

LIEBERT® BATTERY INTERFACE BOX™: UPSBIBX, UPSBIBN AND UPSBIBR

Product Specification/Installation Sheet—Liebert EXL™, Liebert EXL™ S1, Liebert NX™ 225-600 and Liebert NXL™

SAVE THESE INSTRUCTIONS

This manual contains important instructions that should be followed during installation of your Liebert Battery Interface Box. The Liebert Battery Interface Box can be used with the Liebert NXL, Liebert NX 225-600, Liebert EXL and Liebert EXL S1 systems. Read this document thoroughly before working with the DC system. Retain this manual for use by installing personnel.

WARNING

Risk of electric shock. Can cause personal injury or death.

The DC terminal voltage connected to this equipment will exceed 400VDC and is potentially lethal. Be constantly aware that the DC system contains high DC as well as AC voltages. Check for voltage with AC and DC voltmeters before making contact.

Special safety precautions are required for procedures involving handling, installing and maintaining the DC system. Only properly trained and qualified personnel wearing appropriate personal protective equipment should be involved in installing the Liebert Battery Interface Box or preparing the system for installation.

Special care must be taken when working with the batteries associated with this equipment. Observe all DC safety precautions before working on or near the DC system.

The following precautions must be observed when working on this equipment:

- Remove watches, rings and other metal objects.
- Use tools with insulated handles.
- Wear rubber gloves and boots.
- Do not lay tools or metal parts on top of batteries.
- Disconnect charging source prior to connecting or disconnecting DC terminals.
- Determine whether the DC source is grounded. If it is grounded, remove source of ground.

Contact with any part of a grounded DC source can result in electrical shock. The likelihood of such shock will be reduced if such grounds are removed during installation and maintenance.

AVERTISSEMENT

Risque de décharge électrique pouvant causer des blessures graves, voire mortelles.

La tension c.c. à la borne de cet équipement dépasse 400 V c.c. et est potentiellement mortelle. Soyez toujours conscient du fait que le système c.c. contient des tensions c.c. et c.a. élevées. Vérifiez les tensions avec des voltmètres c.a. et c.c. avant d'établir tout contact.

Des précautions de sécurité spéciales sont requises pour les procédures associées à la manutention, à l'installation et à l'entretien du système c.c. Seuls des employés qualifiés et dûment formés portant l'équipement de protection personnel approprié peuvent se charger d'installer le boîtier d'interface pour batterie Liebert ou de préparer le système pour l'installation.

Des précautions particulières doivent être prises lors de travaux touchant les batteries associées à cet équipement. Observez toutes les précautions de sécurité appropriées lorsque vous travaillez sur à proximité d'une source c.c.

Lorsque vous travaillez avec cet équipement, prenez les précautions suivantes :

- Retirez montre, bagues et tout autre objet métallique.
- Utilisez des outils dont le manche est isolé.
- Portez des gants et des bottes de caoutchouc.
- Ne posez aucun outil ni pièce métallique sur le dessus d'une batterie.
- Déconnectez la source de chargement avant de brancher ou de débrancher les bornes c.c.
- Vérifiez si la source c.c. est mise à la terre. Le cas échéant, éliminez la cause de la mise à la terre.

Le contact avec toute partie d'une source c.c. mise à la terre peut provoquer une décharge électrique. Pour réduire de tels risques d'accident, débranchez les prises de terre avant de procéder à l'installation ou à l'entretien.

This unit complies with the limits for a Class A digital device, pursuant to Part 15 Subpart J of the FCC rules. These limits provide reasonable protection against harmful interference in a commercial environment. This unit generates, uses and radiates radio frequency energy and, if not installed and used in accordance with this instruction manual, may cause harmful interference to radio communications. Operation of this unit in a residential area may cause harmful interference that the user must correct at his own expense.

PLACEMENT AND CABLE ENTRY

The Liebert Battery Interface Box should be installed near the DC disconnect. The location should allow access to the box and allow the front door to be opened for service. Access to the Battery Interface Board (BIB), fuse disconnects and terminal blocks are behind the front door. See **Figure 1** for cable entry layout.

UPSBIBX—Separately mounted assembly to interface with a battery breaker, either stand-alone or as part of a battery cabinet.

UPSBIBN—Variation of the UPSBIBX that includes a mounting plate, hardware and wire harness, allowing installation on a Vertiv-supplied MBD and BIS using a Square D type NW-DC breaker.

UPSBIBR—Separately mounted assembly to interface with a Samsung lithium-ion battery.

CONTROL CONNECTION

Each Liebert Battery Interface Box contains a Battery Interface Board (BIB). When multiple BIB's are used, DC systems must have their Battery Interface Board controls connected in series. The CAN cables must be two twisted pair. Vertiv recommends Belden 9156 or the equivalent; however, the wire size is dependent on the length of the cable run.



NOTE

*Care must be taken to route control cables away from high-voltage cables and busbars. Use recommended knockouts for installing all cables and use provided tie point to secure, see **Figure 2**.*

NOTICE

Risk of improper installation. Can cause equipment damage.

During system commissioning, Vertiv Services will set the jumpers on the External Interface Board in the UPS and the BIB. If another DC source is added to the system after commissioning, it is imperative that Vertiv Services reset the jumpers on the EIB and the BIB.

Figure 1 Dimensions and layout—UPSIBN and UPSIBX

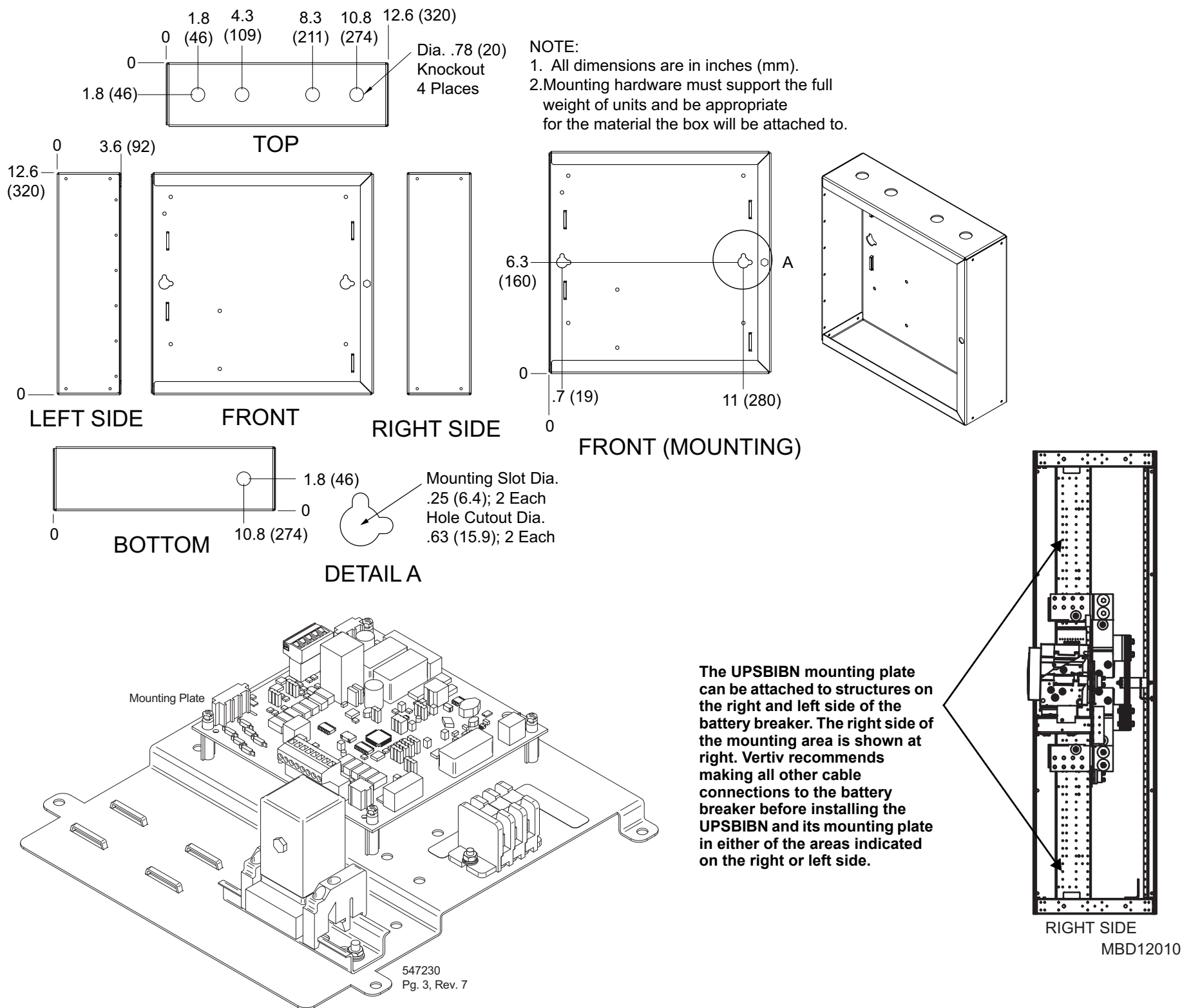


Figure 2 Control wiring routing—UPSIBN and UPSIBX

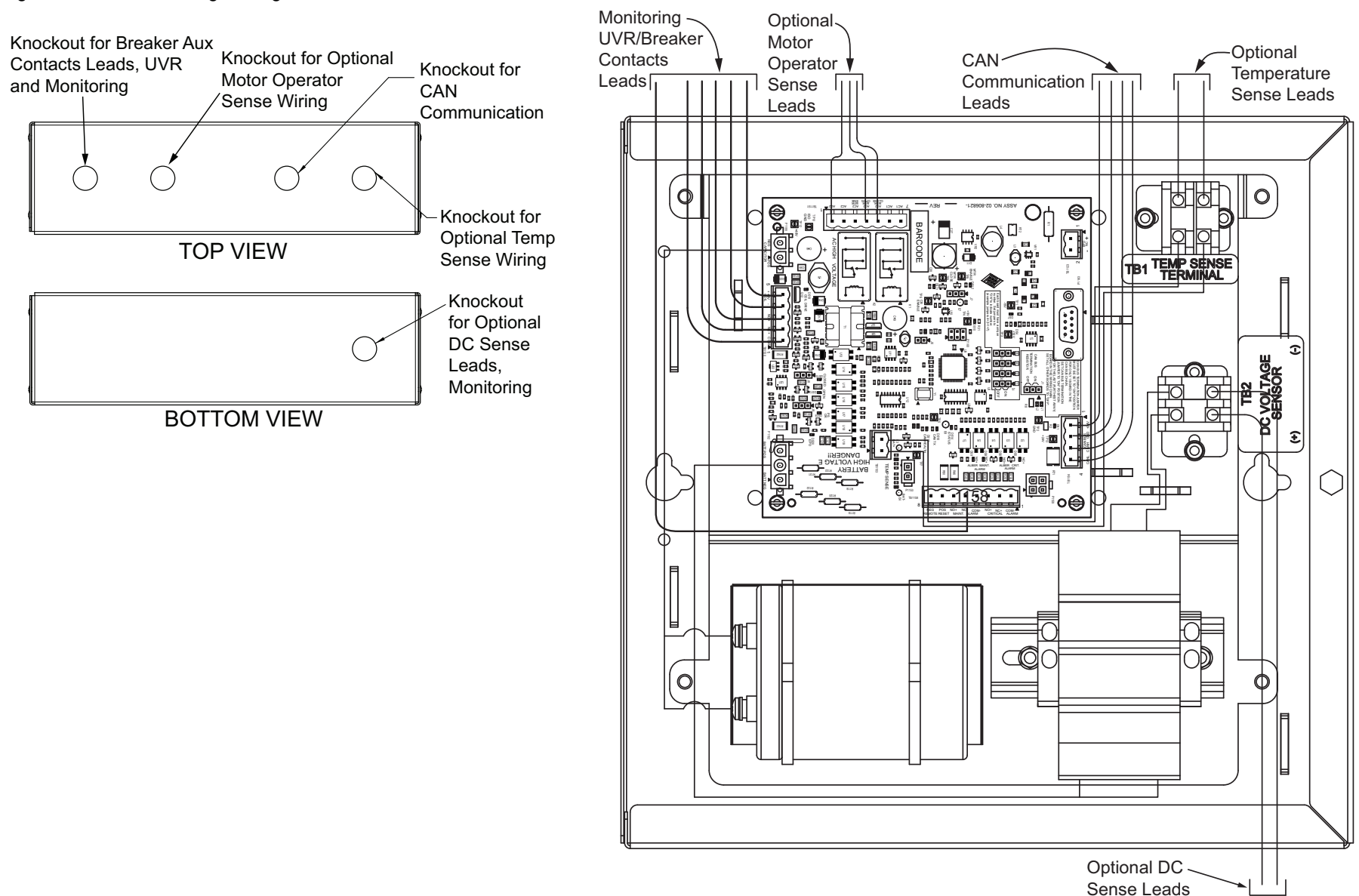


Figure 3 Dimensions and layout UPS BIBR

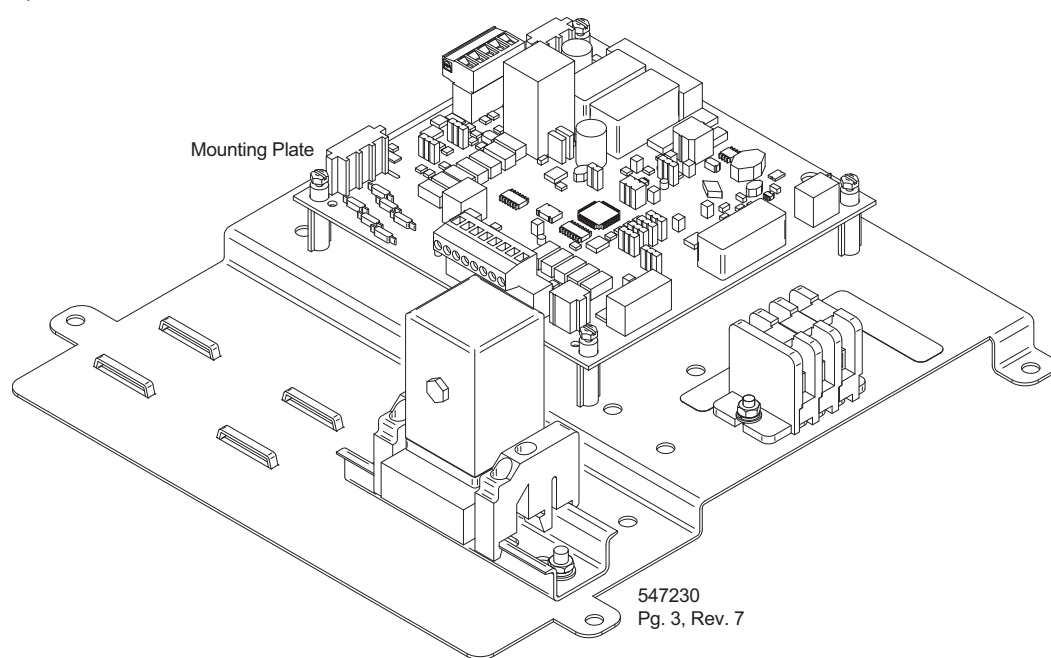
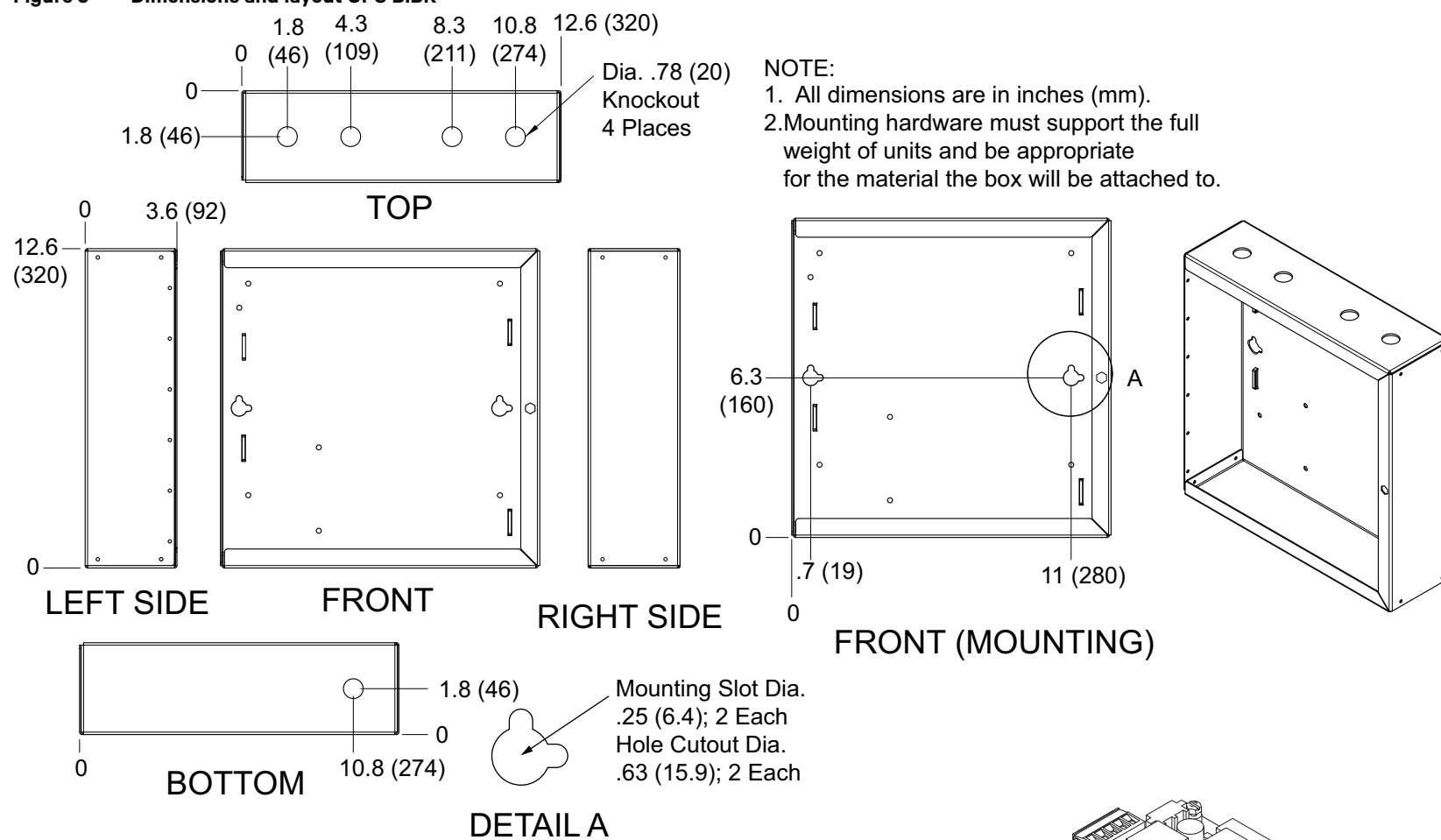
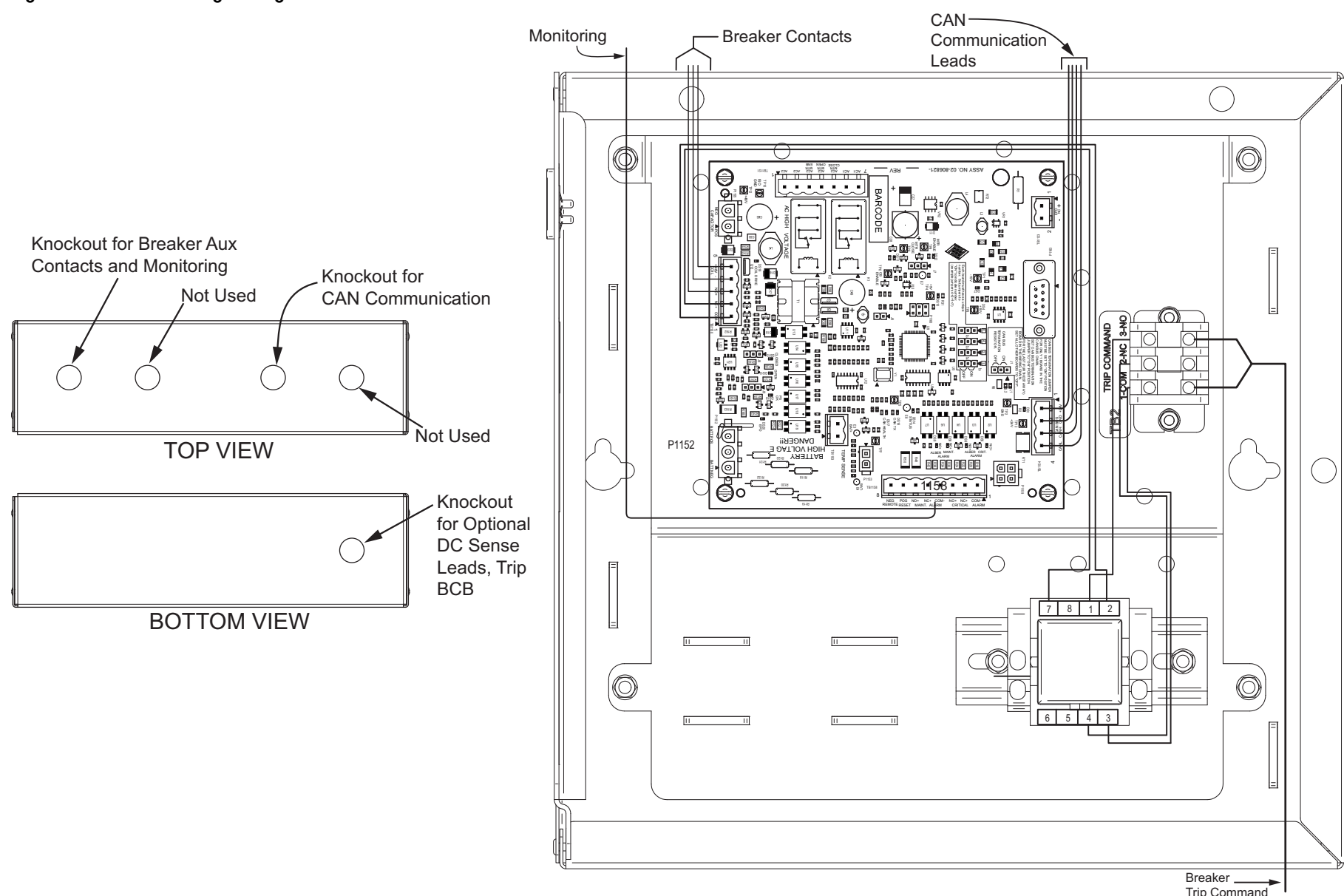


Figure 4 Control wiring routing—UPS BIBR



OPTIONAL EXTERNAL BATTERY ROOM TEMPERATURE SENSOR—UPSBIBX AND UPSBIBN ONLY

Connecting an optional sensor to the BIB to monitor the ambient room temperature will enable the Liebert NXL™ and Liebert NX™ 225-600 to perform temperature compensation charging. The Liebert EXL™ and Liebert EXL S1 can detect overtemperatures with the optional temperature sensor installed and can open the battery breaker to prevent thermal runaway. The UPS's both perform temperature compensation charging.

OPTIONAL DC SENSE CONNECTIONS—UPSBIBX AND UPSBIBN ONLY

Connecting the optional DC sense voltage wires will allow the Liebert NXL, Liebert NX 225-600 and Liebert EXL to display the DC source on the UPS HMI. This connection cannot be used with split-battery bus systems, flywheel systems or any DC system that does not have a valid DC voltage when the DC breaker is open.

If the DC sense wires are connected to the BIB, the DC source cabinet may require field-installed fuse protection; refer to national and local codes to verify. The DC sense wires must run from the most-positive DC voltage to the most-negative DC voltage.

DC BREAKER UNDERVOLTAGE RELEASE (UVR) CONTACTS—UPSBIBX AND UPSBIBN ONLY

If the DC breaker is used as a Module Battery Disconnect breaker (UPS will have control of the breaker), then the 48V UVR contacts must be run to the BIB.

If the DC breaker is used as a Battery Isolation Switch, then the 48V UVR contacts will **not** be run to the BIB.

OPTIONAL MOTOR OPERATOR CUSTOMER CONNECTIONS

UPSBIB-X and UPSBIB-N is available only for the Liebert EXL and Liebert NX. The option permits remotely closing the circuit breaker from the UPS.

Figure 5 Motor operator customer connections—UPSBIBX and UPSBIBN only

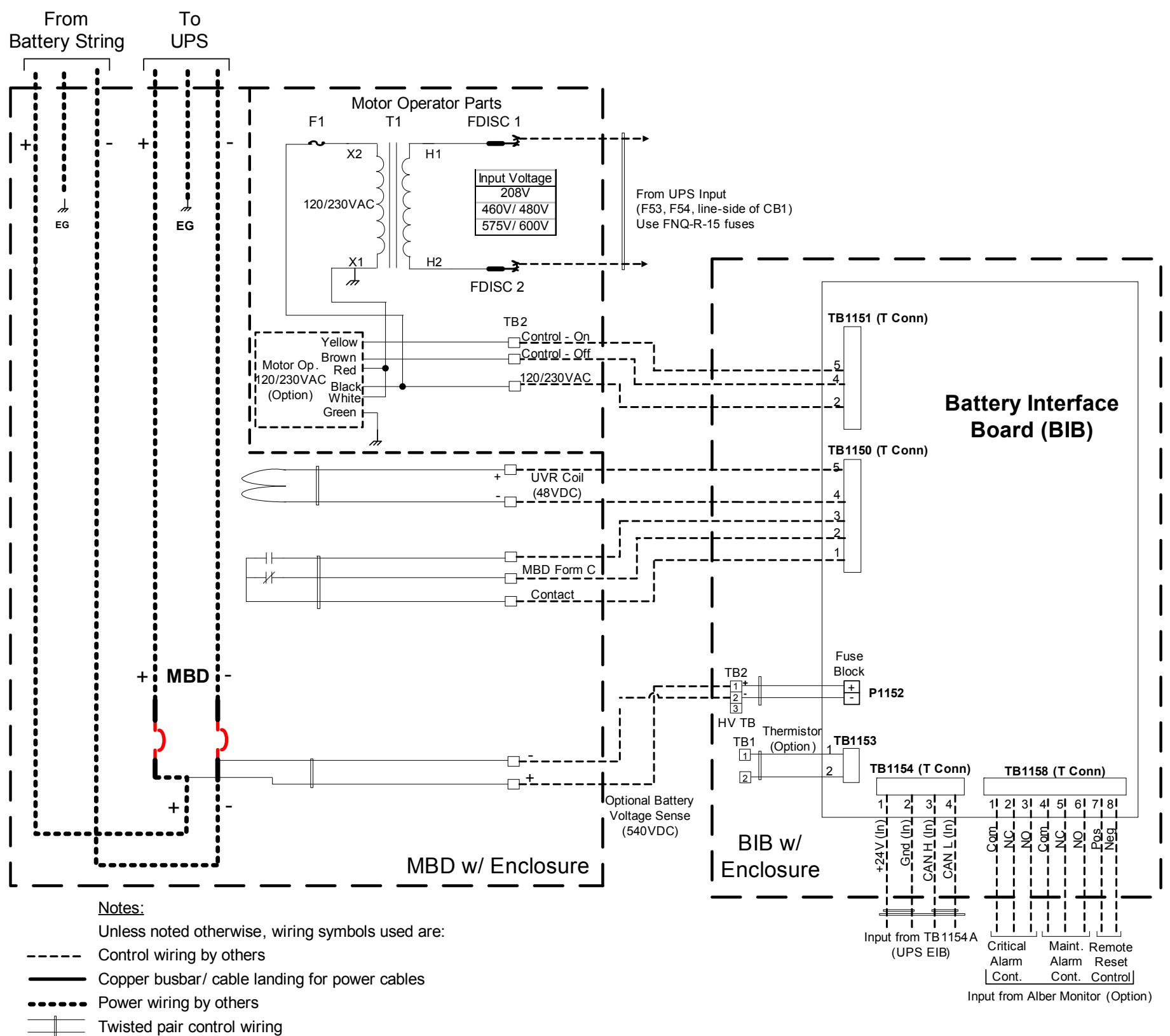


Table 1 Cable groups—UPSIBIX and UPSIBIN

Terminal Designation		Signal Name	Max. Voltage	Max. Current	Wire Range	Max. Length	Remarks
From	To						
DC Breaker Cabinet	TB2-1	DC Voltage - Positive	600VDC	2mA	#14-22AWG	10ft. (3m)	Optional
	TB2-2	DC Voltage - Negative					
	TB1150-1	Breaker Aux Comm	24VDC	10mA	#14-22AWG	10ft. (3m)	Pin 2 Shorted to Pin 1 = CB is Open Pin 3 Shorted to Pin 1 = CB is Closed
	TB1150-2	Breaker Aux Open					
	TB1150-3	Breaker Aux Closed					
	TB1150-4	Breaker UVR Trip Coil (-)	48VDC	100mA	#14-22AWG	10ft. (3m)	The UVR contacts are required if the DC breaker will be controlled Module Battery Disconnect (MBD) breaker.
	TB1150-5	Breaker UVR Trip Coil (+)					
	TB1153-1	Temp Sense	5V	10mA	#14-22AWG	100ft. (30.5m)	Optional Cable must be rated for 600V
	TB1153-2	Temp Sense Return					
	TB1151-2	Motor Op 120/230V Sense	120V/ 230V	15A	#14-8AWG	100ft. (30.5m)	Optional Circuit protected by 15A fuse (FNQ-R type) in UPS. Actual voltage and current to MBD determined by MBD manufacturer.
	TB1151-4	Motor Op Control Off					
	TB1151-5	Motor Op Control On					
	UPS - F53-2	Motor Op Power Ph A	480VAC	15A	#14AWG	500ft. (150m)	
UPS - F54-2	Motor Op Power Ph C						
TB1158-6	MIN NO	30VDC	1A	#22AWG	500ft. (150m)	Maintenance Alarm on UPS Display	
TB1158-5	MIN NC					Maintenance Alarm on UPS Display	
TB1158-4	MIN COM					Maintenance Alarm on UPS Display	
TB1158-3	MAJ NO					Critical Alarm on UPS Display	
TB1158-2	MAJ NC					Critical Alarm on UPS Display	
TB1158-1	MAJ COM					Critical Alarm on UPS Display	
Previous BIB Box or UPS	TB1154-1	CAN +24V	24VDC	2A	#18AWG	1000ft. (300m)	Belden 9156 (2 Twisted Pair) or equal The maximum length must take into account all connections of the CAN communication cables in the DC system.
	TB1154-2	CAN Common					
	TB1154-3	CAN Bus High	24VDC	2A			
	TB1154-4	CAN Bus Low					

Table 2 Cable groups—UPSIBIR

Terminal Designation		Signal Name	Max. Voltage	Max. Current	Wire Range	Max. Length	Remarks
From	To						
TB1-1	MCCB STAT COM	MCCB COM	30VDC	1A	#22AWG	500ft. (150m)	—
TB1-2	MCCB STAT NC	All MCCB's Open					
TB1-3	MCCB STAT NO	MCCB Closed					
TB2-3	Input	Trip BCB Input	5VDC	10mA	#22AWG	500ft. (150m)	—
TB2-1	Ground	Trip BCB COM					
TB1158-6	MIN NO	Minor Alarm NO	30VDC	1A	#22AWG	500ft. (150m)	Maintenance Alarm on UPS Display
TB1158-5	MIN NC	Minor Alarm NC					Maintenance Alarm on UPS Display
TB1158-4	MIN COM	Minor Alarm COM					Maintenance Alarm on UPS Display
TB1158-3	MAJ NO	Major Alarm NO					Critical Alarm on UPS Display
TB1158-2	MAJ NC	Major Alarm NC					Critical Alarm on UPS Display
TB1158-1	MAJ COM	Major Alarm COM					Critical Alarm on UPS Display

Table 3 Battery Interface Box specifications—UPSIBIX, UPSIBIN and UPSIBIR

Parameter	Values	
	UPSIBIX/UPSIBIN	UPSIBIR
DC Sense Volts, VDC	384-576	—
DC Sense Current, IDC	0.0002A	—
CAN Volts, VDC	24V	24V
CAN Maximum Current, IDC	2A	2A
UVR Volts, VDC	48V	—
Dry Contacts Volts, VDC (Auxiliary Contacts)	24V	24V
Dry Contacts Volts, VDC (Breaker Aux)	10mA	10mA
Mounting Hardware (supplied by others)	Must support 30 lb. (13.6kg)	Must support 30 lb. (13.6kg)
UVR Max Cont Current, IDC	100mA	—

TECHNICAL SUPPORT / SERVICE

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