED
G : Serial I/F (HOST-I/F 25-pin)
H : Tool Connector Connects a Data Transfer Cable
I : CF Card Cover
J : CF Card I/F





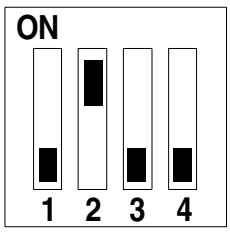
XBT-G2110



A : Display
B : Touch Panel
C: Power LED.
LED "ON", when power is supplied.
(Green LED)
D : Power Input Terminal Block
E: Serial I/F (Host I/F 25 pin)
F: Tool Connector Connects a Data Transfer Cable to the XBT-G.

Dip Switches

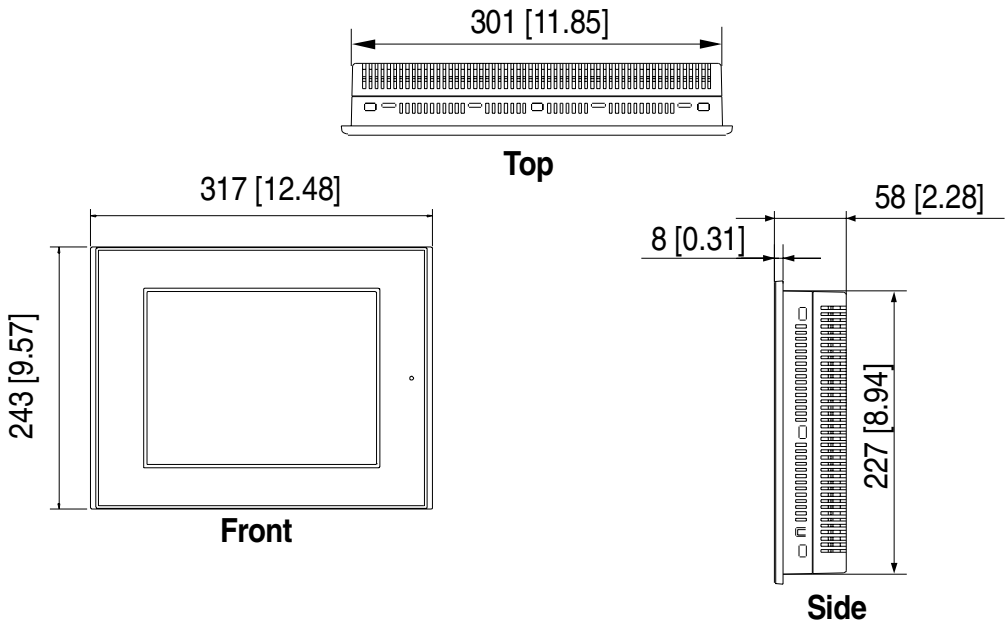
These switches are located inside the CF Card's cover.



Dip Switch	Function	ON	OFF	Note
1	This dip switch setting controls the startup from a CF Card.	Startup from CF Card is enabled.	Startup from CF Card is disabled.	CF Card with startup data required.
2	This dip switch allows download application on XBT-G products	Download is available	Download is not available	-
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.

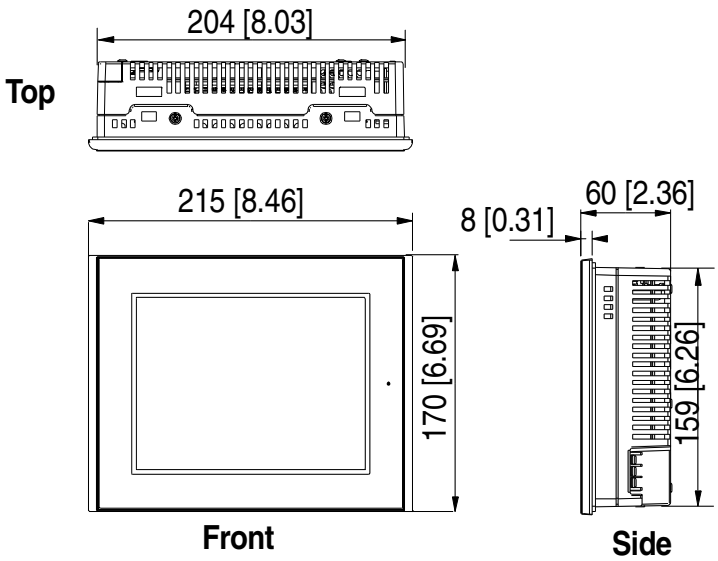
XBT-G5330, XBT-G6330, and XBT-G5230

Unit : mm [in]



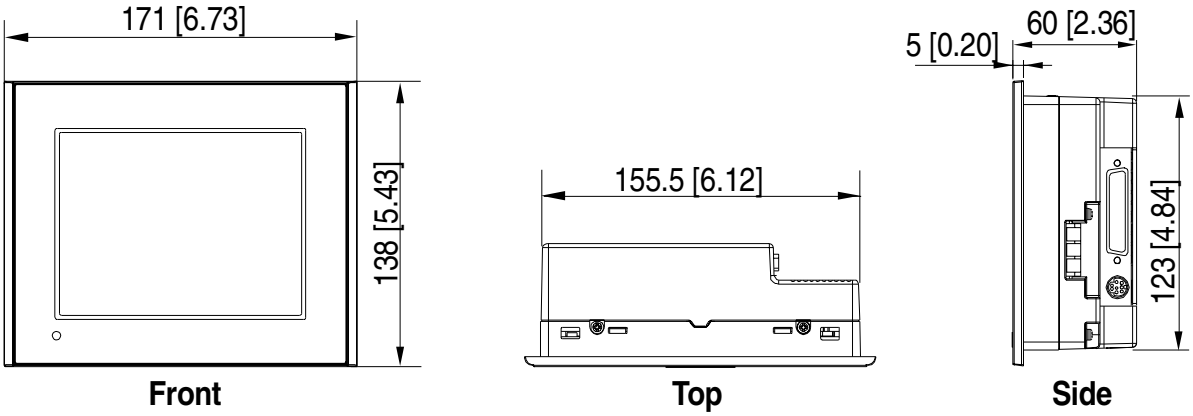
XBT-G4320 and XBT-G4330

Unit : mm [in]



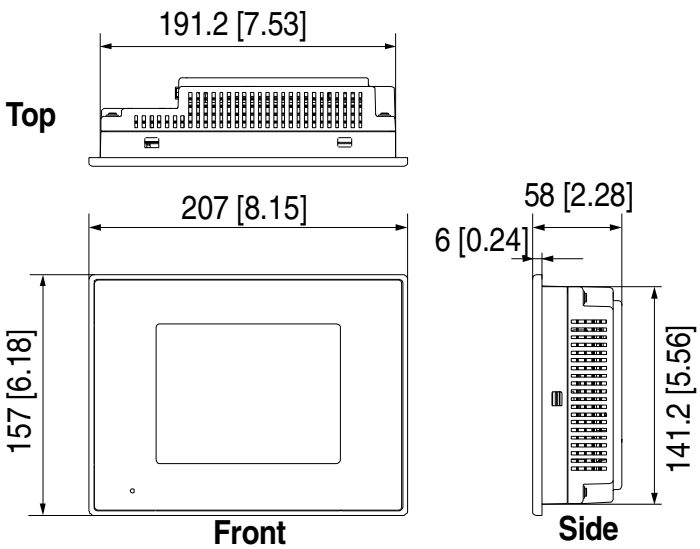
XBT-G2130, XBT-G2330, XBT-G2120, and XBT-G2220

Unit : mm [in]



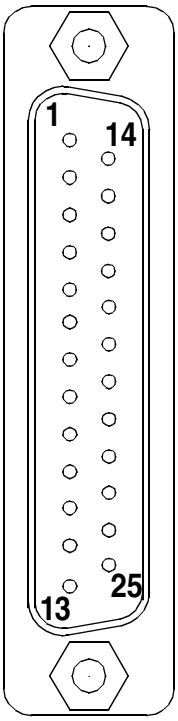
XBT-G2110

Unit : mm [in]

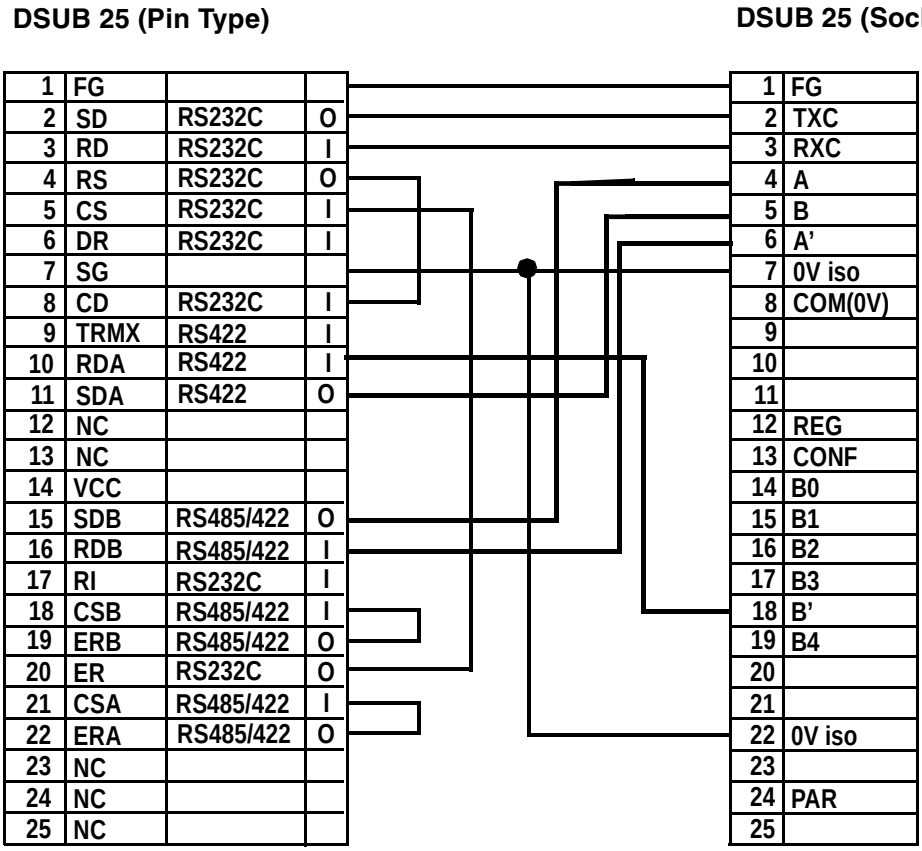


Serial Interface (HOST-I/F)

This interface is used to connect the XBT-G to the host (PLC), via an RS-232C or RS-485 cable. The connector used is a socket-type connector.

Pin Arrangement	Pin #	Signal Name	Comm description for all XBT-G, except XBT-G2110	Comm description for XBT-G2110 only
	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*

XBTZ-G999 adaptor :



1	FG		
2	SD	RS232C	O
3	RD	RS232C	I
4	RS	RS232C	O
5	CS	RS232C	I
6	DR	RS232C	I
7	SG		
8	CD	RS232C	I
9	TRMX	RS422	I
10	RDA	RS422	I
11	SDA	RS422	O
12	NC		
13	NC		
14	VCC		
15	SDB	RS485/422	O
16	RDB	RS485/422	I
17	RI	RS232C	I
18	CSB	RS485/422	I
19	ERB	RS485/422	O
20	ER	RS232C	O
21	CSA	RS485/422	I
22	ERA	RS485/422	O
23	NC		
24	NC		
25	NC		

1	FG
2	TXC
3	RXC
4	A
5	B
6	A’
7	0V iso
8	COM(0V)
9	
10	
11	
12	REG
13	CONF
14	B0
15	B1
16	B2
17	B3
18	B’
19	B4
20	
21	
22	0V iso
23	
24	PAR
25	

Important:

• This XBT-G unit’s serial port is not isolated. When the host (PLC) 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, do not exceed specified current level.

• Be sure to connect the XBT-G's SG (Signal Ground) terminal to the other (host) unit's Signal Ground terminal.

• When connecting an external device to the XBT-G with the SG terminal, ensure that no ground loop is created when you setup the system.

General note:

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

• For RS-485 Connectors:

- The following pairs of pin numbers must be connected (shorted).

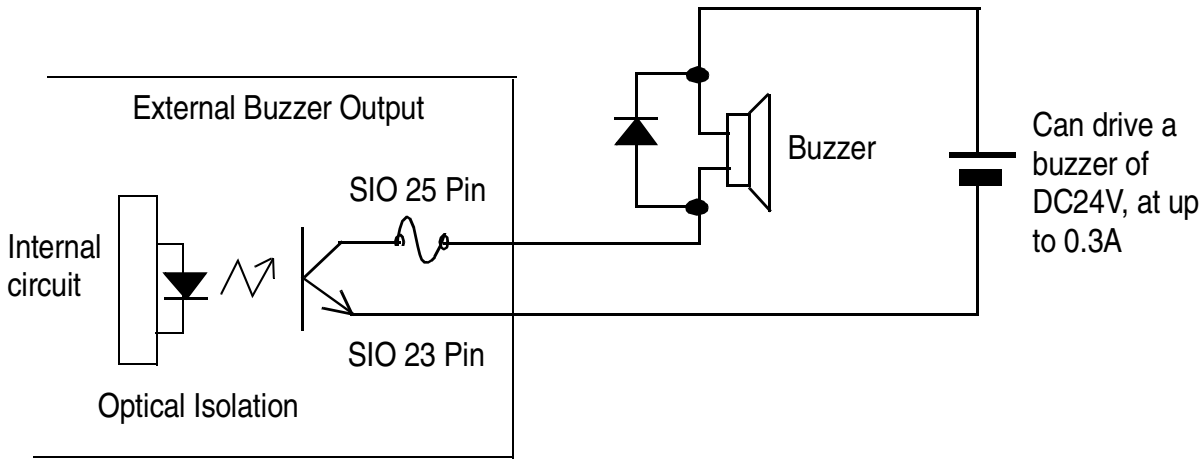
...#18 (CSB) <-> #19 (ERB)

...#21 (CSA) <-> #22 (ERA)

- Connecting the #9 (TRMX) and #10 (RDA) wires, adds a termination resistance of 100 Ohm between RDA and RDB .

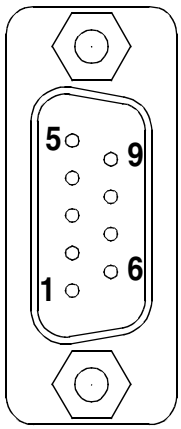
• For RS-232C Connectors:
- Do not connect #9 (TRMX), #10 (RDA), #11 (SDA), #15 (SDB), #16 (RDB), #18 (CSB), #19 (ERB), #21 (CSA), and #22 (ERA).
- The #1 (FG) terminal should only be connected if it is required by the device to which it is connected..

*** XBT-G2110 note:**
• External Buzzer Output:
Use pins 23(BUZZ GND) and 25(BUZZ OUT) when producing external output for an alarm.



Serial Interface (SUB-SIO)

Connect a Serial Bar-code reader or a 2-Dimensional-code reader to this interface.

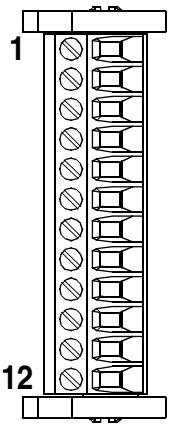
Pin Arrangement	Pin #	Signal Name	Meaning
	1	CD	Carrier Detect (RS-232C)
	2	RD	Receive Data (RS-232C)
	3	SD	Send Data (RS-232C)
	4	ER	Enable Receive (RS-232C)
	5	SG	Signal Ground
	6	DR	Data Set Ready (RS-232C)
	7	RS	Request to send (RS-232C)
	8	CS	Clear to Send (RS-232C)
	9	RI/VCC	Ring Indicate (RS-232C)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

Important:

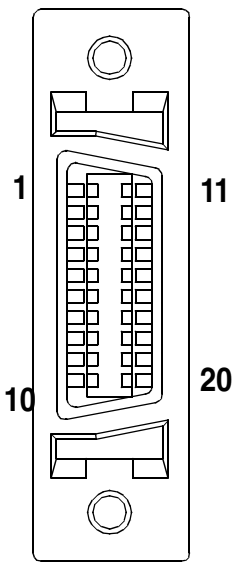
Since Pin#9(RI/VCC) is unprotected, be sure to keep the output current within the rated range.

Screw Lock Terminal Block

This interface performs external reset, remote I/O and sound output.

Pin Arrangement	I/F	Pin #	Signal Name	Meaning
	External Reset	1	AUXCOM	External Reset Common
		2	AUXRESET	External Reset Input
	AUX	3	RUN	Online
		4	ALARM	Error Occurred
		5	OUTCP	24 VDC
		6	BUZZ	External Buzzer Output
		7	Reserved	Reserved
		8	OUTCN	0V
		9	Reserved	Reserved
	Audio I/F	10	SP OUT	Speaker Output Terminal
		11	GND	Ground
		12	LINE OUT	Line Out Output Terminal

Printer Interface

Pin Arrangement	Pin #	Signal Name	Meaning
	1	GND	Ground
	2	RESERVED	Reserved
	3	PDB5	Data Signal
	4	PDB4	Data Signal
	5	PDB3	Data Signal
	6	GND	Ground
	7	SLCT	Select Condition (Input)
	8	PDB0	Data Signal
	9	PSTB	Strobe Signal (Output)
	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 End
	19	INIT	Initialize Signal (Output)
	20	GND	Ground

Ethernet Interface

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

Compact Flash memory Card Interface

This slot accepts a Compact Flash memory Card (CF Card):
- XBTZGM16 (16 Mb)
- XBTZGM32 (32 Mb).

Expansion CF Card Interface

This interface is for connecting the Front Maintenance CF Card Unit.

Expansion Unit Interface 1

This interface is used to connect an expansion unit that can transmit data over a Fieldbus or similar type of network.

Expansion Unit Interface 2

Provides expanded features.

Installation gasket

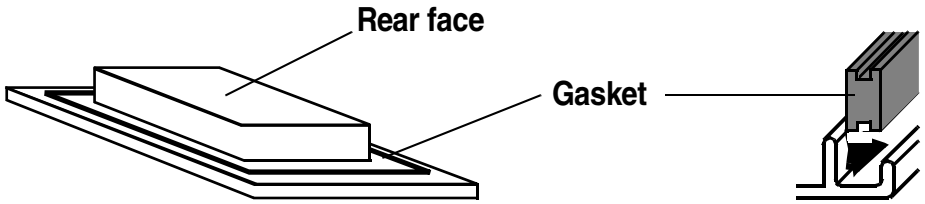
The gasket is required to absorb vibration and repel liquids.
Place the XBT-G on a smooth, level surface with the display panel facing downward. Check that the XBT-G's installation gasket is seated securely into the gasket's groove, which runs around the perimeter of the panel's frame.

Important:

• Before installing the XBT-G into a cabinet or panel, check that the installation gasket is securely attached to the unit.

• 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.

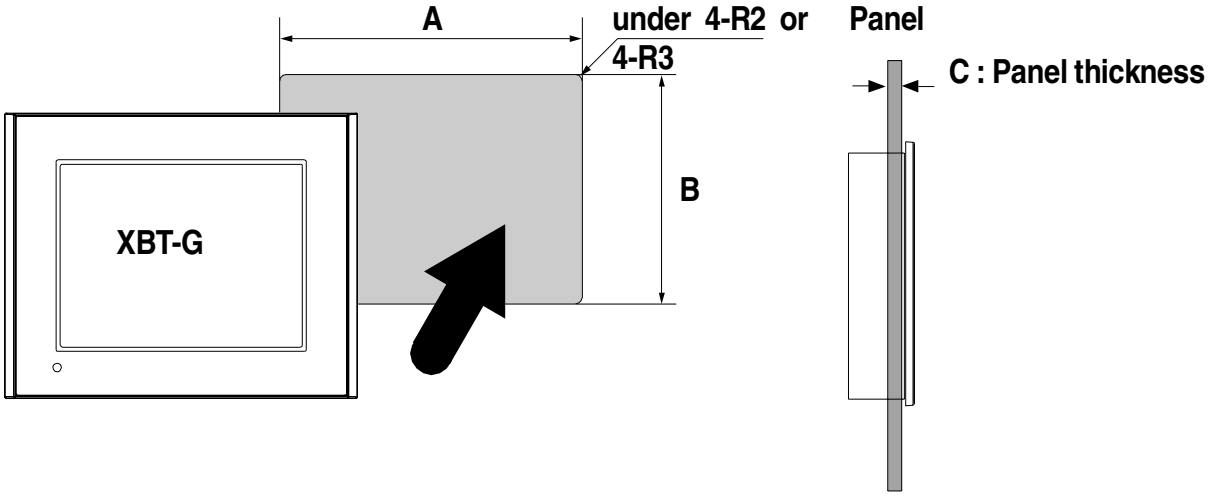
• A gasket which has been used for a long period of time may have scratches or dirt on it, and could have lost much of its dust and drip resistance. Be sure to change the gasket periodically (or when scratches or dirt become visible).



Corresponding replacement installation gasket:

XBT-G Unit	Required Installation Gasket
XBT-G2130 XBT-G2120 XBT-G2220 XBT-G2330	XBTZG22
XBT-G4320 XBT-G4330	XBTZG24
XBT-G5230 XBT-G5330 XBT-G6330	XBTZG26
XBT-G2110	XBTZG21

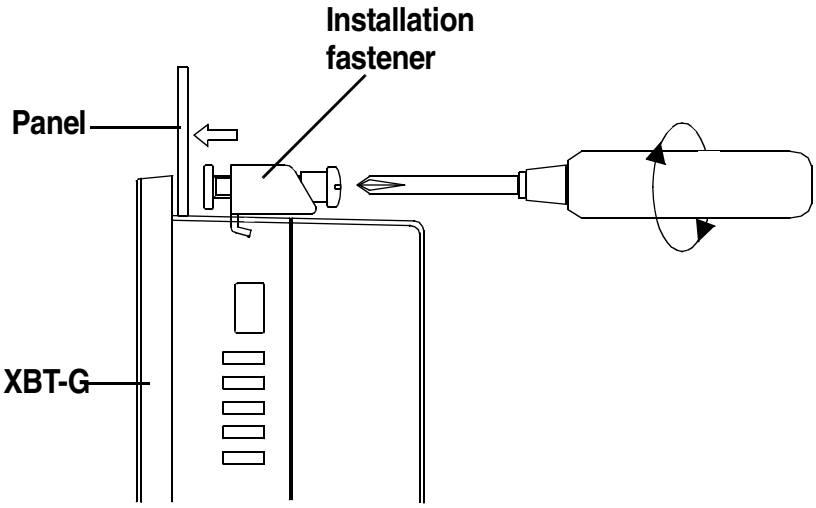
Create a panel cut-out and insert the XBT-G into the panel from the front



	A (mm)	B (mm)	A (in)	B (in)	C (mm)	C (in)	under
XBT-G2110	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
XBT-G2120 **XBT-G2220** **XBT-G2130** **XBT-G2330**	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
XBT-G4320 **XBT-G4330**	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
XBT-G5230 **XBT-G5330** **XBT-G6330**	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

Attach the installation fasteners from inside the panel

The following figure shows the typical fastener insertion slot locations. Insert each fastener's hook into the slot and tighten it with a screwdriver.



Important:

- Tightening the screws with excessive force can damage the XBT-G's plastic case.
- The necessary torque is 0.5 Nm (4.4 lb-in).

Note:

- Depending on the installation panel's thickness, etc., the number of installation fasteners used may need to be increased to provide the desired level of moisture resistance.

Wiring

Important:

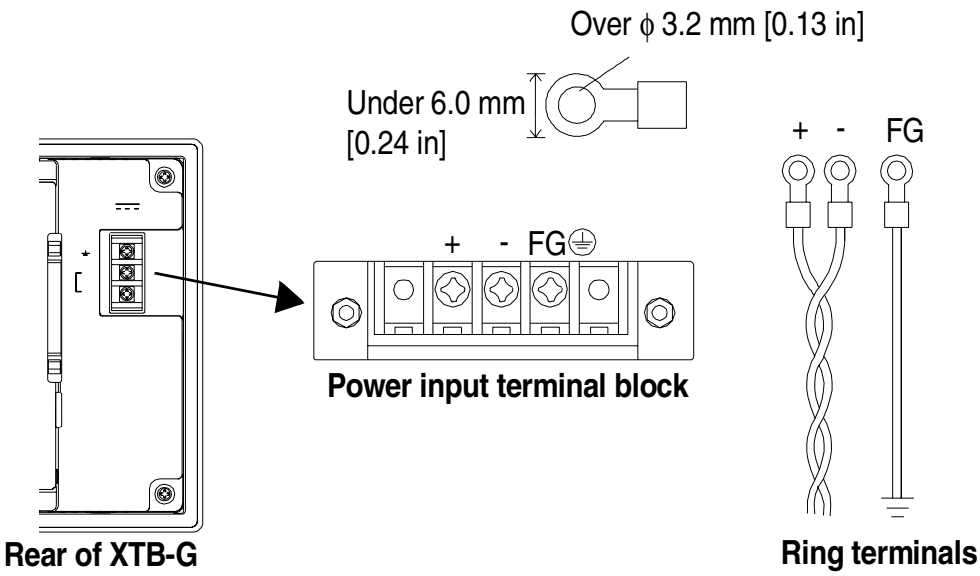
• To avoid a short caused by loose ring terminals, be sure to use ring terminals with an insulating sleeve.

• When the FG terminal is connected, be sure the wire is grounded. Not grounding the XBT-G unit will result in excess noise. Grounding is required to assure EMC level immunity.

Note:

• Wherever possible, use thick wires (max. 2 mm ² [AWG 12 max]) for power terminals, and twist the wire ends before attaching the ring terminals as shown below.

• Be sure to use the size ring terminals shown below.



• Connecting the XBT-G Power Cord

When connecting the power cord, follow the procedures given below.

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).

Replacing the Backlight

DANGER

HAZARDOUS VOLTAGE. Backlight Contains High Voltage.

- Do not disassemble XBT-G except to replace backlight.
- Disconnect all power before servicing backlight.
- Refer to installation guide for the proper procedure.

Electric shock will result in death or serious injury.

The XBT-G unit's backlight is user replaceable. For an explanation of how to replace the XBT-G's backlight, please refer to the Installation Guide which comes with the replacement backlights (sold separately). Corresponding Replacement Backlights:

XBT-G Unit	Required Backlight Model
XBT-G2130 XBT-G2120 XBT-G2220	XBTZG12
XBT-G2330	Cannot be changed by the user (1)
XBT-G5230	XBTZG13
XBT-G4320 and XBT-G4330	XBTZG14
XBT-G5330	XBTZG15
XBT-G6330	XBTZG16
(1) : the unit must be returned to an authorized Schneider Electric repair center for backlight replacement	

Note : Backlight models are not interchangeable.

Replacing the battery

CAUTION

UNIT DAMAGE
Battery is not field replaceable. The unit must be sent to the local Schneider Electric Distributor.

Failure to follow this instruction can result in equipment damage.