TRICONEX

Tricon Version 9-10 Systems

Field Terminations Guide
for Tricon v9-v10 Systems

Assembly No. 9700052-018

IPS™
INVENSYS PROCESS SYSTEMS

February 2009

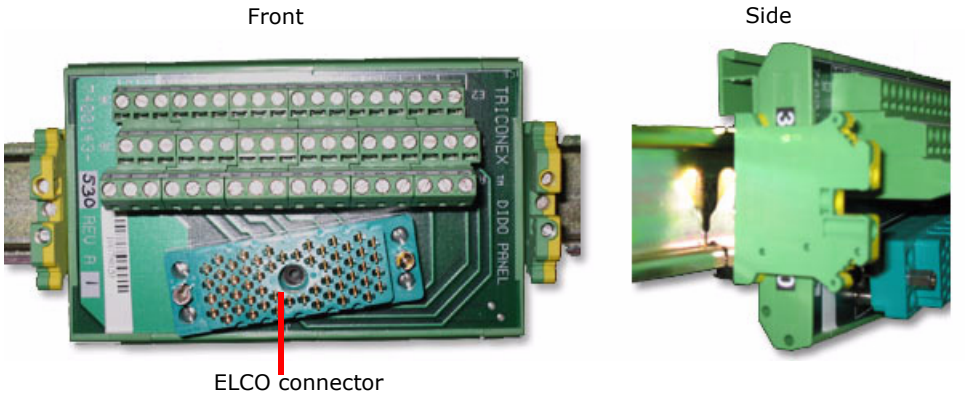
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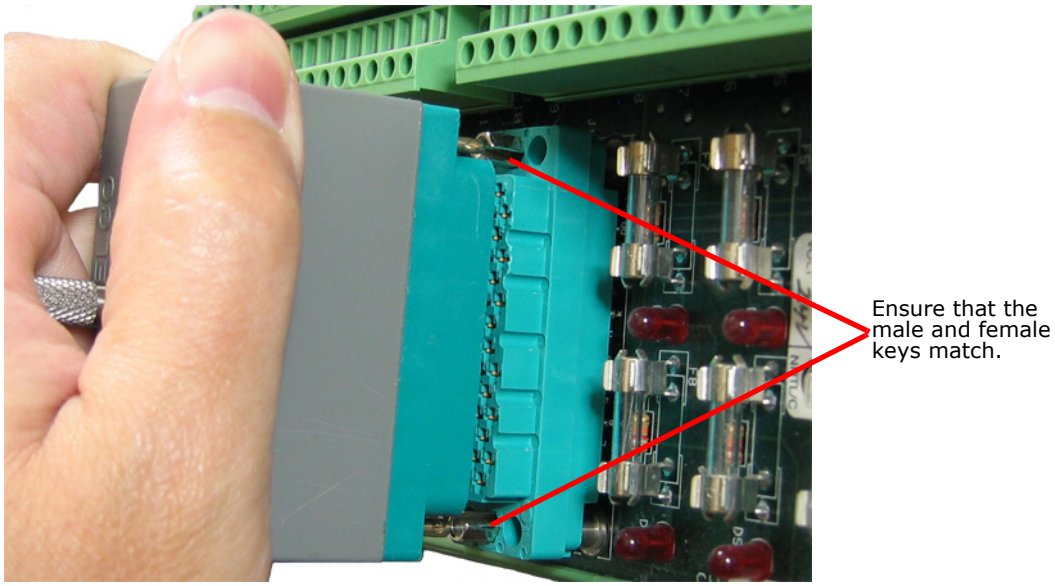
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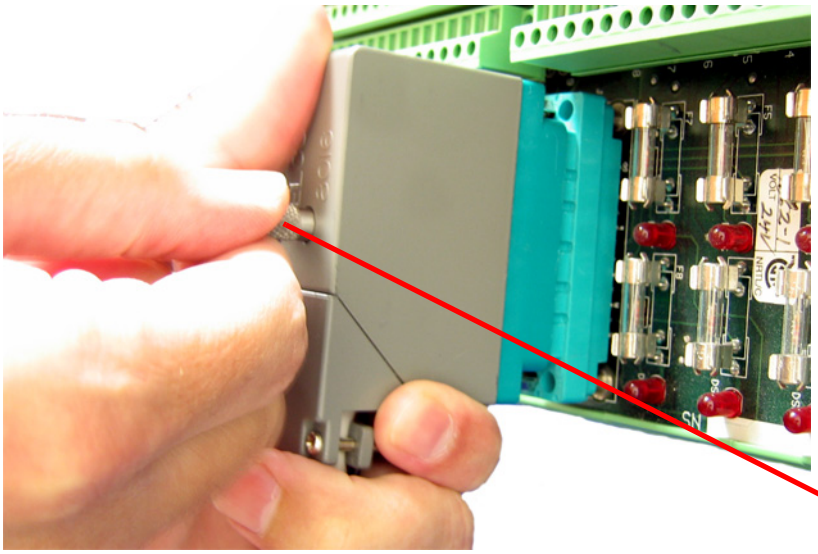


4 Attach one end of the interface cable to the ELCO connector on the termination panel.

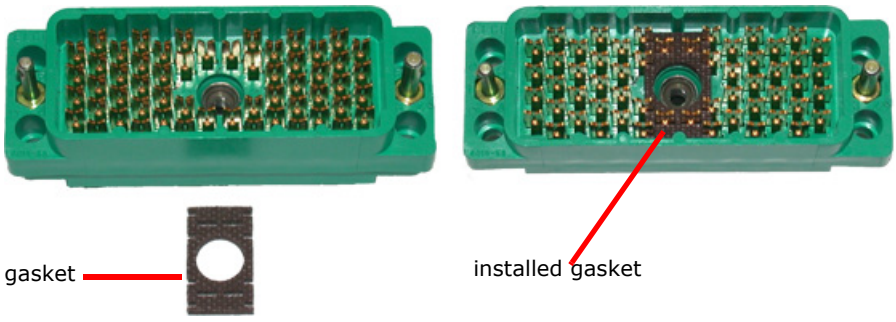
- Ensure that the mating surfaces of the ELCO connectors on the cable and the termination panel do not have any bent pins or other damage, and that both male and female keys match.
- Position the connector on the cable so that it is aligned with the connector on the termination panel.



- Mate the two connectors together until the threaded end of the thumbscrew is making contact with the nut in the female connector. You may need to slightly rock the connector on the cable while mating it to the connector on the termination panel.
- As you apply pressure to the top of the connector on the cable, use your other hand to turn the thumbscrew clockwise until the connectors are mated completely. The minimum torque requirement is 8.85 lb_f in (10.0 d-Nm).



WARNING You *must* use gasket 2000098-100 on the male side of all ELCO connectors used in ATEX installations, and replace it before the end of its five-year life span. Triconex *recommends* that you use the gasket in all hazardous locations requiring nonincendive circuits. (Order Triconex part number 3000793-001 for a kit of 25 gaskets.)



5. Attach the other end of the interface cable to the ELCO connector directly above the corresponding I/O module on the Tricon backplane in the same manner as you connected the cable to the termination panel, as described in step 4.
6. Attach the wires from your field devices to the screw terminals on the termination panel. See the Torque Specifications for Field Wiring Terminals section.
7. Perform a static check of the wiring.
8. If Tricon power was removed in step 1, restore power to the Tricon system.
9. Apply field power to the termination panel.
10. Verify that all I/O points are connected to the appropriate field devices and are operating correctly.

    Note To inspect input points and force output points, see the *Planning and Installation Guide for Tricon v9–v10 Systems*.

11. Load and test the control program using TriStation.

If the program operates as intended, you are ready to enable the process equipment according to the safety requirements for your environment.

If you need additional information on how to install external field termination panels, contact the IPS Global Client Support (GCS) center.

Torque Specifications for Field Wiring Terminals

Tighten the screws on the field wiring and power terminals of the ETPs in the list below to this torque:

4.425–5.310 lb_f in (0.3688–0.4425 lb_f ft) (0.5–0.6 Nm)

9551-110	9651-110	9664-110	9761-210	9787-110
9552-610	9652-610	9664-810	9761-410	9789-610
9553-610	9653-610	9667-110	9762-410	9790-610
9561-810	9661-610	9667-910	9762-210	9791-610
9561-110	9661-710	9667-610	9763-810	9792-610
9562-810	9661-110	9667-710	9765-210	9793-110
9563-810	9661-810	9667-810	9765-610	9794-110
9565-810	9661-510	9668-110	9766-210	9795-610
9565-710	9661-910	9750-410	9766-510	9853-610
9566-710	9662-110	9750-810	9771-210	9860-610
9566-810	9662-910	9750-210	9782-110	9861-610
9567-810	9662-610	9750-310	9783-110	9863-710
9570-610	9662-710	9753-110	9784-610	
9571-610	9662-810	9760-410	9785-610	
9572-610	9663-610	9760-210	9786-110	

9561-810 (115 V, commoned, 16 pts.)

Termination panel 9561–810 is compatible with 115 volt digital input modules and has 16 input points and commoned power terminals (PWR+ and PWR–). Each input point is protected by a fuse with a blown-fuse indicator.

The modules compatible with 9561–810 have 32 points, which means you must use two term panels for each digital input module.

Each term panel comes with two sets of labels: 1-16 and 17-32. For information on how to apply the labels, see Appendix F, Panel Labels.

Specifications

This table describes specifications for 9561–810.

Table 20 Specifications for Term Panel 9561-810

Feature	Description
Panel type	Commoned
Points	16
Leakage current per point	Maximum: 3.3 mA Typical: 2.5 mA

Compatible Modules

This table describes digital input modules compatible with 9561–810.

Table 21 Modules Compatible with 9561-810

Module Part Number	Points per Module	Module Description	Fuse
3501E	32	115 VAC/VDC, non-commoned, isolated, TMR	1A, slow
3501T	32	115 VAC/VDC, non-commoned, isolated, TMR	1A, slow

Field Wiring Diagrams

This figure illustrates how to connect a 32-point digital input module and a 9561–810 with a DC power supply to the field.

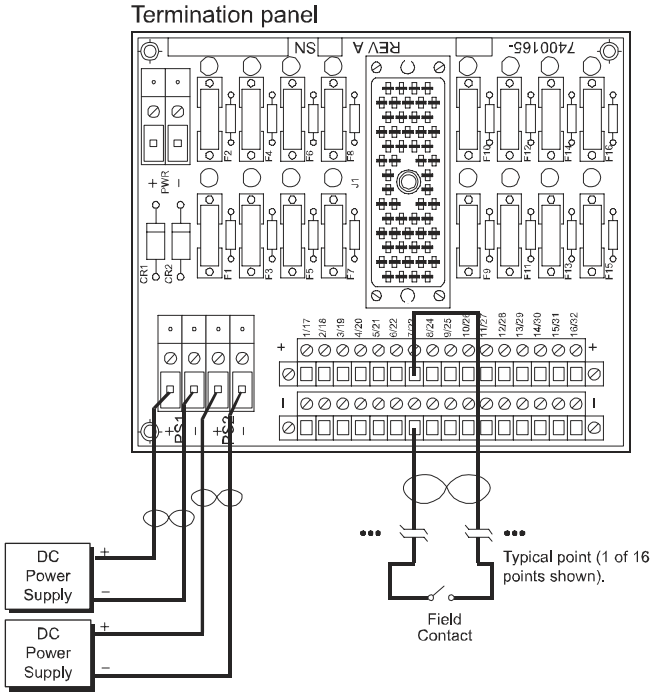


Figure 3 Field Wiring for 9561-810 with a 3501E or 3501T Module and a DC Power Supply

This figure illustrates how to connect a 32-point digital input module and a 9561-810 with an AC power supply to the field.

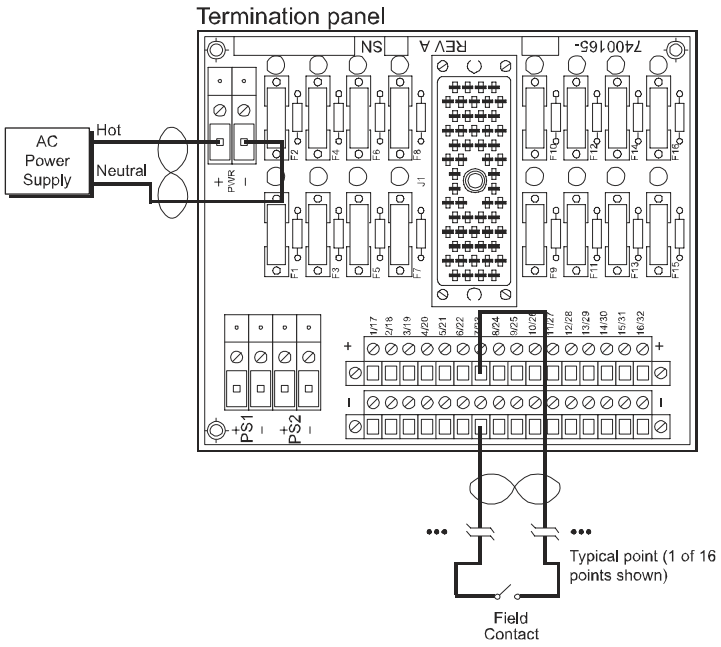
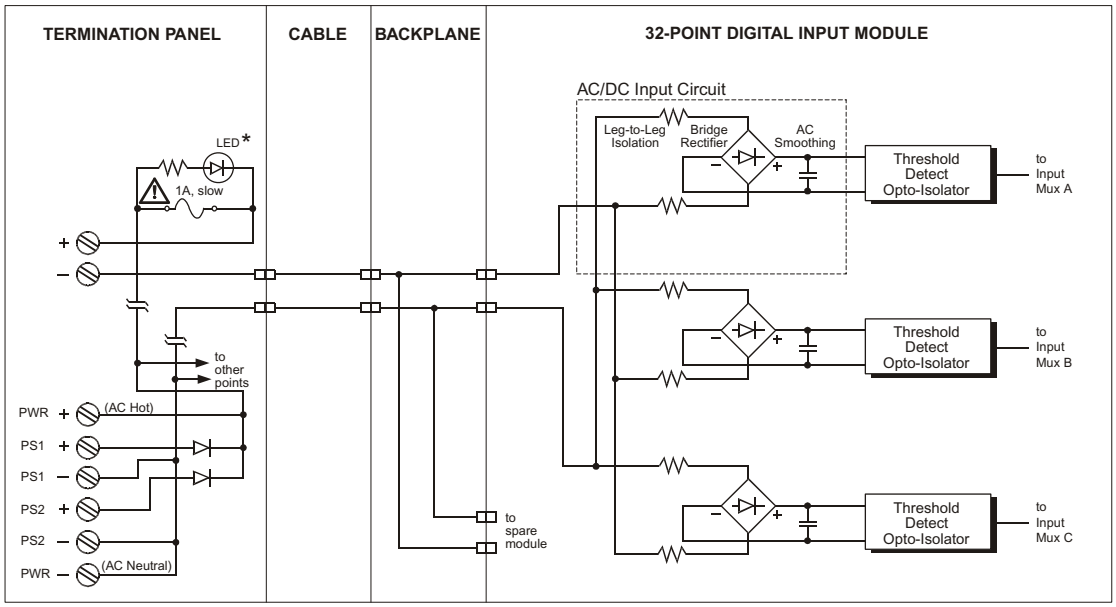


Figure 4 Field Wiring for 9561-810 with a 3501E or 3501T Module and an AC Power Supply

Simplified Schematics

This is a simplified schematic of a typical 32-point commoned digital input module with a commoned digital input panel (1 of 32 module points shown).



* LEDs are blown-fuse indicators

Figure 5 Simplified Schematic of a 3501E or 3501T DI Module with a 9561-810 Panel

9562-810 (48 V, commoned, 16 pts.)

Termination panel 9562–810 is compatible with 48 volt digital input modules and has 16 input points and commoned power terminals (PWR+ and PWR–). Each input point is protected by a fuse with a blown-fuse indicator.

The modules compatible with 9562–810 have 32 points, which means you must use two term panels for each digital input module.

Each term panel comes with two sets of labels: 1-16 and 17-32. For information on how to apply the labels, see Appendix F, Panel Labels.

Specifications

This table describes specifications for 9562–810.

Table 22 Specifications for Term Panel 9562-810

Feature	Description
Panel type	Commoned
Points	16
Leakage current per point	Maximum: 3.5 mA Typical: 2.0 mA

Compatible Modules

This table describes digital input modules compatible with 9562–810.

Table 23 Modules Compatible with 9562-810

Module Part Number	Points per Module	Module Description	Fuse
3502E	32	48 VAC/VDC, commoned in groups of 8, TMR with self-test	1A, slow

Field Wiring Diagrams

This figure illustrates how to connect a 32-point digital input module and a 9562–810 to the field.

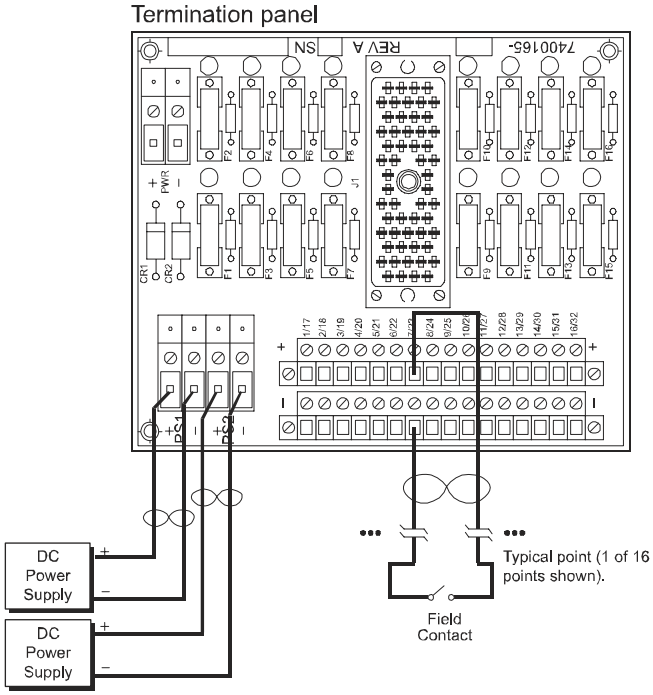
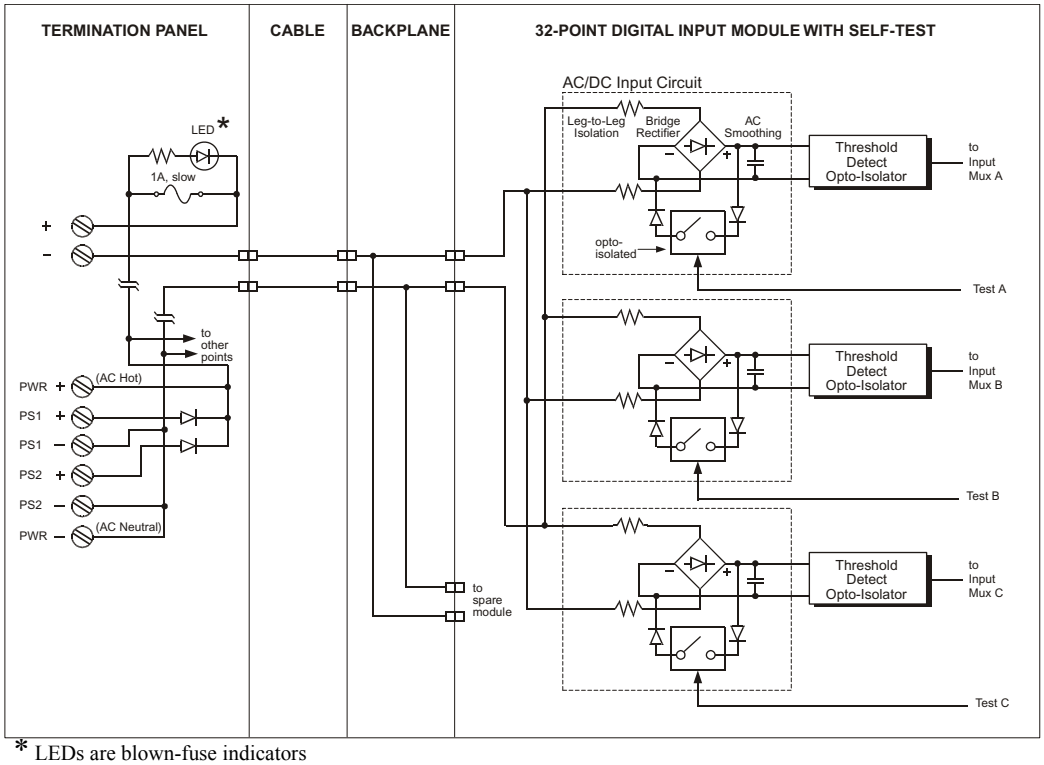


Figure 6 Field Wiring for 9562-810 with a 3502E Module

Simplified Schematics

This is a simplified schematic of a typical 32-point commoned digital input module with self-test (1 of 32 module points shown).



* LEDs are blown-fuse indicators

Figure 7 Simplified Schematic of a 3502E DI Module with a 9562-810 Panel

9662-610 (24 VDC, commoned, 16 pts.)

Termination panel 9662–610 is compatible with 24 VDC digital output modules and has 16 load terminals and commoned power terminals (PWR+ and PWR–).

CAUTION Use termination panel 9662-610 with self-protected modules only.

When using 32-point modules, you must use two term panels for each digital output module. Each term panel comes with two sets of labels: 1-16 and 17-32. For information on how to apply the labels, see Appendix F, Panel Labels.

Specifications

This table describes specifications for 9662–610.

Table 67 Specifications for Term Panel 9662-610

Feature	Description
Panel type	Commoned
Points	16
Maximum total current[1]	16 amps

1. When the 9662-610 panel is used with the Model 3625 DO Module, the maximum total current is 10 amps per termination panel to limit the power dissipation of the module.

Compatible Modules

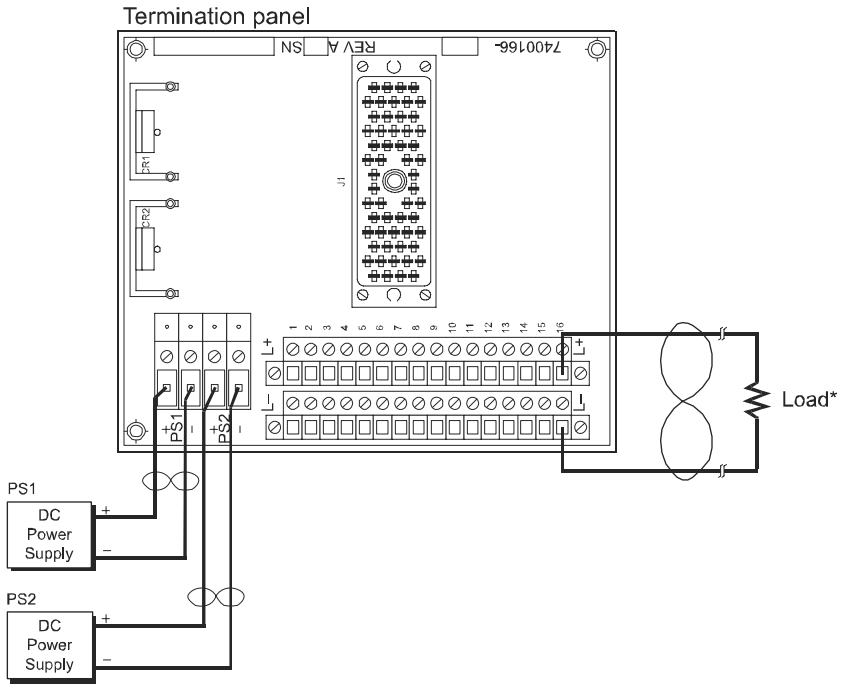
This table describes digital output modules compatible with 9662–610.

Table 68 Modules Compatible with 9662-610

Module Part Number	Points per Module	Module Description
3624	16	24 VDC, commoned, supervised, opto-isolated, self-protected, TMR
3625	32	24 VDC, commoned, supervised/non-supervised, opto-isolated, self-protected, TMR
3664	32	24 VDC, commoned, opto-isolated, self-protected, dual
3674	32	24 VDC, commoned, opto-isolated, self-protected, dual

Field Wiring Diagrams

This figure illustrates how to connect a 16-point or 32-point supervised DC digital output module with self protection and a 9662-610 to the field (1 of 16 points shown).



* When using a Model 3624 or 3625 module, a load must be installed at every point to prevent missing-load alarm. If a field load is not available, install a 470 ohm, 10 W load resistor.

Figure 73 Field Wiring for 9662-610 with a 3624 or 3625 Module

This figure illustrates how to connect a 32-point DC dual digital output module with self protection and a 9662-610 to the field (1 of 32 points shown).

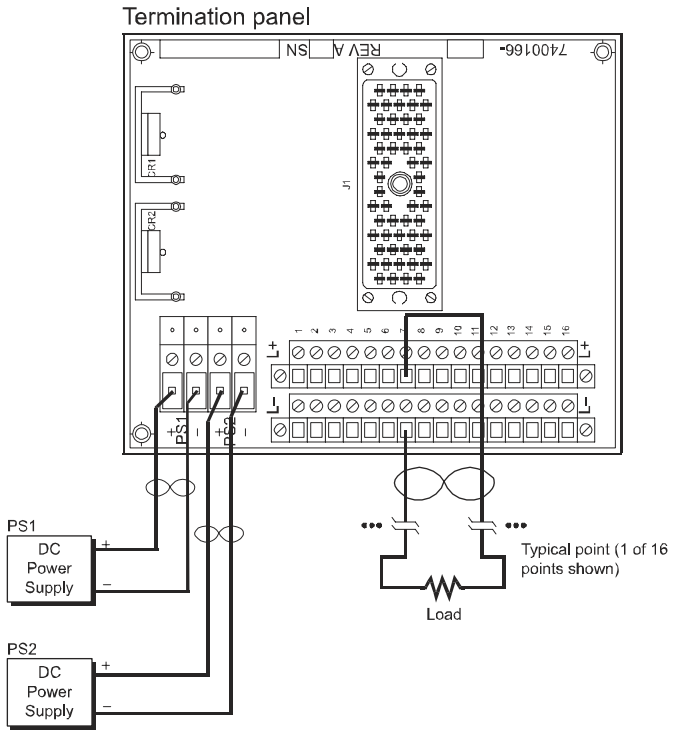


Figure 74 Field Wiring for 9662-610 with a 3664 or 3674 Module

This table describes the dimensions of each external termination panel (ETP).

Table 220 Panel Dimensions

Panel Model	Width (across DIN rail)	Length (along DIN rail)	Height (out from DIN rail)
9251-210	7 in (17.78 cm)	19 in (48.26 cm)	4.75 in (12.065 cm)
9551-110	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9552-610	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9553-610	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9561-110	4.5 in (11.43 cm)	7.75 in (19.685 cm)	4.25 in (10.795 cm)
9561-810	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9562-810	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9563-810	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9563-910	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9565-710	4.5 in (11.43 cm)	10 in (25.4 cm)	4.25 in (10.795 cm)
9565-810	4.5 in (11.43 cm)	10 in (25.4 cm)	4.25 in (10.795 cm)
9566-710	4.5 in (11.43 cm)	10 in (25.4 cm)	4.25 in (10.795 cm)
9566-810	4.5 in (11.43 cm)	10 in (25.4 cm)	4.25 in (10.795 cm)
9567-810	4.5 in (11.43 cm)	10 in (25.4 cm)	4.25 in (10.795 cm)
9570-610	4.42 in (11.23 cm)	9.88in (25.08 cm)	4.25 in (10.795 cm)
9571-610	4.42 in (11.23 cm)	9.88 in (25.08 cm)	4.25 in (10.795 cm)
9572-610	4.42 in (11.23 cm)	5.02 in (12.75 cm)	4.25 in (10.795 cm)
9651-110	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9652-610	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9653-610	3 in (7.62 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9661-110	4.5 in (11.43 cm)	7.75 in (19.685 cm)	4.25 in (10.795 cm)
9661-510	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9661-610	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9661-710	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9661-810	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9661-910	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9662-110	4.5 in (11.43 cm)	7.75 in (19.685 cm)	4.25 in (10.795 cm)
9662-610	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9662-710	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)
9662-810	4.5 in (11.43 cm)	5 in (12.7 cm)	4.25 in (10.795 cm)

G

Part Number Cross-Reference

This table identifies the ETA part number and cable part number for each termination panel model number.

Table 221 Part Number Cross-Reference

Model #	ETA	Cable
9551-110	3000400-160	4000093-110
9552-610	3000400-260	4000093-210
9553-610	3000400-360	4000093-310
9561-110	3000560-110	4000093-110
9561-810	3000510-180	4000093-110
9562-810	3000510-280	4000093-210
9563-810	3000510-380	4000093-310
9563-910	3000510-390	4000093-310
9565-710	3000530-280	4000093-210
9565-810	3000540-280	4000093-210
9566-710	3000530-380	4000093-310
9566-810	3000540-380	4000093-310
9567-810	3000530-180	4000093-110
9570-610	3000768-370	4000165-310
9571-610	3000768-390	4000165-310
9572-610	3000771-380	4000165-310
9651-110	3000410-160	4000094-110
9652-610	3000410-260	4000094-210
9653-610	3000410-360	4000094-310
9661-110	3000570-110	4000094-110
9661-510	3000550-160	4000094-110

Table 221 Part Number Cross-Reference *(continued)*

Model #	ETA	Cable
9661-610	3000520-160	4000094-110
9661-710	3000520-190	4000094-110
9661-810	3000550-180	4000094-110
9661-910	3000520-180	4000094-110
9662-110	3000570-310	4000094-310
9662-610	3000520-390	4000094-310
9662-710	3000550-390	4000094-310
9662-810	3000520-380	4000094-310
9662-910	3000550-380	4000094-310
9663-610	3000725-160	4000094-110
9664-110	3000726-110	4000094-110
9664-810	3000520-170	4000094-110
9667-110	3000570-710	4000094-210
9667-610	3000520-290	4000094-210
9667-710	3000520-260	4000094-210
9667-810	3000520-280	4000094-210
9667-910	3000550-280	4000094-210
9668-110	3000590-110	4000094-110
9670-110	3000290-110	4000111-110
9670-610	3000290-160	4000111-110
9671-610	3000769-390	4000166-310
9671-810	3000290-380	4000111-310
9672-810	3000290-280	4000111-210
9673-810	3000290-181	4000111-110
9750-210	3000420-120	4000093-510
9750-310	3000420-310	4000093-310
9750-410	3000420-410	4000093-210
9750-810	3000420-180	4000093-510
9753-110	3000400-510	4000103-510
9760-210	3000470-510	4000093-510
9760-410	3000470-530	4000093-510
9761-210	3000510-510	4000103-510

Table 221 Part Number Cross-Reference *(continued)*

Model #	ETA	Cable
9761-410	3000510-530	4000103-510
9762-210	3000510-560	4000103-510
9762-410	3000510-580	4000103-510
9763-810	3000580-110	4000103-510
9764-310	3000712-200	4000103-510
9765-210	3000475-520	4000093-510
9765-610	3000580-230	4000103-510
9766-210	3000580-210	4000103-510
9766-510	3000580-220	4000103-510
9771-210	3000656-210	4000103-510
9782-110	3000767-280	4000142-510
9783-110	3000767-160	4000142-510
9784-610	3000767-220	4000164-510
9785-610	3000767-210	4000164-510
9786-110	3000767-230	4000164-510
9787-110	3000767-110	4000164-510
9789-610	3000768-510	4000165-510
9790-610	3000771-560	4000142-510
9791-610	3000771-510	4000164-510
9792-610	3000772-660	4000103-510
9793-110	3000767-115	4000164-510
9794-110	3000767-165	4000142-510
9795-610	3000771-460	4000142-510
9853-610	3000400-530	4000098-510
9860-610	3000770-610	4000157-510
9861-610	3000770-560	4000163-510
9863-710	1600049-010 1600049-100	4000098-510
9871-810	3000818-560	4000163-510

Table 222 Minimum Bend Radiuses of Cables *(continued)*

Triconex Cable Assembly Number	Minimum Bend Radius of Cable
4000100-310	5 in (12.7 cm)
4000101-310	4.5 in (11.43 cm)
4000102-x10	5 in (12.7 cm)
4000103-510	6.25 in (15.875 cm)
4000104-x10	4.6 in (11.684 cm)
4000107-x0x	3.5 in (8.89 cm)
4000109-x10	5.6 in (14.224 cm)
4000110-x10	4.6 in (11.684 cm)
4000111-x10	5.6 in (14.224 cm)
4000112-x10	5 in (12.7 cm)
4000113-x10	5 in (12.7 cm)
4000114-510	6 in (15.24 cm)
4000115-x10	5.6 in (14.224 cm)
4000116-510	5.5 in (13.97 cm)
4000117-110	5.6 in (14.224 cm)
4000118-510	5.5 in (13.97 cm)
4000120-510	6 in (15.24 cm)
4000121-010	5.5 in (13.97 cm)
4000122-x10	5.6 in (14.224 cm)
4000123-310	5.6 in (14.224 cm)
4000126-110	5.6 in (14.224 cm)
4000127-510	5.5 in (13.97 cm)
4000128-510	5.5 in (13.97 cm)
4000129-510	5.5 in (13.97 cm)
4000139-010	7.4 in (18.796 cm)
4000140-x10	6.6 in (16.764 cm)
4000141-x10	6.6 in (16.764 cm)
4000142-x10	8.1 in (20.574 cm)
4000143-x10	5.5 in (13.97 cm)
4000144-x10	6.6 in (16.764 cm)
4000147-510	7.4 in (18.796 cm)
4000150-510	7.4 in (18.796 cm)