

XL 800 Series FOR SMOKE CONTROL

HONEYWELL EXCEL 5000 OPEN SYSTEM

INSTALLATION AND COMMISSIONING INSTRUCTIONS

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Trademark Information

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WARNING

This equipment generates, uses, and can radiate radio frequency energy, and if not installed and used in accordance with the instructions manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures may be required to correct the interference. Any unauthorized modification of this equipment may result in the revocation of the owner's authority to continue its operation.

General

The XL800 Series is designed to provide heating, ventilating and air-conditioning control. They can operate either standalone, or networked to Honeywell central workstations such as EBI. These controllers can also be used for smoke control system monitoring and control, for monitor and control of fire (UL864), and general purpose signaling (UL2017). In UL 2017 applications, the product can be used as a type NM (Non-Monitored) system. It is also approved for UL916 (Energy Management Equipment.)

The XL800 Series can be used for smoke control applications when used in conjunction with a UL listed fire alarm control panel (FACP) and UL listed fire fighters' smoke control station (FSCS).

Before Installation

1. Unpack door and remove the XL800 from carton. Check equipment and report any damage to a Honeywell representative.
2. Verify cabinet is installed correctly.
3. Securely mount the XL800 to a rigid structural surface using at least four sets of 1/4 in. (6 mm) mounting hardware (supplied locally).

NOTE: Anchoring materials must be suitable for the mounting surface (wood, concrete, steel). Mounting must comply with all local codes.

4. Obtain correct number and type of sheet metal screws for subpanel. Installation of a full-size subpanel requires six no. 10 x 1/2-inch (13 mm) sheet metal screws (not supplied). Installation of a smaller subpanel requires four no. 10 x 1/2-inch (13 mm) sheet metal screws (not supplied).
5. Obtain 14505159-001 Tamper Switch per job requirements. Installation of Tamper Switch is optional.

Installation

Mount controller subpanel in cabinet so all labeling is visible. Secure full-size subpanel in place with six no. 10 x 1/2-inch (13 mm) sheet metal screws (not supplied). Secure smaller subpanel with four no. 10 x 1/2-inch (13 mm) sheet metal screws (not supplied).

NOTE: Subpanel must mount flat and should not bulge or recess anywhere.

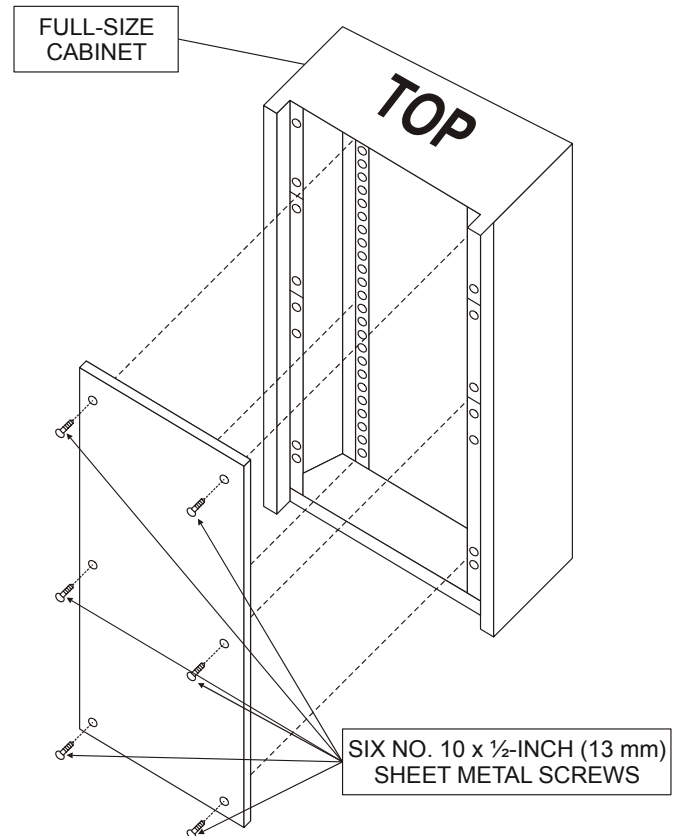


Fig. 1. Mounting controller subpanel in cabinet (full-size subpanel cabinet shown)

Wiring

All wiring to the XL800 controller is unsupervised, except as noted.

All circuits are power limited, except for AC power circuits, relay contacts and other circuits as noted.

All field wiring terminals accept 24 AWG to 14 AWG (0.25 mm² to 2 mm²) conductors except as noted.

All wiring must conform to local codes, ordinances, and regulations. Refer to job drawings for details.

Verify that the voltage difference between any conductor and earth ground does NOT exceed 150 Vac.

1. Connect input/output device wiring, C-Bus transmission wiring (minimum 18 gage [0.8012 sq mm]), LON Bus transmission wiring, and 14507063 Power Cable to Controller per job drawings. Fig. 2 and Fig. 3 show typical controller wiring. Four Power Module models are available (see Table 2).
2. Connect line voltage to Terminals H and N of the 14507287 Power Module. Connect a good earth ground to Terminal G of the Power Module. Fig. 5 through Fig. 7 show typical power wiring.
3. For Power Modules -001 through -007, leave power to Power Supply and Controller OFF. Connect 14507063 Power Cable from Controller to Power Module.

WARNING

Risk of electric shock or equipment damage!

- ▶ Subpanel and Controller power must remain OFF until Controller is checked.

4. Install optional Tamper Switch on cabinet per instructions in the cabinet installation instructions. Wire Tamper Switch per job drawings.
5. Mount cabinet door.

CAUTION

Risk of electric equipment damage! Excessive static can burn out equipment.

- ▶ Observe proper anti-static material handling practices when installing or servicing PC parts and related components.
- ▶ Observe proper equipment and body grounding practices.
- ▶ Discharge static electricity from your body before handling parts.

Table 1. Connector terminal specifications

connector terminal	pin	signal type	input / output	voltage type	max. voltage	max. current	max. frequency	max. line impedance
analog input		AI	input	SIGNAL	±12 V	±20 mA	9600 baud	8K ohms
digital input		DI	input	SIGNAL	±10 V	±20 mA	--	15K ohms
analog output		AO	output ⁽¹⁾	SIGNAL	±10 V	±20 mA	9600 baud	8K ohms
digital output		DO	output ⁽²⁾	AC/DC	±24 VAC/DC	±50 mA	--	10K ohms
totalizer output		TI	input	SIGNAL	±12 V	±12 mA	100 Hz	
signal ground		GND	--	--	--	--	--	--
J1 RS-485 (C-BUS) ⁽³⁾	1	+A	input / output	SIGNAL	±5 V	1 mA / 180 mA	9600 baud	100 ohms
	2	-A	input / output	SIGNAL	±5 V	1 mA / 180 mA	9600 baud	100 ohms
	3S	Shield A	--	--	--	--	--	--

⁽¹⁾ special application; ⁽²⁾ regulated; ⁽³⁾ supervised

Table 2. Power module models

model	transformer max. input			(48 VA) controller VAC output	accessory output	convenience outlet
	Vac	current draw	Hz			
14507287-001	120	0.5 A	60	24		120 Vac, 10A
14507287-002	120	1.7 A	60	24	24 Vac, 100 VA, 24 Vac, 40 VA	120 Vac, 10A
14507287-003	120	1.7 A	60	24	24 Vac, 100 VA, 24 Vdc, 600 mA	120 Vac, 10A
14507287-007	120	120 A	60	24	--	--

XL800 Series Power Consumption

When selecting the appropriate power supply, the power consumption of the XL800 modules must be taken into account.

Table 3. XL800 power consumption

model	max. power consumption	
	24 Vac, 60 Hz	24 Vdc
XCL8010AU with watchdog load	690 mA	640 mA
XCL8010AU without watchdog load	190 mA	140 mA
XF821AU, XFL821AU	130 mA	80 mA
XF822AU, XFR822AU, XFL822AU, XFLR822AU	160 mA	90 mA
XF823AU, XFL823AU	180 mA	130 mA
XF824AU, XFR824AU, XFL824AU, XFLR824AU	140 mA	90 mA
XFR825AU	140 mA	90 mA

I/O Modules

Variants of I/O Modules

There are two variants of I/O modules:

- Panel Bus I/O modules with communication via Panel Bus (light-gray housings)
Modules are automatically commissioned (with firmware download) by the XCL8010AU
- LONWORKS Bus I/O modules (dark-gray housings) with communication via LONWORKS (FTT10-A, link power compatible) for easy integration and use with 3rd-party controllers

Terminal Sockets

I/O modules are mounted on the appropriate terminal sockets. Panel Bus I/O modules and LONWORKS Bus I/O modules use the same terminal sockets.

Color Coding

To distinguish modules and components, the following color coding is used:

Table 4. Color coding of Excel 800 Modules

color	part
red	All of the user-accessible adjustable mechanical parts (i.e., bridge connectors and locking mechanism) and operating controls (manual overrides, etc.)
light-gray	Panel Bus I/O modules
dark-gray	LONWORKS Bus I/O modules

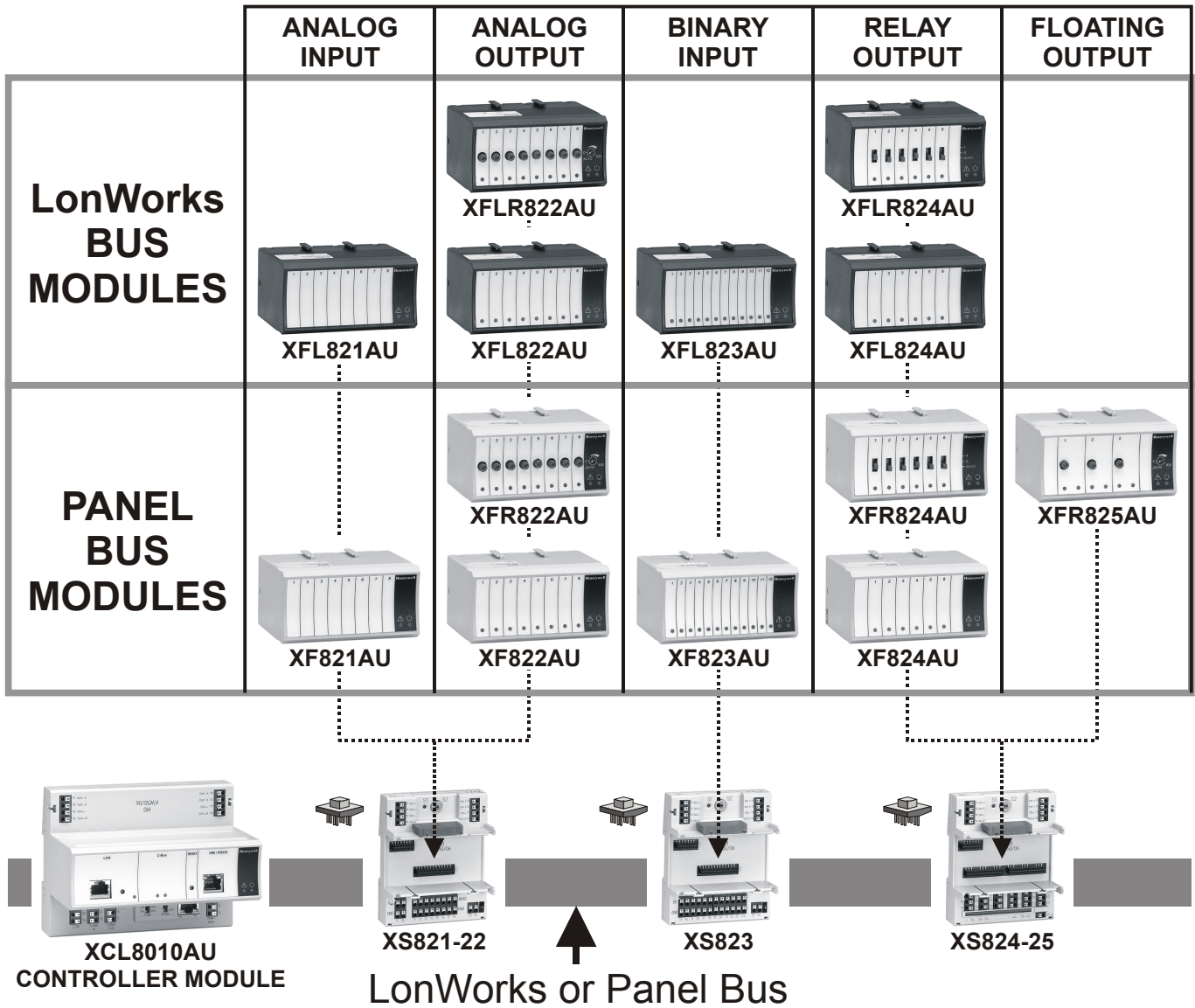


Fig. 2. Overview of I/O modules and terminal sockets

Description of the XCL8010AU Controller Module Overview

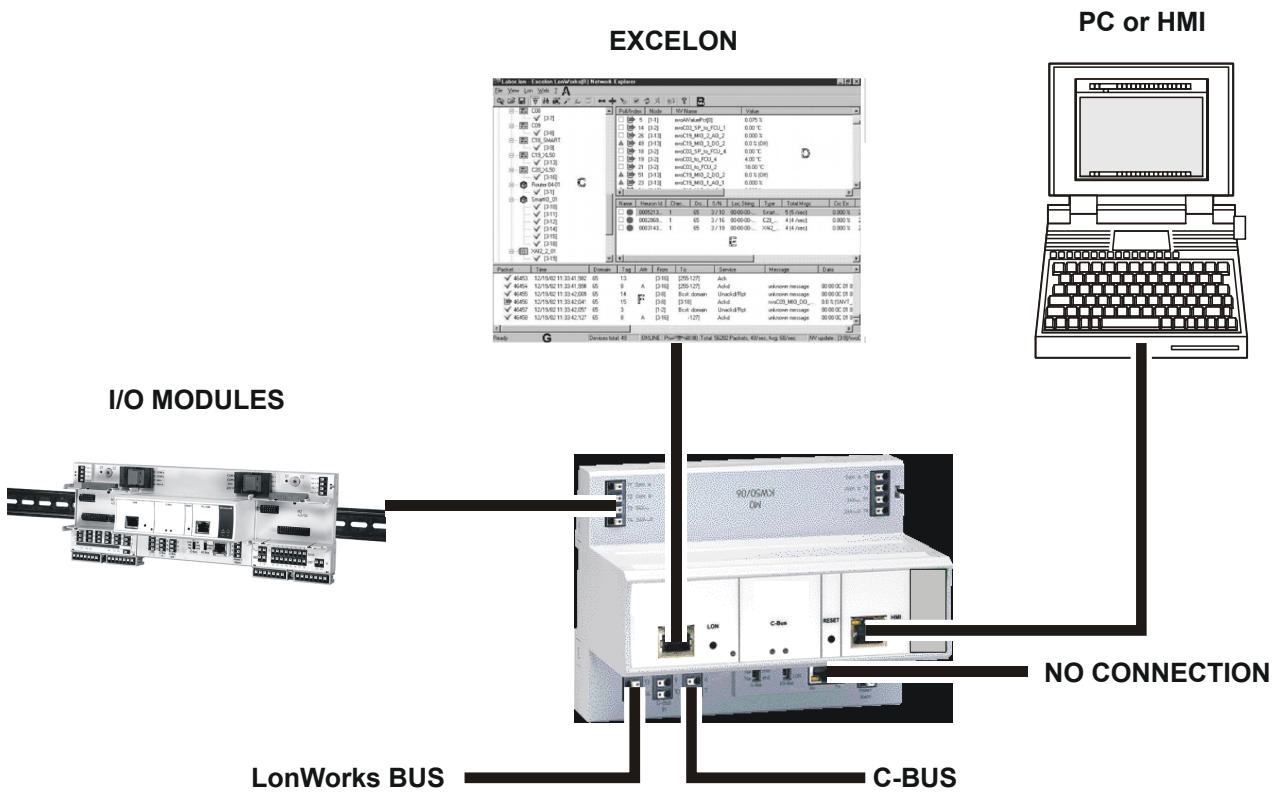


Fig. 3. Connections to the XCL8010AU Controller

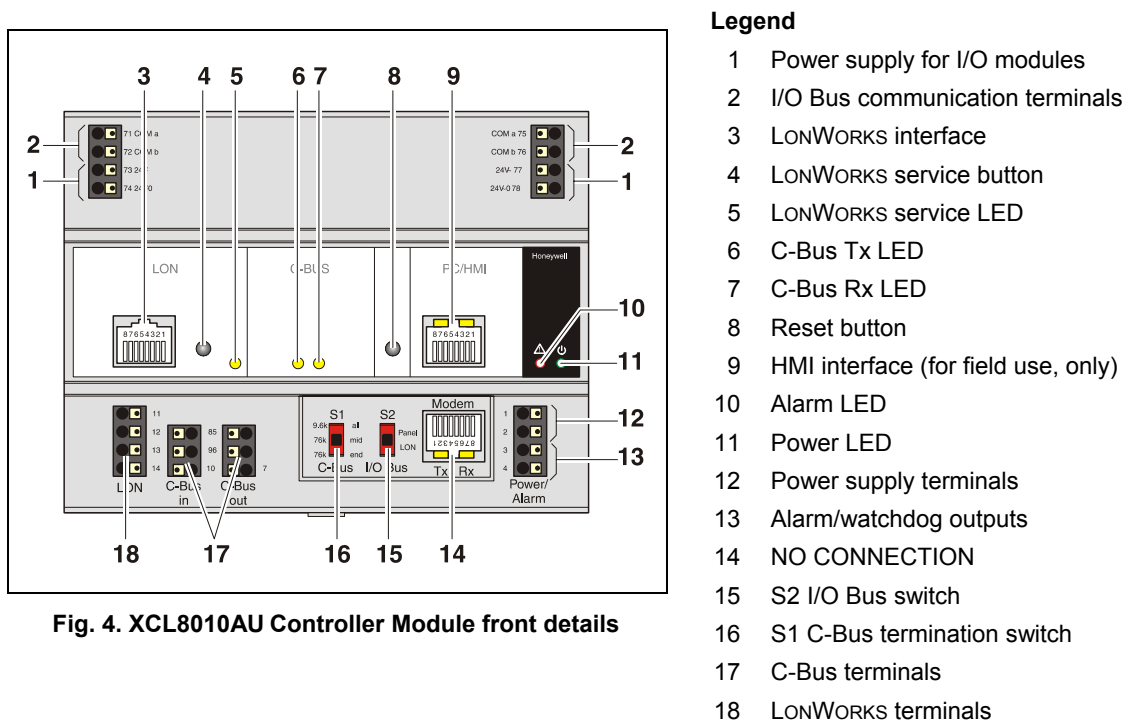


Fig. 4. XCL8010AU Controller Module front details

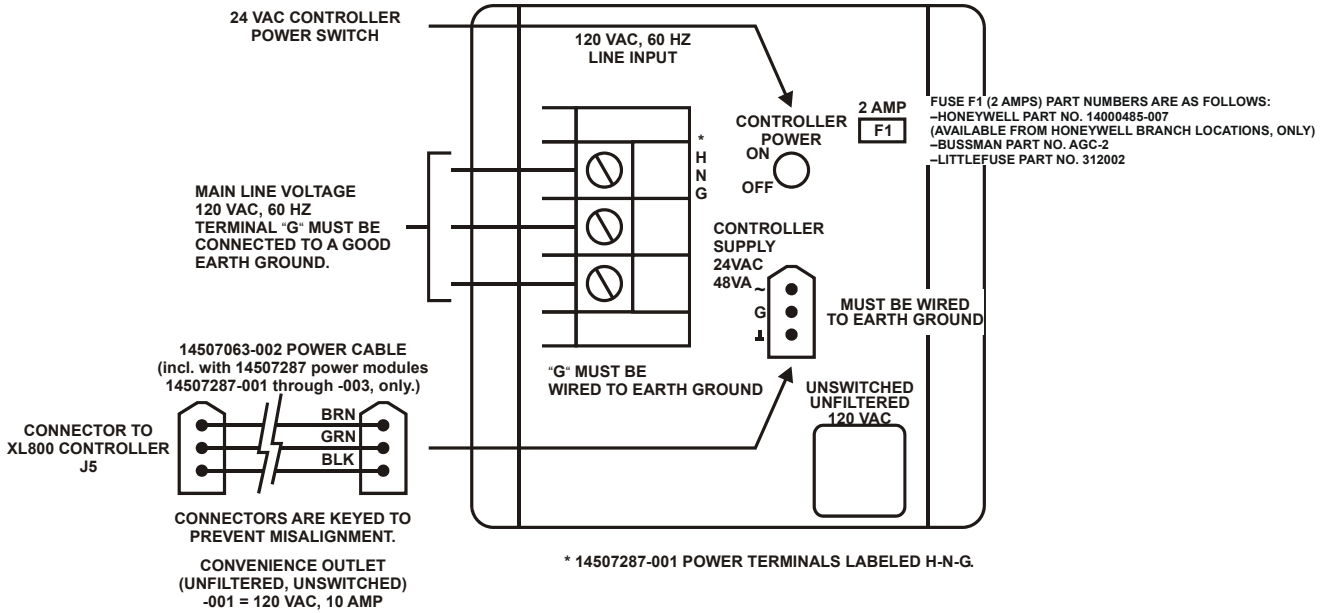


Fig. 5. Typical 14507287-001 Power Module wiring

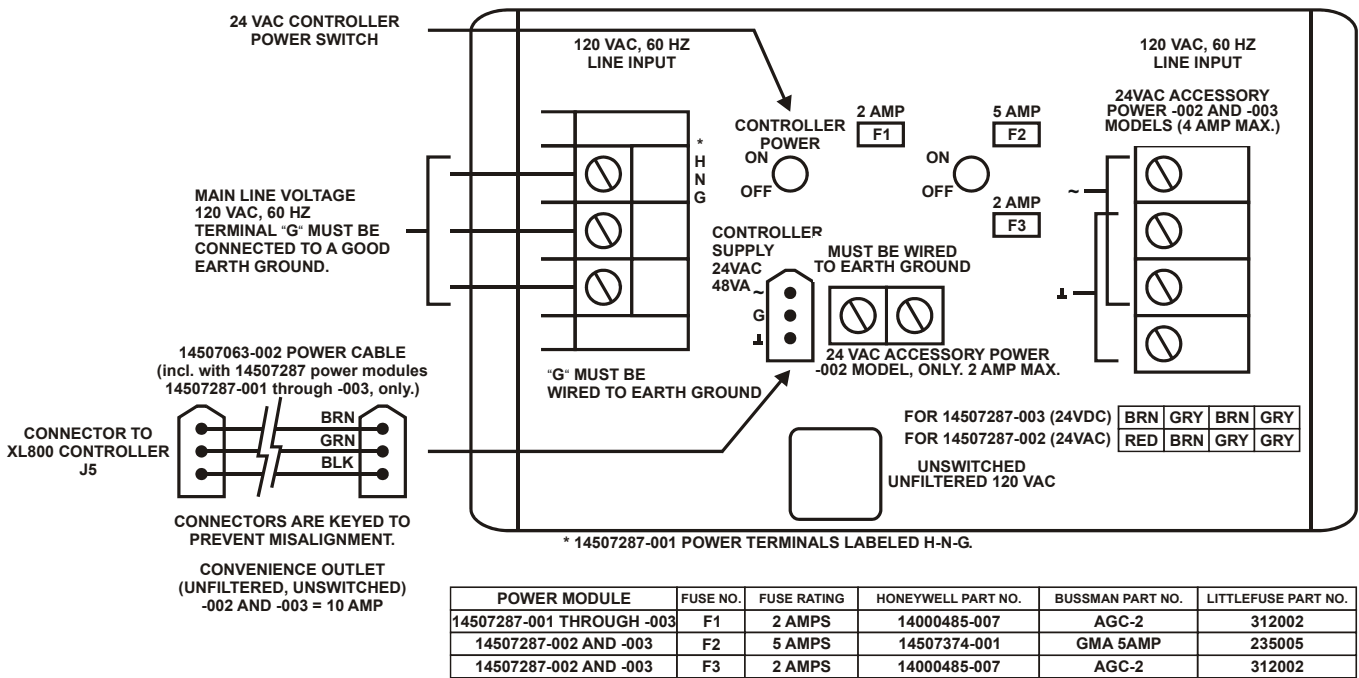
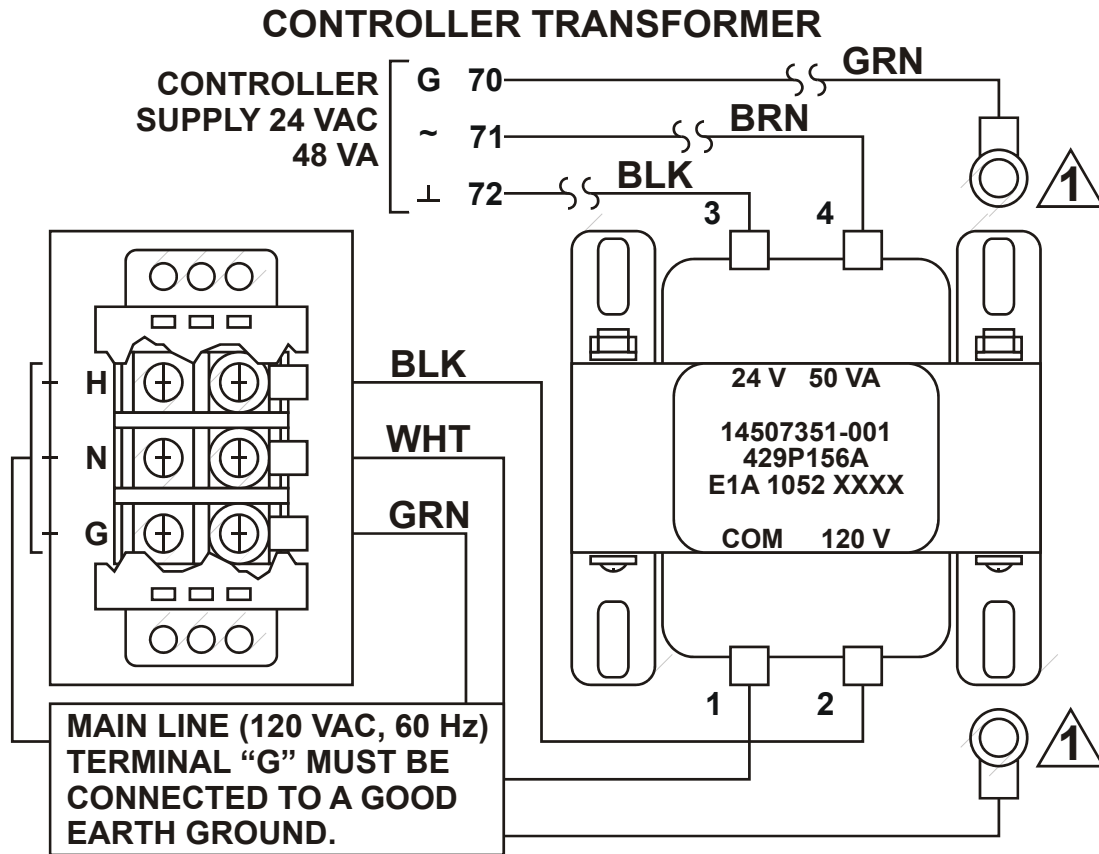


Fig. 6. Typical 14507287-002, -003 Power Module wiring



1 MECHANICALLY SECURED TO SUBPANEL WITH MOUNTING SCREW

Fig. 7. Typical 14507287-007 Power Module wiring

I/O Module Overview

Table 5. Overview of I/O modules

Panel Bus module	LONWORKS Bus module	description	inputs	outputs	manual controls	LEDs ¹⁾
XF821AU	XFL821AU	Analog Input Module	8	–	–	–
XF822AU	XFL822AU	Analog Output Module	–	8	–	8 status LEDs
XFR822AU	XFLR822AU	Analog Output Module	–	8	8 manual overrides	8 status LEDs
XF823AU	XFL823AU	Binary Input Module	12	–	–	12 status LEDs
XF824AU	XFL824AU	Relay Output Module	–	6 ²⁾	–	6 status LEDs
XFR824AU	XFLR824AU	Relay Output Module	–	6 ²⁾	6 manual overrides	6 status LEDs
XFR825AU	–	Floating Output Module	–	3	3 manual overrides	3 pairs of status LEDs

¹⁾ In addition to the power LED and service LED

²⁾ Changeover outputs

Corresponding Terminal Sockets

Table 6. I/O modules and corresponding terminal sockets

I/O module	socket	scope of delivery
XF821AU, XFL821AU	XS821-22	1 terminal socket, 1 bridge connector 1 swivel label holder
XF822AU, XFL822AU, XFLR822AU, XFR822AU		
XF823AU, XFL823AU		
XF824AU, XFL824AU, XFLR824AU, XFR824AU	XS824-25	1 terminal socket, 1 bridge connector 1 swivel label holder 1 long cross connector
XFR825AU		

Interfaces and Bus Connections

The Excel 800 System can be connected to the following devices and systems:

Panel Bus

- For communication with up to 16 Panel Bus I/O modules
- Polarity-insensitive

LonWorks Bus

- For communication with other LONWORKS Bus devices within the building
- FTT10, link power compatible
- Polarity-insensitive

C-Bus

- For communication with other controllers

HMI

- For connecting an operator interface, e.g., XI582 or a laptop, e.g., for CARE

Modem

- NO CONNECTION

Technical Data

System Data

Table 7. System data

Operating voltage	24 VAC/DC, 60 Hz
Power consumption	Max. 3.57 A (1 XCL8010AU Controller + 16 I/O modules)

Operational Environment

Table 8. Operational environment

ambient operating temperature	0 – 49 °C (32 – 122 °F)
ambient operating humidity	5 – 93 % rel. humidity (non-condensing)
ambient storage temperature	–20 – +70 °C (–4 – +158 °F)
ambient storage humidity	5 – 95 % rel. humidity (non-condensing)

Smoke Control Configuration

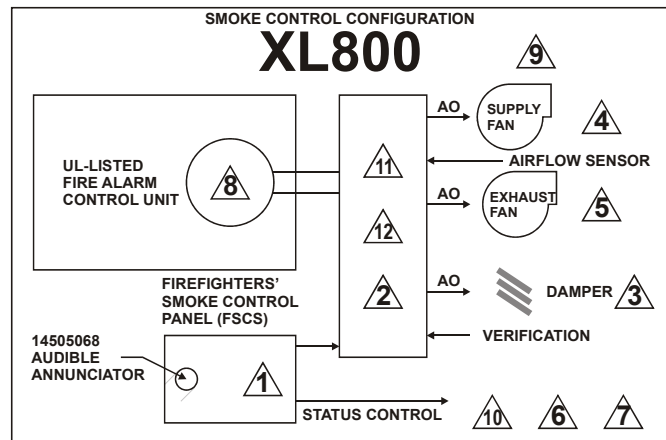


Fig. 8. Typical smoke control configuration

NOTES:

- 1 Locate and configure per NFPA 92A, Section 3-4.3.4. UL-listed annunciator / FSCS panel switches have a minimum rating of 24 V, 1/10 Amp, and lamps / LEDs have a rating of 24 V, limited to 50 mA.
- 2 Locate so as to minimize control wiring and piping. Avoid running wires or piping through areas that have a high fire risk.
- 3 Locate per UL 555S.

- 4 Locate separate from and below all building exhaust fans and upstream of any prevailing winds.
- 5 Exhaust to outside of building.
- 6 Locate airflow differential switch.
- 7 Locate UL-listed damper pressure / position indicator per damper installation instructions.
- 8 Smoke control must be initiated by a listed fire alarm control unit or in zone automatic alarm devices and not devices located outside of the smoke control zone. Interconnecting wiring must be within 20 ft. (6 meters) and in conduit.
- 9 Refer to NFPA 92A.
- 10 Verify that the AC voltage source connected to the inside of the main line voltage terminal block is from a UL-1481 listed uninterruptible power supply. The main line voltage terminal block maximum current draw is 0.5 A. For 220/240 VAC (60 Hz) applications, verify that no potential between any conductor and the earth ground exceeds 150 VAC.
- 11 All external LONWORKS bus field wiring must be limited to 4000 ft. (1200 meters) and be terminated to 14506944-001 transient protector (35 V, 290 mA max.) except C-Bus field wiring communicating at 1 MHz, which uses 14502412-014 transient protector (19 V, 500 mA).
- 12 Panel Bus wiring must be in the same enclosure or less than 20 ft. to adjacent enclosure. No protection is required.

Data File Set-Up

Generate the engineering data file for the XL800 Series Controllers. This data file has a mix of hardware points for the necessary inputs and outputs to control fans, dampers, and other equipment. In addition to the inputs and outputs, a custom control program is written to control the outputs per the sequence. The XL800 controllers can reset the program once the data from the operator interface indicates a normal condition for the dedicated smoke control equipment. Wire conditions must be programmed to provide annunciation of trouble conditions.

Also required for a dedicated application for the XL800, is a weekly time program to test control points, fans, and dampers by exercising the equipment and verifying feedback automatically during low building activity periods.

Panel Reset

When in Smoke Control Mode, panel reset is accomplished by resetting the initiating panel contact circuit or by the separate initiating/reset switch on the FSCS panel.

CAUTION

Risk of electric equipment damage!

- ▶ Failure to use listed/approved replacement parts can damage product, degrade operation and result in loss of safety function.
- ▶ This product must be installed and operated within its environmental, mechanical, and electrical specifications as contained in this document.
- ▶ When servicing, use only listed/approved replacement parts ordered directly from the manufacturer.

Typical Power Limited Circuit for XL800

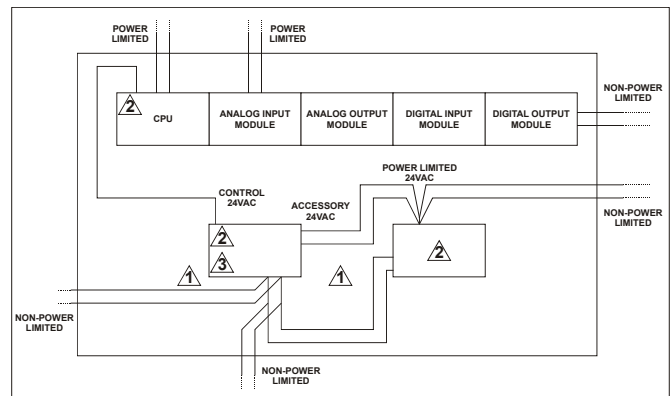


Fig. 9. Typical power-limited circuit for XL800

- 1 14507287-001 through -003 power module accessory 24 VAC output (rated 2A) must be wired in accordance with NFPA 70, Article 725 when routed within the cabinet or adjacent cabinets and also for external field wiring.
- 2 14507287-001, -002, -003, and -007 control power module 24 VAC output is inherently power-limited. Thus, all sourced power from the XL800 controller is power-limited. All field wiring from these controllers meet NFPA 70, Article 725 power limited Class II requirements.
- 3 If a separate auxiliary power-limited 24 VAC power source is required, use a control power module (14507287-001 or -007 control supply).
- 4 Devices must be installed in areas as shown. All cable must be routed as shown. All internal power-limited wiring must be separated by ¼ inch (6 mm) or barrier from non-power-limited wire. Excess wiring must be cut, trimmed, and dressed properly to ensure that proper clearances are maintained.

Connecting Single Bus Controller Systems

This section describes how to connect a controller system which uses **Panel Bus I/O modules, only** or **LONWORKS Bus I/O modules, only**.

XCL8010AU, I/O Modules on Single Rail

- ▶ Connect XCL8010AU Controller Module and I/O modules using the bridge connectors.

This provides power supply and communication connection. No further wiring is necessary.

Multiple Rails in Single Cabinet

The multiple rails of a controller system are connected in series.

- ▶ Connect the rail ends as follows:
 - **Power supply**
via power supply terminals 73, 74 or 77, 78
 - **Communication**
via communication terminals 71, 72 or 75, 76

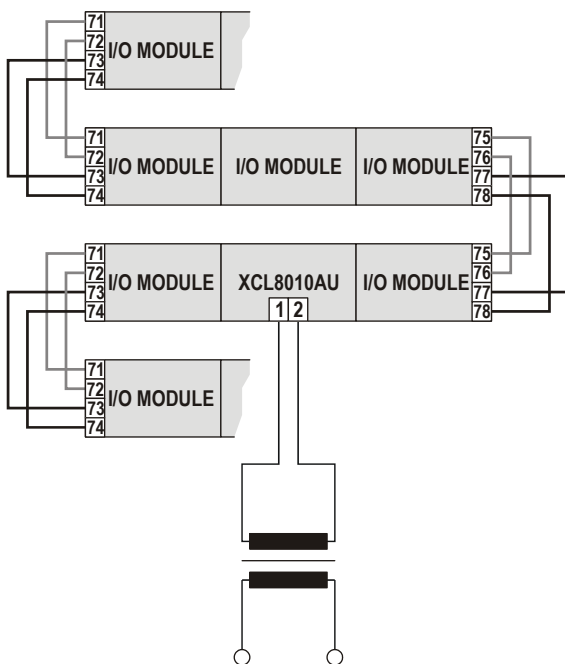


Fig. 10. Wiring the power supply and the communication lines to the I/O modules

LonWorks Bus I/O Modules in Separate Rooms

In this scenario, only communication lines must be connected between the rooms.

- ▶ Connect the last module of room 1 to the first module of room 2:
 - via communication terminals 71, 72 or 75, 76

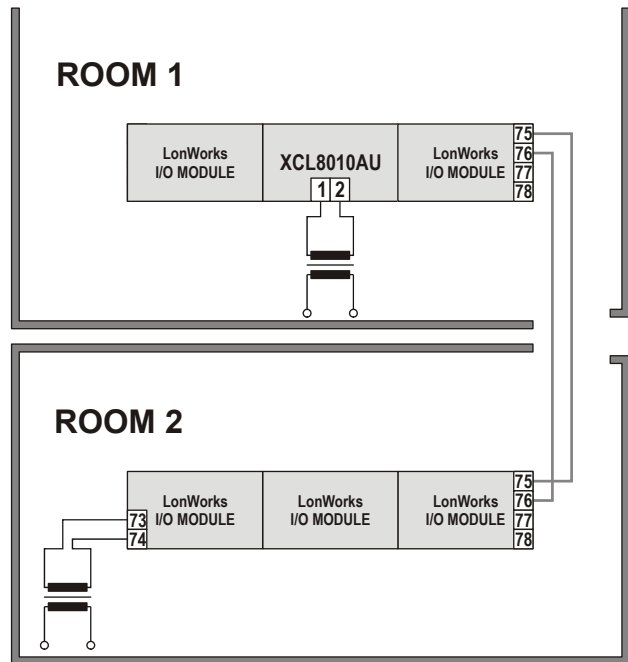


Fig. 11. Wiring the LonWorks Bus I/O modules in separate rooms

Maximum Cable Length

Max. cable length: 1200 meters (4000 ft), supervised.

How to Connect Panel Bus and LONWORKS Bus Mixed Controller Systems

Connecting I/O Modules

For connecting the I/O modules with each other, proceed as described for single-bus controller systems.

Connecting I/O Modules to the XCL8010AU

Panel Bus I/O Modules

- ▶ Connect communication terminals 71 – 74 or 75 – 78 of Panel Bus I/O modules to communication terminals 71 – 74 or 75 – 78 of the XCL8010AU Controller Module using either
 - Bridge connectors
for flush mounting on a single DIN rail or
 - Cables
for separate mounting, e.g., on multiple rails, separate cabinets, etc.

LONWORKS Bus I/O Modules

- ▶ Connect communication terminals 71 – 74 or 75 – 78 of LONWORKS Bus I/O modules to LONWORKS terminals 11 – 14 of the XCL8010AU using cables.

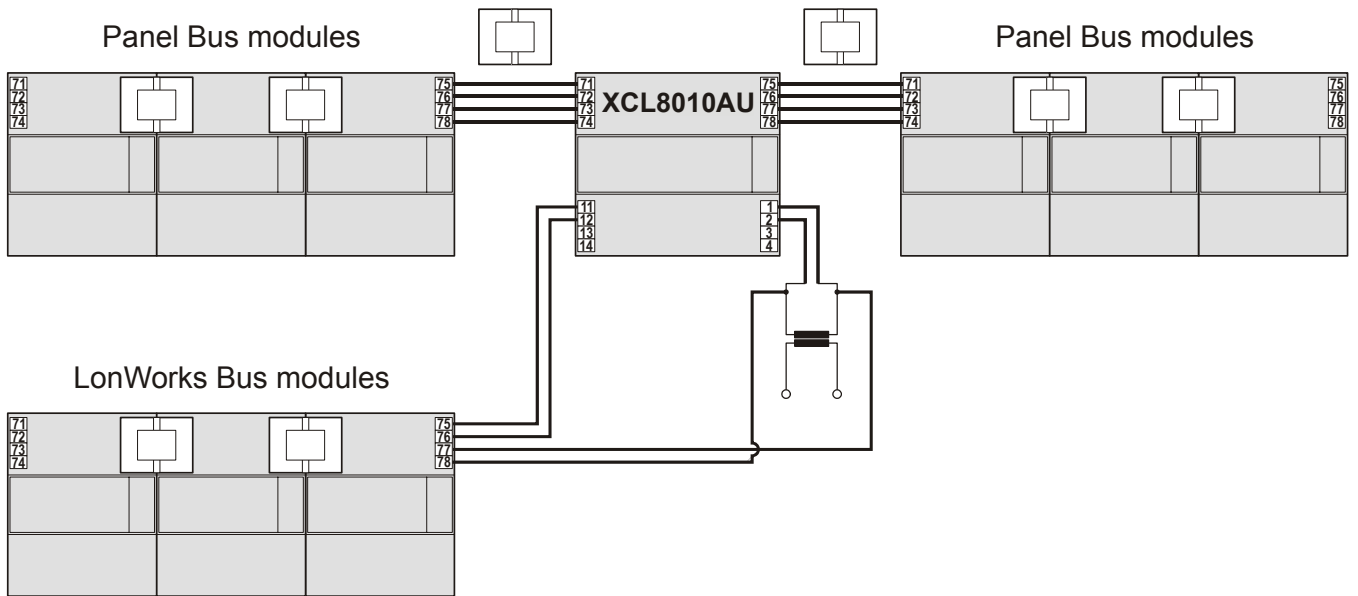


Fig. 12. Mixed bus system – correct wiring

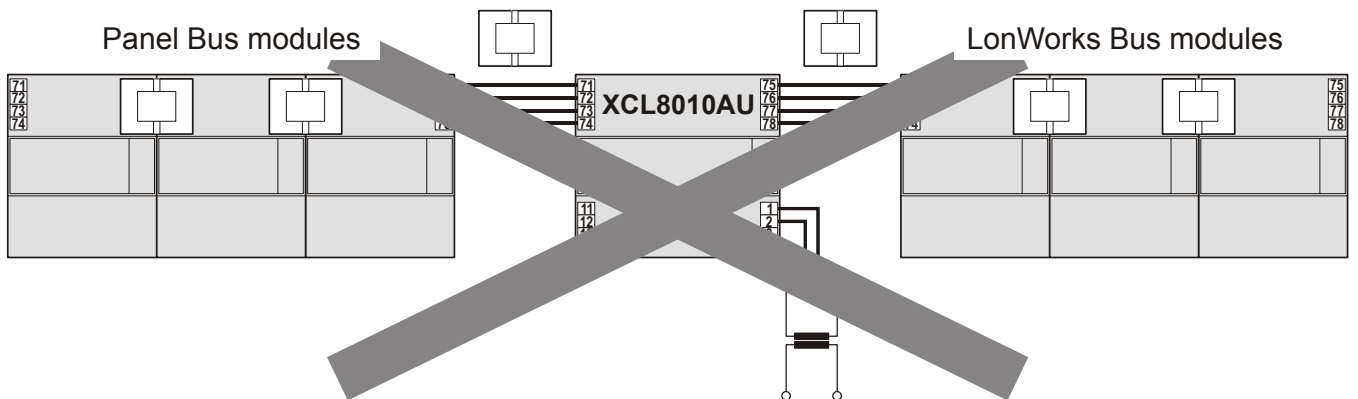


Fig. 13. Mixed bus system – incorrect wiring

Setting Address of Panel Bus I/O Modules

- Use the rotary HEX switch to set the address to the one already defined during engineering.

Each Panel Bus I/O module is assigned its own unique address. For the sake of clarity for maintenance personnel, it is recommended that you address the Panel Bus I/O modules in ascending order 0 through F.

Table 9. HEX switch settings and addresses

HEX switch	0	1	2	3	4	5	6	7
address	01	02	03	04	05	06	07	08

HEX switch	8	9	A	B	C	D	E	F
address	09	10	11	12	13	14	15	16

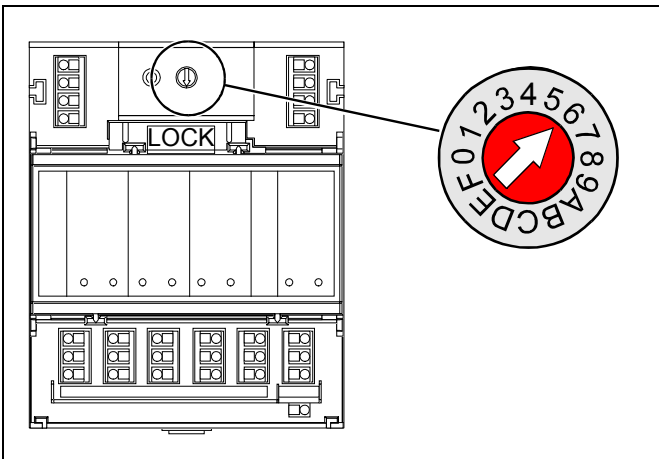


Fig. 14. HEX switch location

NOTE: If the HEX switch setting is changed, the Panel Bus I/O module will revert to its default configuration. With LONWORKS Bus I/O modules, the HEX switch is without function.

Setting the I/O Bus Switch

- ▶ Set the I/O Bus switch S2 of the XCL8010AU Controller Module depending on the modules connected to terminals 71 – 78 and the desired communication as follows:

Table 10. I/O Bus switch settings

communication	S2 setting	terminals
LONWORKS Bus only	LON	71 – 74 LONWORKS Bus 75 – 78 LONWORKS Bus 11 – 14 LONWORKS Bus
Panel Bus and LONWORKS Bus	Panel	71 – 74 Panel Bus 75 – 78 Panel Bus 11 – 14 LONWORKS Bus

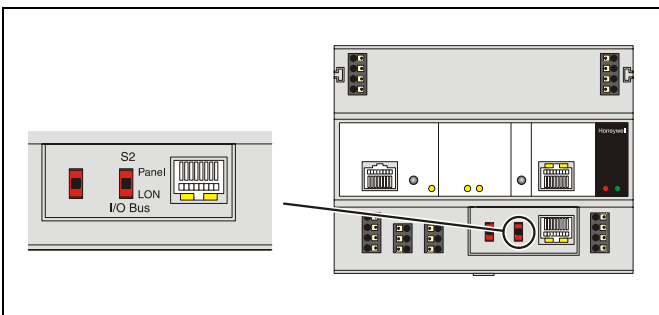


Fig. 15. S2 I/O Bus switch

LONWORKS Bus Topologies

The LONWORKS Bus is a 78-kilobit serial link that uses transformer isolation so that the bus wiring does not have a polarity. I.e. it is not important which of the two LONWORKS Bus terminals are connected to each wire of the twisted pair.

The LONWORKS Bus does not need to be shielded on the controller module side.

The LONWORKS Bus can be wired in daisy chain, star, loop or any combination thereof as long as the maximum wire length requirements are met.

Configuration

The recommended configuration is a daisy chain with two bus terminations. This layout allows for max. LONWORKS Bus lengths, and its simple structure presents the least number of possible problems, particularly when adding on to an existing bus.

C-Bus Topologies

Via the C-Bus up to 30 C-Bus devices (e.g., controllers, etc.) can communicate with one another and a PC central. The C-Bus must be connected via the individual controllers (open ring).

NOTE: Star connection is not allowed because uncontrollable line reflections may occur.

Mounting/Dismounting Modules

WARNING

Risk of electric shock or equipment damage!

- ▶ Do not touch any live parts in the cabinet.
- ▶ Disconnect the power supply before you start to install the Excel 800 System.
More than one disconnect switch may be required to de-energize the system.
- ▶ Do not reconnect the power supply until you have completed the installation.

NOTE: The terminal socket of each I/O module can be mounted and wired before inserting and locking the corresponding electronic module.

Mounting/Dismounting Controller/Sockets

Mounting Sockets

NOTE: When using both Panel Bus and LONWORKS Bus I/O modules in an Excel 800 System, group both Panel Bus modules (light-gray) and LONWORKS Bus I/O modules (dark-gray), e.g., on different rails. Up to 10 Panel Bus I/O modules can be mounted to one side of the XCL8010AU. In total, up to 16 Panel Bus I/O modules can be mounted to one controller. The XCL8010AU Controller Module is mounted on the DIN rail in the same way as a terminal socket.

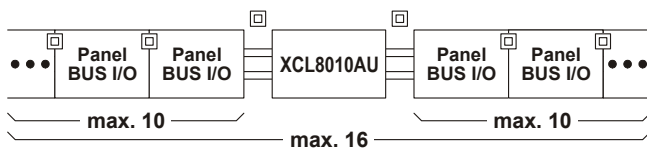
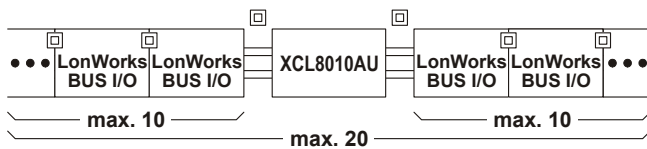


Fig. 16. Max. number of Panel Bus I/O modules



NOTE: MAX. OF 16 DIGITAL INPUT MODULES MAY BE USED.

Fig. 17. Max. number of LONWORKS Bus I/O modules with power supply via XCL8010AU

- ▶ Angle the terminal socket at the upper edge of the DIN rail until it snaps in.
- ▶ Swing the terminal socket down and apply gentle force until it snaps into position with an audible "click".
- ▶ Position XCL8010AU Controller Module and terminal sockets flush with one another along the rail.
- ▶ If desired, mount stoppers at the ends of the rail to prevent sliding.

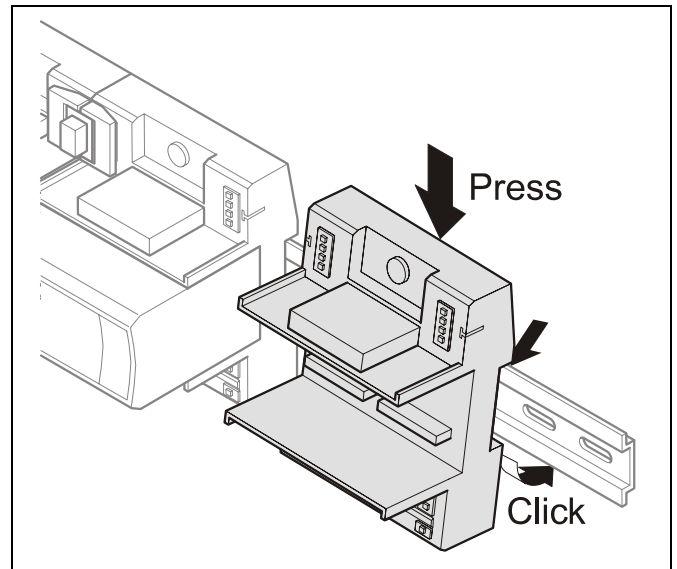


Fig. 18. Mounting terminal sockets

NOTE: Take care to not bend the Omega clamp, which serves to establish the electrical contact with the DIN rail and which is located on the back of the terminal socket.

Connecting Sockets

Controller and terminal sockets on the same DIN rail can be connected mechanically and electrically with bridge connectors.

Controller and terminal sockets on different DIN rails must be connected using cables.

NOTICE

Risk of malfunction!

- ▶ Wire Panel Bus I/O modules and LONWORKS Bus I/O modules separately.
- ▶ When using both Panel Bus and LONWORKS Bus I/O modules in an Excel 800 System, LONWORKS Bus I/O modules must be connected to the XCL8010AU Controller Module via LON terminals 11 – 14.

Position the bridge connector on terminals 71 – 74 of the right hand terminal socket or XCL8010AU Controller Module and on terminals 75 – 78 of the left hand terminal socket or XCL8010AU Controller Module. Then press the bridge connector down.

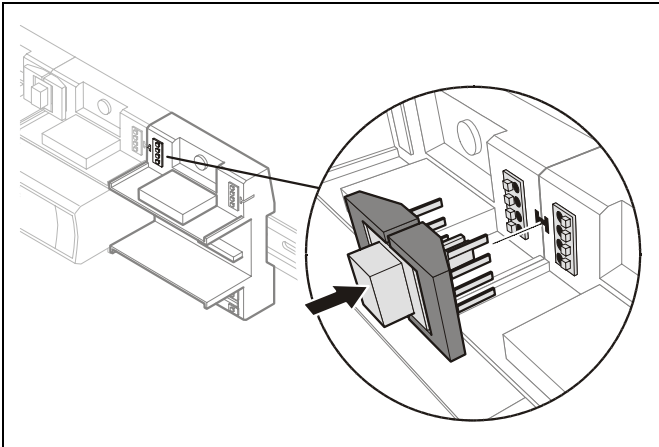


Fig. 19. Connecting terminal sockets with bridge connector

NOTE: Bridge connectors transmit both communication signals and power supply between modules. Removing bridge connectors will interrupt the transmission of both communication signals and power supply between the modules.

Dismounting Sockets

Disconnecting Sockets

Release all bridge connectors before removing the XCL8010AU Controller Module and/or the terminal sockets from the DIN rail.

- ▶ Press down at the same time both the gray side wings next to the red button and then pull the bridge connector out of the module.

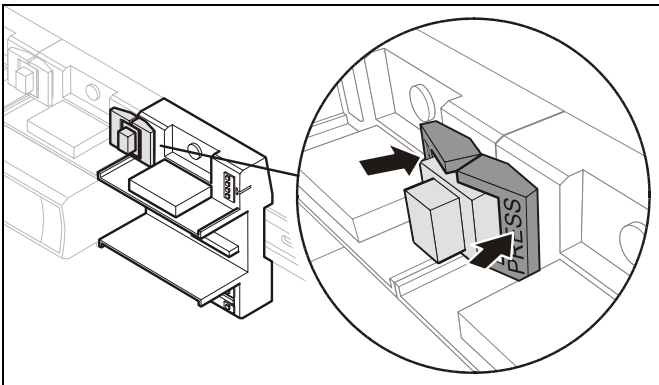


Fig. 20. Releasing bridge connectors

Dismounting Controller/Terminal Sockets

- ▶ Insert a screwdriver into the latch on the underside of the module and lever the red latch 2–3 mm downwards. The module can then be swung away from the rail.

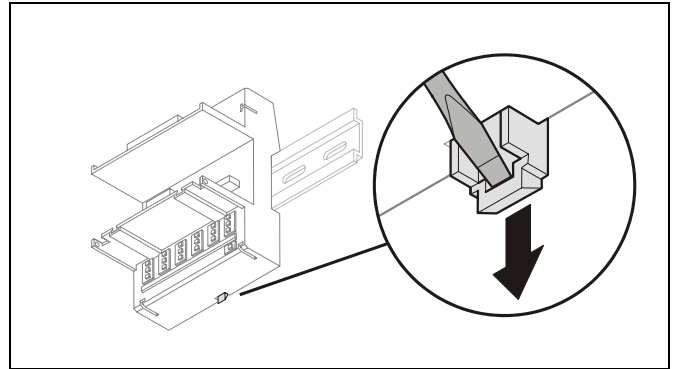


Fig. 21. Releasing latch

Mounting/Dismounting Electronic Modules

Mounting Electronic Modules

NOTE: Electronic modules can be removed from the socket or inserted into the sockets without switching off the power supply. The behavior of connected field devices must be taken into consideration.

- ▶ Make sure that terminal socket and I/O module match.
- ▶ Make sure that the red locking mechanism is in the open, i.e., left, position.
- ▶ Gently push the electronic module onto the terminal socket until snug.

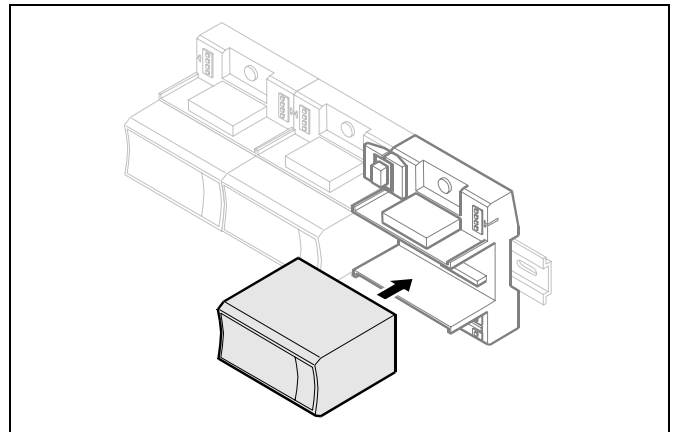


Fig. 22. Inserting the electronic module

- ▶ Lock the red locking mechanism by sliding it to the right.

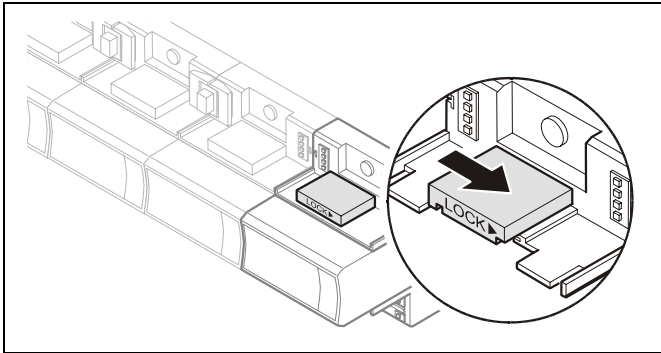


Fig. 23. Locking the electronic module

NOTE: The red locking mechanism will not close if the electronic module is not properly mounted.

Dismounting Electronic Modules

NOTE: Electronic modules can be removed from the socket or inserted into the sockets without switching off the power supply. The behavior of connected field devices must be taken into consideration.

- ▶ Open the red locking mechanism by sliding it to the left and then gently pull the electronic module out of the terminal socket.

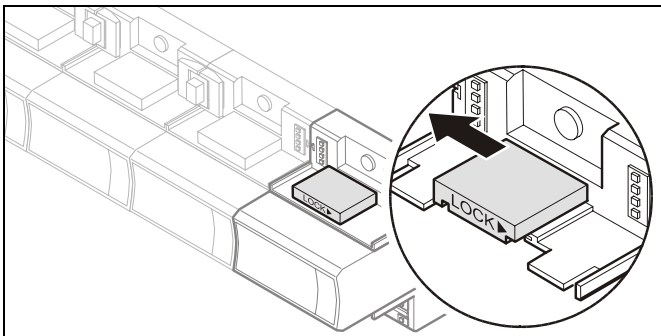


Fig. 24. Dismounting the electronic module

Connecting via C-Bus

Via C-Bus, an XCL8010AU Controller Module can be connected to other controller systems to form a network.

Connecting to the Controller

- ▶ Connect the C-Bus to the XCL8010AU Controller Module as follows:
 - Input to C-Bus terminals 8 and 9
 - Output to C-Bus terminals 5 and 6
 - Do not connect the C-Bus to the cabinet earth or any other earth ground points

Setting the C-Bus Termination Switch

- ▶ Set the C-Bus termination switch S1 appropriately.

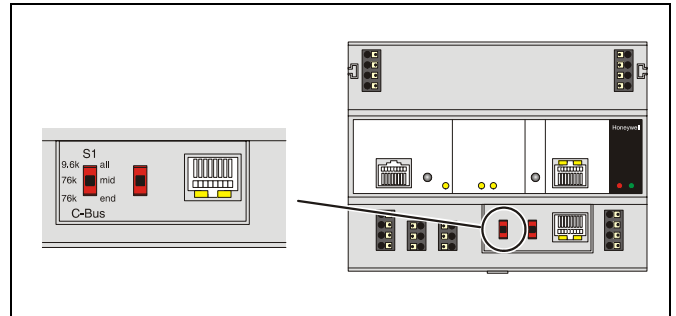


Fig. 25. C-Bus termination switch S1

Table 11. XCL8010AU C-Bus termination switch settings

switch setting S1	baud rate
9.6k all	Up to 9600 baud (default setting)
76k mid	Up to 76800 baud without bus termination
76k end	Up to 76800 baud with bus termination

Shielding

In principle, data transmitting cables should be shielded in case of RFI.

- ▶ On the controller side, connect the shield to terminals 7 and 10.
- ▶ On the side of the device, connect the shield to the respective terminals. Do not connect it to the cabinet ground or any other ground points.

Connecting HMIs or Laptops

Laptops or HMIs, e.g., XI582, can either be connected via the HMI interface of the XCL8010AU Controller Module or via the LONWORKS interface.

Connecting the XI582 Operator Interface

- ▶ Connect the XI582AH Operator Interface to the HMI interface or LONWORKS interface of the XCL8010AU Controller Module by means of
 - the XW882 cable or
 - the XW582 cable connected with an XW586 cable.

Connecting Laptops (XL-Online/CARE)

- ▶ Connect a laptop (on which e.g., XL-Online or CARE has been installed) to the HMI interface or LONWORKS interface of the XCL8010AU Controller Module by means of
 - the XW885 cable or
 - the XW585 cable connected with an XW586 Cable.

XCL8010AU Terminals

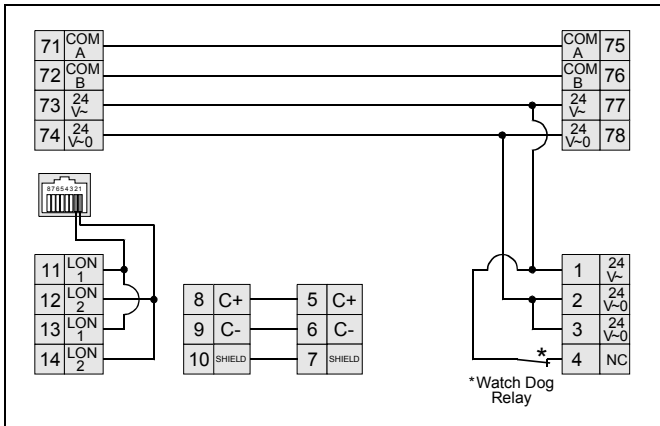


Fig. 26. Terminal assignment and internal connections of the XCL8010AU Controller Module

Table 12. Description of XCL8010AU terminals

terminal	signal	comment
71, 75	COM a	2-wire communication bus (LON/Panel Bus)
72, 76	COM b	2-wire communication bus (LON/Panel Bus)
73, 77	24 V~	Power supply for I/O modules
74, 78	24 V~0	Power supply for I/O modules
1	24 V~	Power supply from transformer
2	24 V~0	Power supply from transformer
3	24 V~0	Alarm/watchdog output
4	NC	Alarm/watchdog output
5, 8	C+	C-Bus
6, 9	C-	C-Bus
7, 10	Shield	C-Bus shield
11, 12	LON	LONWORKS IN
13, 14	LON	LONWORKS OUT

Features

LONWORKS Interface and Terminals

The XCL8010AU Controller Module features

- An RJ45 socket serving as an interface to connect laptops or HMIs to the LONWORKS Bus
- LONWORKS terminals 11, 12, 13, and 14 to connect LONWORKS Bus I/O modules or other LONWORKS devices to the XCL8010AU Controller or other LONWORKS controllers.

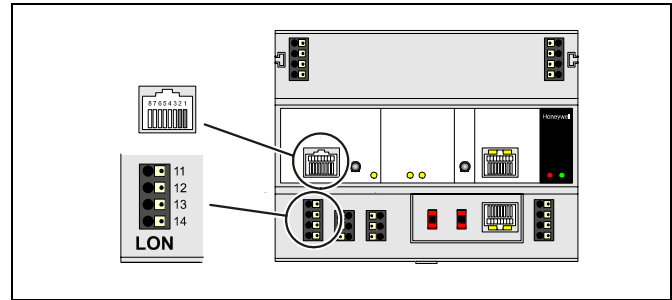


Fig. 27. LONWORKS interface and LONWORKS terminals

LONWORKS Interface Signals on RJ45 Socket

Table 13. Signals of LONWORKS interface

pin	signal type
1	Connection to LONWORKS Bus
2	Connection to LONWORKS Bus
3 – 8	Not used

LONWORKS Service LED and Button

The XCL8010AU Controller Module is equipped with a LONWORKS service button and corresponding LONWORKS Service LED (status: yellow/OFF).

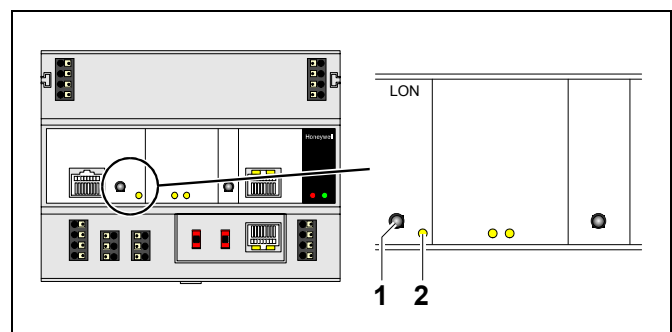


Fig. 28. LONWORKS service button (1) and service LED (2)

See also section "Troubleshooting" on page 31.

C-Bus Tx LED and Rx LED

The XCL8010AU Controller Module is equipped with a Tx LED (status: yellow/OFF) and an Rx LED (status: yellow/OFF).

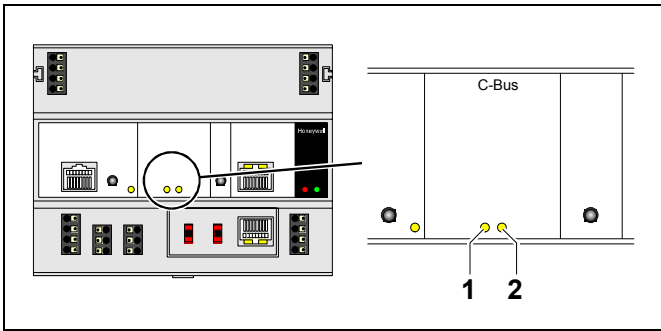


Fig. 29. C-Bus Tx LED (1) and Rx LED (2)

HMI Interface

The XCL8010AU Controller Module is equipped with an HMI Interface for the connection of HMIs, e.g., XI582 Operator Interface or a laptop (with XL-Online/CARE).

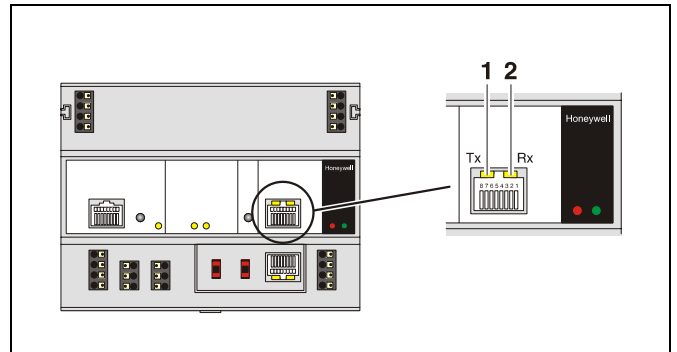


Fig. 31. HMI interface, Tx LED (1) and Rx LED (2)

C-Bus LEDs

Table 14. Controller C-Bus LEDs

Tx (1) flickering	The controller is sending data onto the C-Bus
Rx (2) flickering	The controller is receiving data from the C-Bus

Reset Button

The XCL8010AU Controller Module is equipped with a reset button.

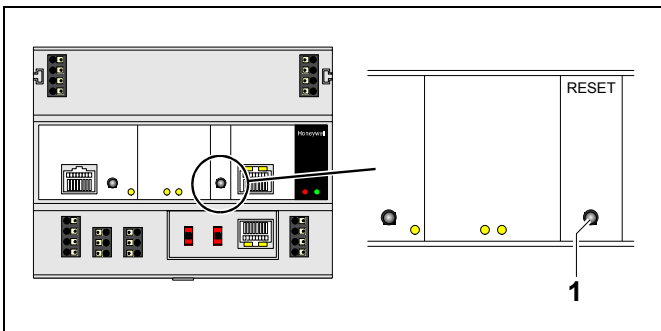


Fig. 30. Reset button (1)

Pushing the reset button (1), e.g. using a paperclip, will cause the XCL8010AU Controller Module to reset.

NOTE: In the event of a reset, all non-volatile memory contents are permanently deleted, though the clock will not be set to zero. In order to avoid problems, we therefore recommend that you always save your application changes (e.g., time program changes) to FLASH memory.

HMI interface LEDs on RJ45 socket

Table 15. HMI interface LEDs

Tx (1) flickering	The controller is transmitting data to the HMI
Rx (2) flickering	The controller is receiving data from the HMI

HMI interface Signals on RJ45 socket

Table 16. Signals of the HMI interface

pin	signal type
1	-
2	Receive
3	Transmit
4	-
5	Signal ground
6	-
7	5 V
8	-

NOTICE

Equipment damage!

- ▶ If earth grounding is required, make sure that only terminal 2 is connected to earth ground. Terminal 1 must not be connected to earth ground. See also Appendix 1.

Alarm and Power LEDs

The XCL8010AU Controller Module is equipped with an alarm LED and a power LED.

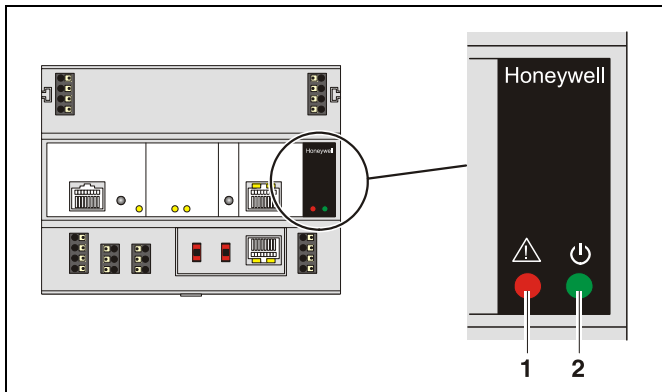


Fig. 32. Alarm LED (1) and power LED (2)

Alarm LED (1, red)

Table 17. Controller alarm LED

Off	Normal operation
On	Watchdog alarm output is powered <ul style="list-style-type: none"> The controller has encountered a hardware problem The application has a fault The controller has been powered up without an application or the operator has manually stopped the application. In this case, the LED will light up 13 minutes after power-up without application
Flashing	The watchdog alarm output has not yet been powered, although the controller has encountered a problem. The controller performs a warm start. If problem persists, the LED will become lit constantly, see above. See section "Troubleshooting" on page 31.

Power LED (2, green)

Table 18. Controller power LED

On	Normal operation
Flashing	One or more of the internal voltage supplies are outside of the permissible ranges. The controller stops operation. <ul style="list-style-type: none"> ► Check wiring or see section "Troubleshooting" on page 31.
Goes out briefly	<ul style="list-style-type: none"> The operator has activated the reset button The controller is performing a warm start

Watchdog Status

Table 19. Watchdog status (terminal 4)

status	signal on terminal 4
Failure (= alarm)	24 V
Normal operation	0 V

Modem Interface

NO CONNECTION.

I/O Bus Switch S2

The XCL8010AU Controller Module features a 2-position I/O Bus switch S2.

I/O Bus switch S2 must be set in accordance with the kind of I/O modules connected to communication terminals 71, 72 and 75, 76 of the XCL8010AU Controller Module.

Terminals 71, 72 and 75, 76 must be all connected either to Panel Bus I/O modules or to LONWORKS Bus I/O modules.

The **default** setting is **Panel**.

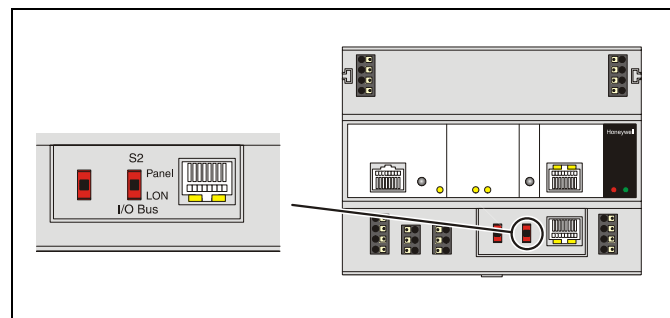


Fig. 33. I/O Bus switch S2

Table 20. I/O Bus switch settings

communication	S2 setting
LONWORKS Bus only	LON
Panel Bus and LONWORKS Bus LONWORKS Bus modules connected to terminals 11 – 14 of the XCL8010AU Controller Module	Panel
Panel Bus connected to terminals 71, 72 or 75, 76 of the XCL8010AU Controller Module	Panel

C-Bus Termination Switch S1

The XCL8010AU Controller Module features a 3-position C-Bus termination switch S1.

This switch must be set in accordance with the given C-Bus configuration.

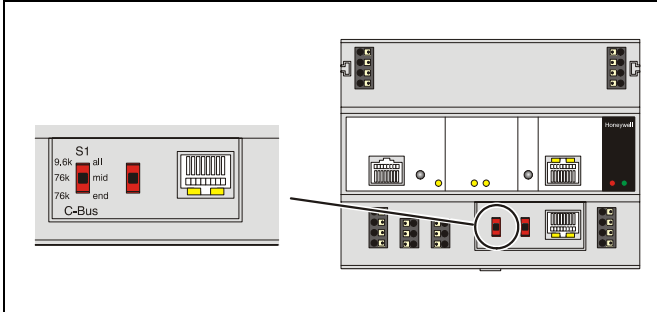


Fig. 34. C-Bus termination switch

Table 21. XCL8010AU C-Bus termination switch S1 settings

switch setting S1	baud rate
9.6k all	Up to 9600 baud (default setting)
76k mid	Up to 76800 baud without bus termination
76k end	Up to 76800 baud with bus termination controller at the end of the C-Bus

Memory

Table 22. XCL8010AU memory

memory	size	usage
SRAM	512 KB	For controller application, modem trend and firmware RACL application: 128 KB Total application: 192 KB
Flash	2 MB	Firmware (1 MB) and application (1 MB) storage
EPROM	128 KB	For bootstrap loader

NOTE: The XCL8010AU Controller Module does not contain a battery. RAM (data and realtime clocktime) is buffered for 3 days by a super capacitor.

Description of the I/O Modules Common Features

Switches Located on the Terminal Socket

Table 23. Terminal socket switches

feature	function
Service button S1	<ul style="list-style-type: none"> LED test, see section "Troubleshooting" on page 31 LONWORKS service button functionality for LONWORKS Bus I/O modules
Hex switch S2	<ul style="list-style-type: none"> Module addressing for Panel Bus I/O modules

LEDs Located on the I/O Module

Table 24. LEDs on I/O module

feature	function
Service LED (yellow)	<ul style="list-style-type: none"> Service information, see section "Troubleshooting" on page 31
Power LED (green)	<ul style="list-style-type: none"> Information on power supply, see section "Troubleshooting" on page 31

For the location of these elements, see figures of the respective modules.

Analog Input Modules

Types of Analog Input Modules

Table 25. Excel 800 Analog Input Modules

type	description	housing
XF821	Panel Bus Analog Input Module	light-gray
XFL821	LONWORKS Bus Analog Input Module	dark-gray
XS821-822	terminal socket	light-gray

Features

- 8 analog inputs
- Sensor-break and short-circuit detection, see section "Troubleshooting" on page 31.

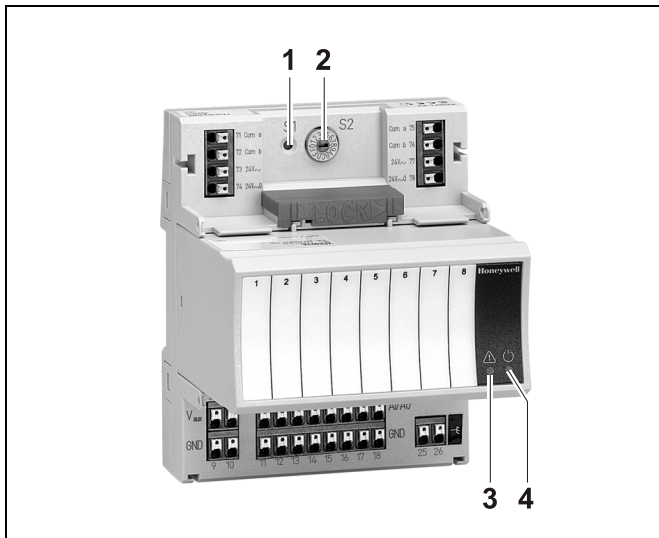


Fig. 35. XF821AU Analog Input Module with terminal socket

Legend

- 1 Service button S1
- 2 Hex switch S2
- 3 Service LED
- 4 Power LED

Functionality of service LED and power LED: see Table 42 and following.

Terminals

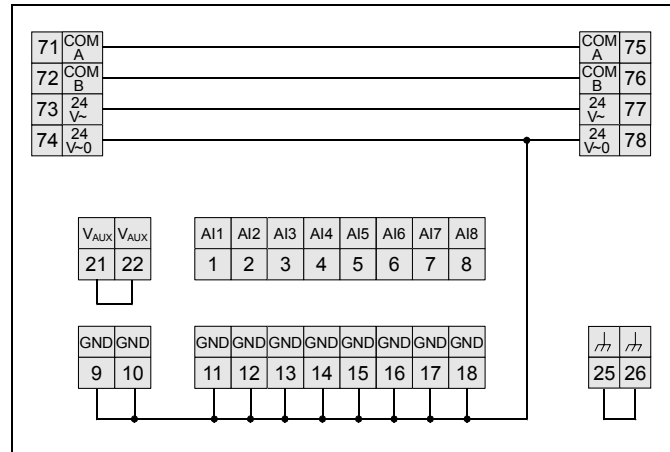


Fig. 36. Terminal assignment and internal connections of Analog Input Modules

Table 26. Description of Analog Input Module terminals

terminal	signal	comment
71, 75	COM a	2-wire communication bus (LON/Panel Bus)
72, 76	COM b	2-wire communication bus (LON/Panel Bus)
73, 77	24 V~	Power supply
74, 78	24 V~0	Power supply
1 – 8	AI1 – AI8	Analog inputs 1 – 8
9 – 18	GND	Ground. All grounds are connected internally to each other
21, 22	10 VDC / 5 mA	Auxiliary voltage signal (used e.g. for supplying setpoint potentiometers). Connections to these terminals must be made in the same room.
25, 26	⏏	Shield connection (functional earth), internally connected to the DIN rail

NOTE: Shield connection to be used for shielded I/O cables only. It is not allowed to connect a LONWORKS shield.

XFL821AU Connection Examples

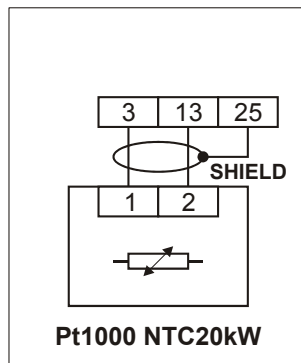
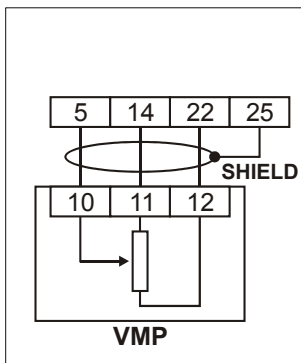
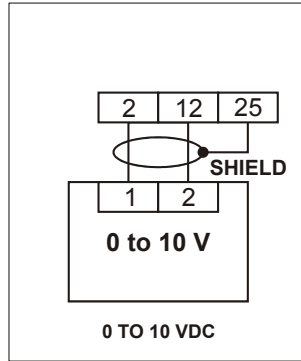
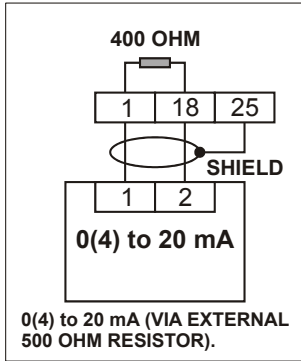


Fig. 37. XFL821AU Analog Input Module

Analog Output Modules

Types of Analog Output Modules

Table 27. Excel 800 Analog Output Modules

type	description	housing
XF822	Panel Bus Analog Output Module	light-gray
XFR822	Panel Bus Analog Output Module with manual overrides	light-gray
XFL822	LONWORKS Bus Analog Output Module	dark-gray
XFLR822	LONWORKS Bus Analog Output Module with manual overrides	dark-gray
XS821-22	terminal socket	light-gray

Features

- 8 analog outputs; can also be configured per output as binary outputs (0 – 10 V, 2 – 10 V, ON/OFF, or floating)
- Corresponding output status LEDs (red)
- XFR822AU/XFLR822AU: 8 manual overrides, see figure below

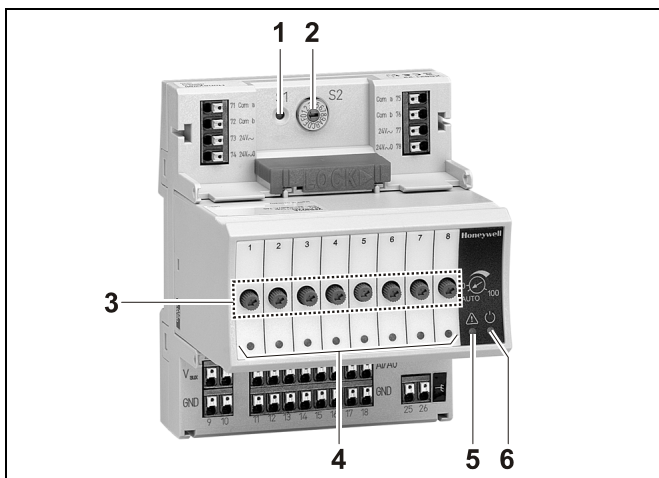


Fig. 38. XF822AU Analog Output Module with terminal socket

Legend

- 1 Service button S1
- 2 Hex switch S2
- 3 Manual overrides
- 4 Output LEDs
- 5 Service LED
- 6 Power LED

Functionality of service LED and power LED: see Table 42 and following.

Terminals

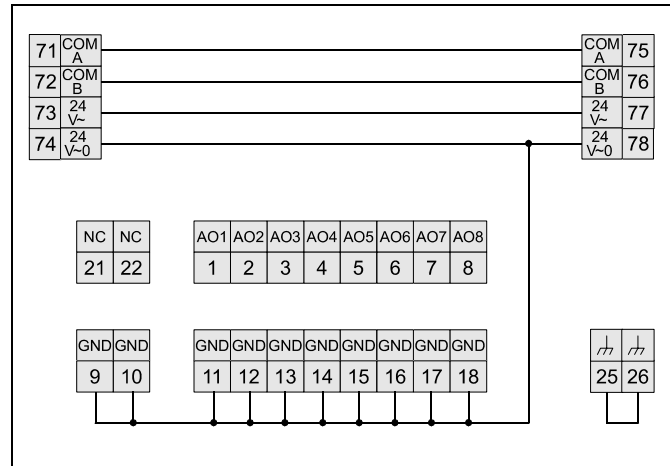


Fig. 39. Terminal assignment and internal connections of the Analog Output Modules

Table 28. Description of the Analog Output Module terminals

terminal	signal	comment
71, 75	COM a	2-wire communication bus (LON/Panel Bus)
72, 76	COM b	2-wire communication bus (LON/Panel Bus)
73, 77	24 V~	Power supply
74, 78	24 V-0	Power supply
1 – 8	AO1 – AO8	Analog outputs 1 – 8
9 – 18	GND	Ground. All grounds are connected internally to each other
21, 22	N.C.	Do not use!
25, 26	⏏	Shield connection (functional earth), internally connected to the DIN rail

NOTE: Shield connection to be used for shielded I/O cables only. It is not allowed to connect a LONWORKS shield.

Technical Data

Output status LEDs behavior

Table 29. Analog Output Module status LED behavior

automatic mode	brightness follows the commanded output signal
override mode	flashes

Modules with Manual Overrides

The XFR822AU/XFLR822AU Analog Output Modules are equipped with manual overrides: one rotary knob for each analog output.

The manual overrides can be set manually to either "auto" or "0 – 110%".

NOTICE

Damage to the electronic module!

- ▶ Do not use a tool to adjust the rotary knobs.
- ▶ Do not use excessive force. Adjust only by hand.

This updating (synchronization) is performed:

- If the calculated position of the actuator < lower synchronization threshold (2 %) = synchronization towards 0 %
- If the calculated position of the actuator > upper synchronization threshold (98 %) = synchronization towards 100 %
- Following any power-up or any reset

XFL822AU Connection Example

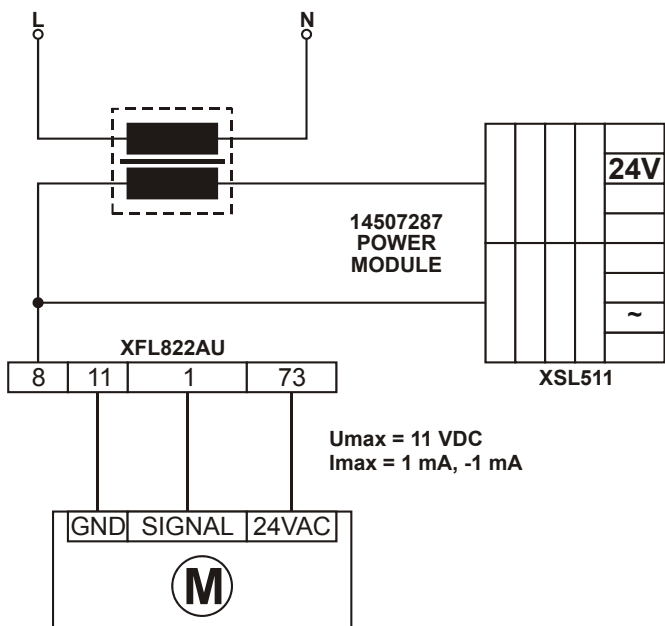


Fig. 40. XFL822AU Analog Output Module

Synchronization Behavior of Analog Output Module Configured as Floating Output

In order to regularly update the real actuator position with the calculated position and thus ensure that the actuator definitely reaches its end position, a synchronization process is performed by the Analog Output Module.

During the synchronization process, the Analog Output Module will continue running for the configured runtime once it reaches the calculated end position.

Binary Input Modules

Types of Binary Input Modules

Table 30. Excel 800 Binary Input Modules

type	description	housing
XF823	Panel Bus Binary Input Module	light-gray
XFL823	LONWORKS Bus Binary Input Module	dark-gray
XS823	terminal socket	light-gray

Features

- 12 binary inputs
- 12 configurable status LEDs (green/red, yellow/OFF)
- Binary inputs can be used as
 - Static digital inputs as dry-contacts

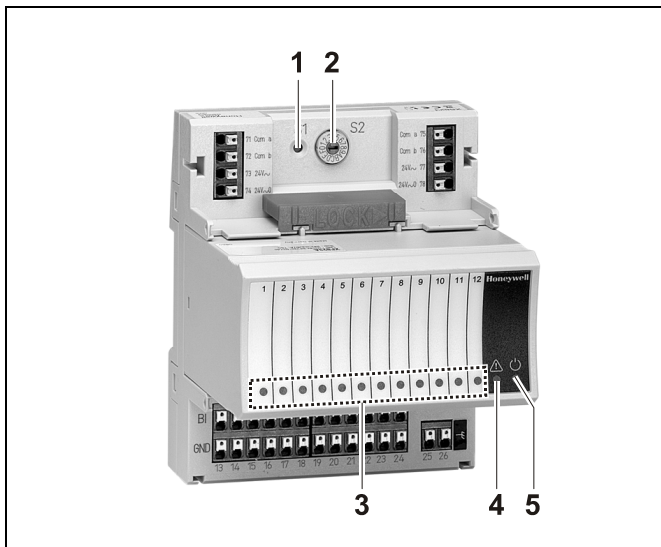


Fig. 41. XF823AU Binary Input Module with terminal socket

Legend

- 1 Service button S1
- 2 Hex switch S2
- 3 Input LEDs
- 4 Service LED
- 5 Power LED

Functionality of service LED and power LED: see Table 42 and following.

Terminals

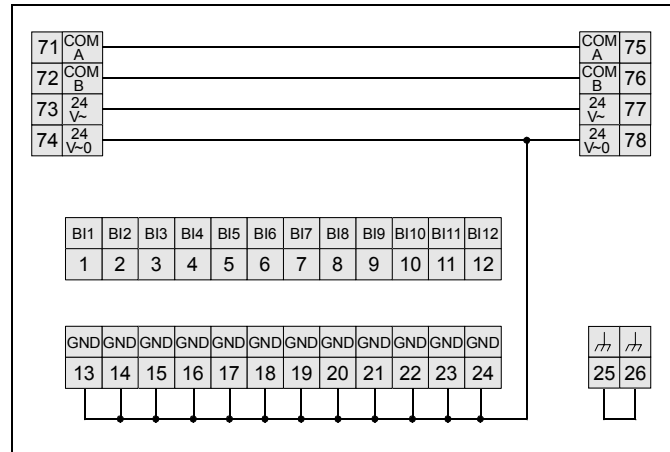


Fig. 42. Terminal assignment and internal connections of Binary Input Modules

Table 31. Description of Binary Input Module terminals

terminal	signal	comment
71, 75	COM a	2-wire communication bus (LON/Panel Bus)
72, 76	COM b	2-wire communication bus (LON/Panel Bus)
73, 77	24 V~	Power supply
74, 78	24 V~0	Power supply
1 – 12	BI1 – BI12	Binary inputs 1 – 12
13 – 24	GND	Ground. All grounds are connected internally to each other.
25, 26	⏏	Shield connection (functional earth), internally connected to the DIN rail.

NOTE: Shield connection to be used for shielded I/O cables only. It is not allowed to connect a LONWORKS shield.

Technical Data

Table 32. Technical data for of Binary Input Modules

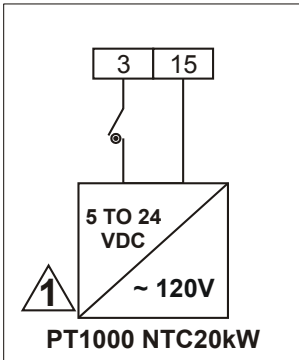
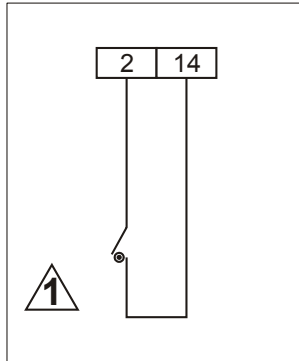
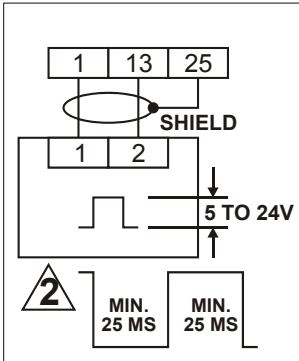
input type	dry-contact
current rating (closed input)	2 mA
open contact voltage	16 – 22 VDC

Status LEDs

The status LEDs can be configured individually for use as either alarm LEDs (red/green) or as status LEDs (yellow/OFF [default]).

Given a state of "logical ON," the LED will be lit (yellow or red).

XF823AU Connection Examples



1 CONTACT SUITABLE FOR LOW VOLTAGE (GOLD).

2 PROTECTED SWITCHING UP TO 40 VDC / 24 VAC.

Fig. 43. XFL823AU Binary Input Module

Relay Output Modules

Types of Relay Output Modules

Table 33. Excel 800 Relay Output Modules

type	description	housing
XF824	Panel Bus Relay Output Module	light-gray
XFR824	Panel Bus Relay Output Module with manual overrides	light-gray
XFL824	LONWORKS Bus Relay Output Module	dark-gray
XFLR824	LONWORKS Bus Relay Output Module with manual overrides	dark-gray
XS824-25	terminal socket; can be fitted with long (red) cross connector (incl. in scope of the delivery)	light-gray

Features

- 6 relays (changeover contacts), arranged in two blocks
- XFLR824AU, XFR824AU: 6 manual overrides
- Low and line voltage allowed, see WARNING.

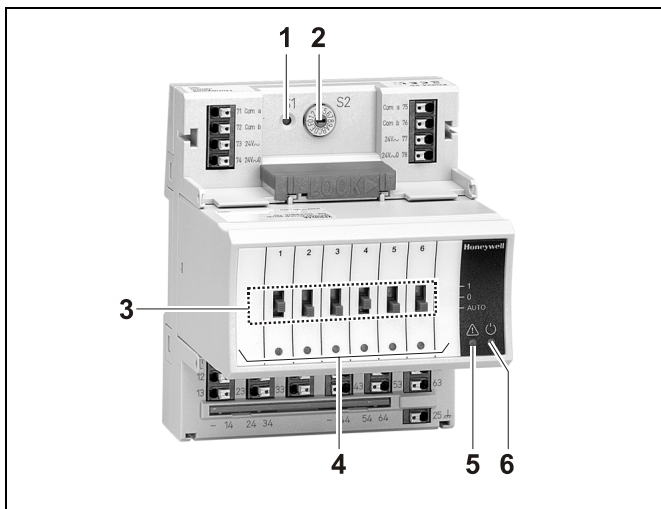


Fig. 44. XF824AU Relay Output Module with terminal socket

Legend

- 1 Service button S1
- 2 Hex switch S2
- 3 Manual overrides
- 4 Status LEDs
- 5 Service LED
- 6 Power LED

Functionality of service LED and power LED: see Table 42 and following.

Terminals

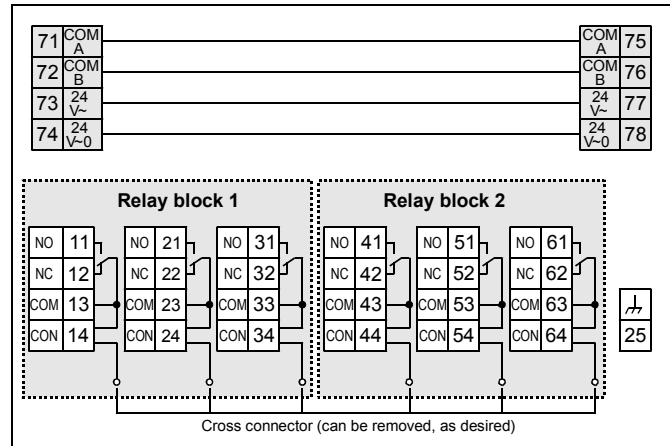



Fig. 45. Terminal assignment and internal connections of Relay Output Modules

Table 34. Description of Relay Output Module terminals

terminal	signal	comment	
71, 75	COM a	2-wire communication bus (LON/Panel Bus)	
72, 76	COM b	2-wire communication bus (LON/Panel Bus)	
73, 77	24 V~	Power supply	
74, 78	24 V~0	Power supply	
RELAY BLOCK 1	11	REL1 N.O.	Relay 1 N.O. contact
	12	REL1 N.C.	Relay 1 N.C. contact
	13	R1 COM	relay 1 common contact
	14	R1 COM	For connection of relay 1 common via cross connector*
	21	REL2 N.O.	Relay 2 N.O. contact
	22	REL2 N.C.	Relay 2 N.C. contact
	23	R2 COM	Relay 2 common contact
	24	R2 COM	For connection of relay 2 common via cross connector*
	31	REL3 N.O.	Relay 3 N.O. contact
	32	REL3 N.C.	Relay 3 N.C. contact
	33	R3 COM	Relay 3 common contact
	34	R3 COM	For connection of relay 3 common via cross connector*
RELAY BLOCK 2	41	REL4 N.O.	Relay 4 N.O. contact
	42	REL4 N.C.	Relay 4 N.C. contact
	43	R4 COM	Relay 4 common contact
	44	R4 COM	For connection of relay 4 common via cross connector*
	51	REL5 N.O.	Relay 5 N.O. contact
	52	REL5 N.C.	Relay 5 N.C. contact
	53	R5 COM	Relay 5 common contact
	54	R5 COM	For connection of relay 5 common via cross connector*
	61	REL6 N.O.	Relay 6 N.O. contact
	62	REL6 N.C.	Relay 6 N.C. contact
63	R6 COM	Relay 6 common contact	
64	R6 COM	For connection of relay 6 common via cross connector*	
25		Shield connection (functional earth), internally connected to the DIN rail	

* Do not connect by wire!

Permissible Loads

Table 35. Permissible loads of Relay Output Modules

	max. load
per relay output module (total) (common)	24 VAC, 60 Hz 12 A 24 VDC 12 A resistive, 12 A, 0.6 PF
per normally open contact (common)	24 VAC, 60 Hz 4 A 24 VDC 4 A resistive, 4 A, 0.6 PF
per normally closed contact (common)	24 VAC, 2 A, 60 Hz 24 VDC 4 A resistive, 4 A, 0.6 PF

Status LEDs with Manual Overrides

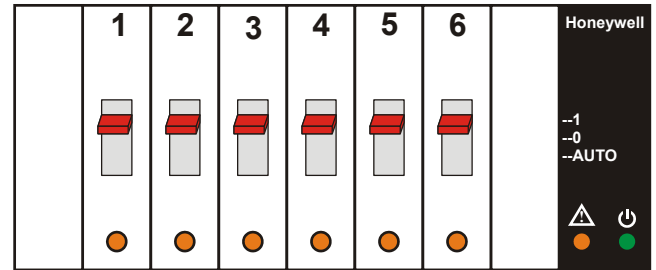


Fig. 46. Manual overrides (toggle switches)

The XFR824AU and XFLR824AU Relay Output Modules are equipped with six manual overrides: one for each relay output. These toggle switches can manually be set to either "auto" or "0" or "1".

Table 36. Relay Output Module status LED behavior

mode	LED	N.O.* (direct)	N.C.* (reverse)
automatic mode, state "logical ON"	ON	ON	OFF
automatic mode, state "logical OFF"	OFF	OFF	ON
override mode (setting "0")	flashes	OFF	ON
override mode (setting "1")	flashes	ON	OFF

*As configured during engineering.

Connection Examples

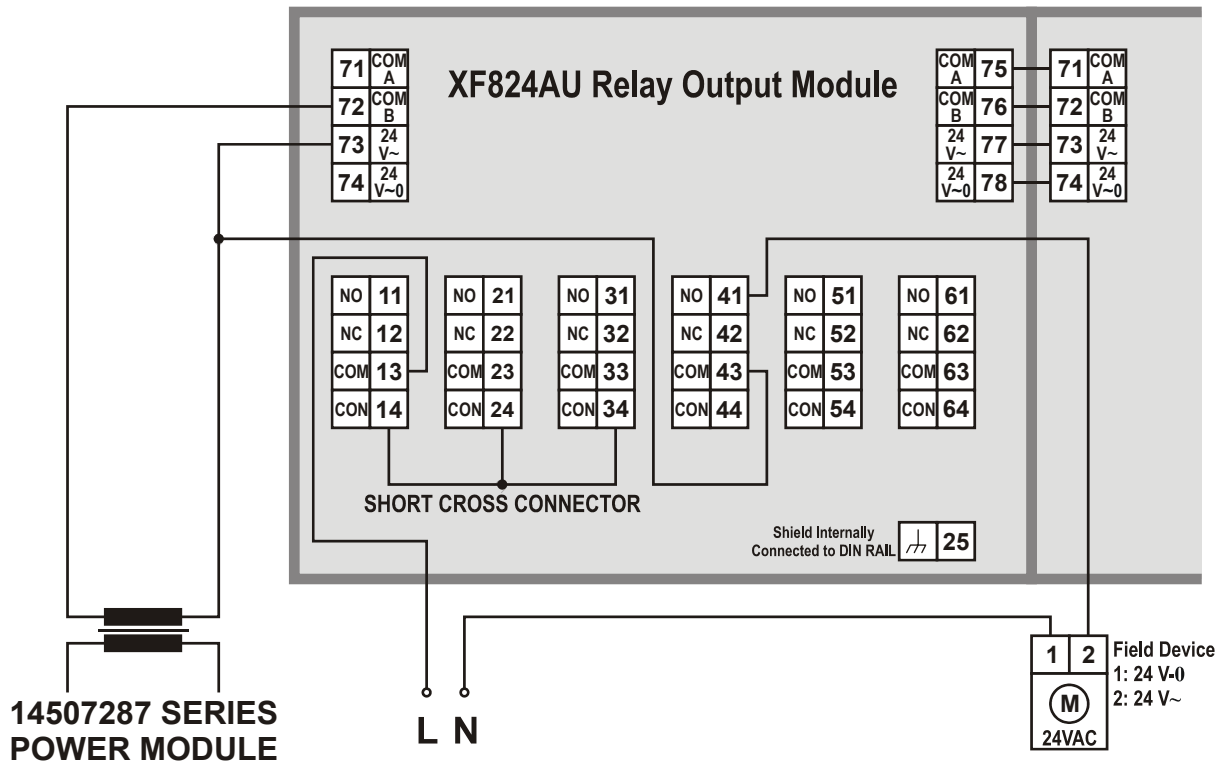


Fig. 47. XF824AU connection example

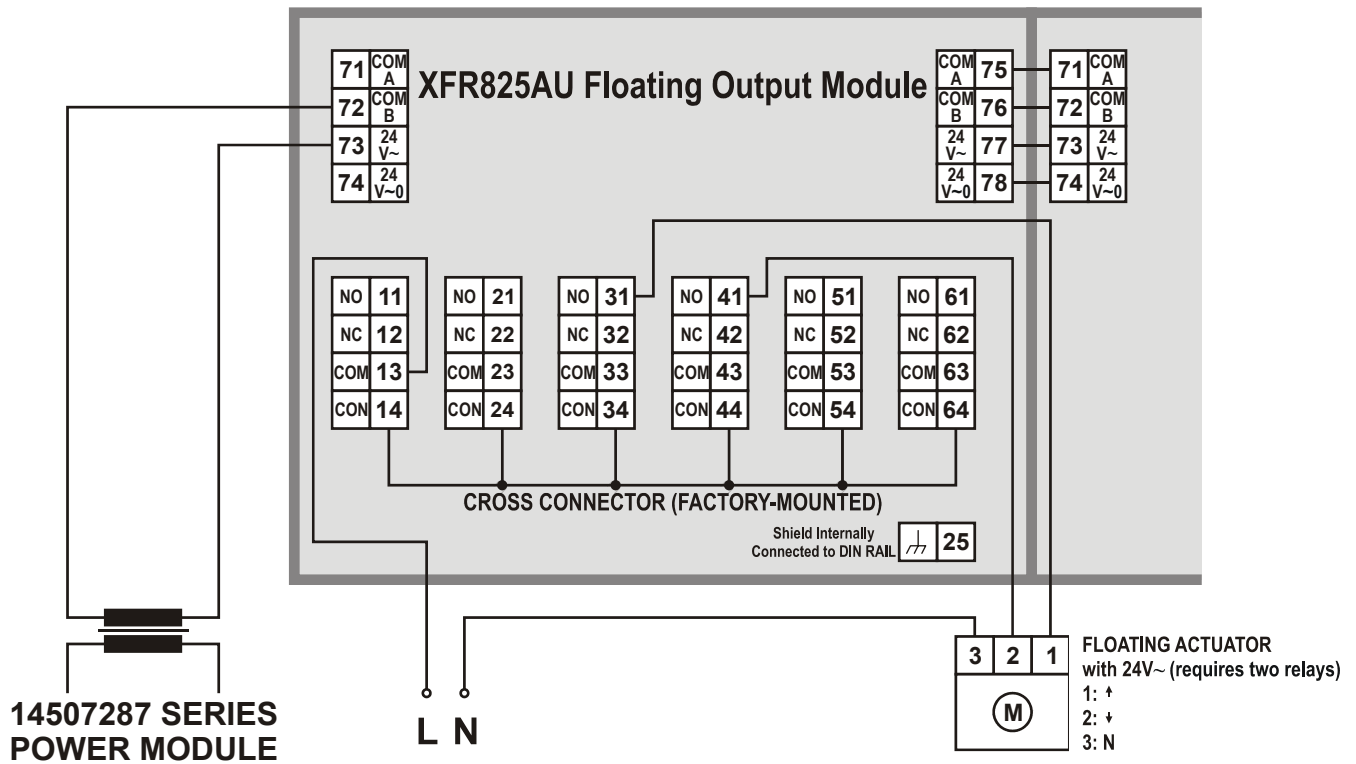


Fig. 48. XFR825AU connection example

Troubleshooting

Testing Wiring Connections

The push-in terminals feature small holes (1 mm in diameter) which can be used to measure the signals.

- ▶ Insert a probe (1) as shown on the right.

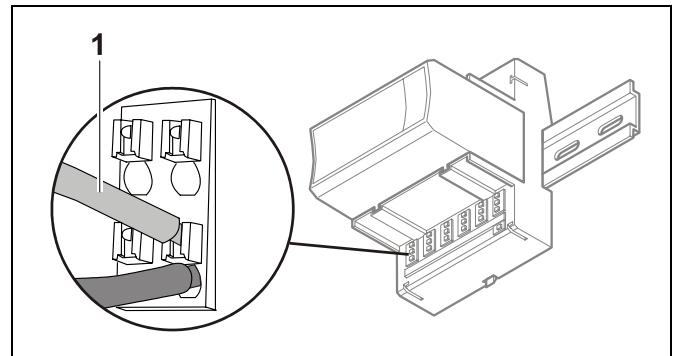


Fig. 49. Testing wiring connections

Troubleshooting on the XCL8010AU Controller

The following LEDs of the XCL8010AU Controller can be used for troubleshooting purposes:

- Power LED (green)
- Alarm LED (red)
- LONWORKS service LED
- C-Bus Tx and Rx LEDs
- HMI Tx and Rx LEDs

Power LED (green)

Table 37. XCL8010AU power LED

case	power LED	meaning	remedy
1	ON	Normal operation	No action necessary
2	Flashing	One or more of the internal voltage supplies are outside of the permissible ranges. The controller stops operation.	<ul style="list-style-type: none"> ▶ Check power ▶ Check wiring ▶ If problem persists, replace hardware
3	Goes out briefly	<ul style="list-style-type: none"> • The operator has activated the reset button • The controller is performing a warm start 	No action necessary

Table 39. XCL8010AU LonWorks service LED

case	When can it occur?	meaning	remedy
1	Anytime	Node is configured and running normally	No action necessary
2	Power up of controller	Bad node hardware	► Replace hardware
3	Power up of controller	Bad node hardware	► Replace hardware
4	Power up / reset	Node lacks application. May be caused by neuron chip firmware when a mismatch occurs on application checksum	► Using EXCELON, set module to “configured online” ► If problem persists, the MIP software on LW interface has been erased due to wrong setting performed using ECHELON tool: Replace hardware
5	Anytime	Watchdog timer resets occurring. Possible corrupt EEPROM and bootstrap mode	► Download firmware
6	Anytime	Node is unconfigured but has an application	► Proceed with commissioning

C-Bus Tx and Rx LEDs

Table 40. XCL8010AU C-Bus Tx and Rx LEDs

case	C-Bus LEDs	meaning	remedy
1	Both LEDs are flashing	If the C-bus is functioning properly, then the XCL8010AU is functioning properly	No action necessary
		If the C-bus is not functioning properly, then the termination can be wrong	► Check C-bus termination switch S1 (location: see Fig. 4 on page 7)
2	Both LEDs are OFF	No C-bus communication	► Check C-bus settings
3	Both LEDs are flashing synchronously	No C-bus communication	► Check C-bus wiring

HMI Tx and Rx LEDs

Table 41. XCL8010AU HMI Tx and Rx LEDs

case	HMI LEDs	meaning	remedy
1	Both LEDs are flashing	If the HMI Interface is functioning properly, then the XCL8010AU is functioning properly	No action necessary
2	Both LEDs are OFF	No HMI Interface communication	► Check HMI Interface connection and proper earthing of connected hardware

I/O Modules Troubleshooting

- ▶ Check if the power supply voltage level is OK and that there is no high voltage (> 24 VAC or > 40 VDC) connected to the inputs/outputs of the XF821AU, XFL821AU, XF822AU, XFL822AU, XFR822AU, XFLR822AU, XF823AU, and XFL823AU I/O modules.
- ▶ Replace the problem I/O module with another module of the same kind.
 - If the problem persists, this is an indication that the problem is caused by the application or incorrect wiring.
 - If the problem is solved, this is an indication that the I/O module was defective.

For troubleshooting purposes on all I/O modules the following features can be used:

- Power LED
- Service LED
- Service button

In addition, a module-specific troubleshooting may be necessary.

Power LED of I/O Modules

Table 42. Power LED of I/O modules

case	power LED	meaning	remedy
1	ON	I/O module is powered	No action necessary
2	OFF	No power	▶ Check power supply
3	Flashing continuously	If the I/O module's service LED is likewise flashing, the I/O module is in the boot mode	▶ Wait until rebooting (firmware download) has been completed

Service LED of I/O Modules

Table 43. Service LED of I/O modules

case	Service LED	meaning	remedy
1	LED remains OFF after power-up	If the power LED is also OFF, then <ul style="list-style-type: none"> - Defective device hardware - Possible power supply problems, clock problems, defective processor 	<ul style="list-style-type: none"> ▶ Replace hardware
2	LED is lit continuously after first power-up	<ul style="list-style-type: none"> • LONWORKS Bus I/O modules: <ul style="list-style-type: none"> - Defective hardware • Panel Bus I/O modules: <ul style="list-style-type: none"> - I/O module has not yet been configured by XCL8010AU - Boot loader is active - Failure during last firmware download - Checksum error 	LONWORKS Bus I/O modules: <ul style="list-style-type: none"> ▶ Replace hardware Panel Bus I/O modules: <ul style="list-style-type: none"> ▶ Set the hex address to the position configured with CARE ▶ Ensure that I/O Bus switch S2 of XCL8010AU is set to position "Panel" ▶ Check the Panel Bus wiring: <ul style="list-style-type: none"> - Check for cable breaks - Check for cable short-circuits - If using separate transformers: Check ground connection ▶ Eliminate any mixture of Panel Bus I/Os and LonWorks I/Os on same wire ▶ Allow XCL8010AU to configure I/O module ▶ Unplug and replug the module ▶ If problem persists, replace hardware
3	Alternating flash between service LED and power LED	Panel Bus I/O modules, only: Download error or application checksum error. Boot loader is running	<ul style="list-style-type: none"> ▶ Panel Bus I/O modules, only: Wait until rebooting (firmware download) has been completed
4	LED flashes at power up, goes OFF, and then is lit continuously	LONWORKS Bus I/O modules, only: LONWORKS Bus I/O module lacks application	<ul style="list-style-type: none"> ▶ Download application
5	LED repeatedly blinks ON for 1 sec and OFF for 1 sec	LONWORKS Bus I/O modules, only: LONWORKS Bus I/O module is unconfigured, but has an application	<ul style="list-style-type: none"> ▶ Set module to configured mode
6	LED remains OFF after a short ON duration	I/O module is configured and running normally	No action necessary
7	LED flashes continuously in following pattern: 4 x ON/OFF followed by pause	Sensor failure of Analog Input Module (in case of LONWORKS Bus I/O modules, this behavior can occur only if the appropriate NV has been bound)	<ul style="list-style-type: none"> ▶ Check sensor or connection ▶ Check sensor configuration
8	LED flashes continuously in following pattern: 5 x ON/OFF followed by pause	LONWORKS Bus I/O modules, only: LONWORKS I/O Bus module has received the wink command from network, physical outputs are unaffected	No action necessary
9	LED flashes continuously in following pattern: 6 x ON/OFF followed by pause	Boot loader problem or hardware defect	<ul style="list-style-type: none"> ▶ Replace hardware
10	LED flashes continuously in following pattern: 7 x ON/OFF followed by pause	Communications failure	<ul style="list-style-type: none"> ▶ Check bus wiring ▶ Ensure that I/O Bus switch S2 of XCL8010AU is set to correct position ▶ Ensure that LONWORKS Bus I/O modules and Panel Bus I/O modules are not sharing same bus ▶ In case of Panel Bus I/O modules, only: Check for incorrect HEX addresses (2 Panel Bus I/O modules using same HEX address) ▶ In case of LONWORKS Bus I/O modules, only: Check heartbeat

Honeywell

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