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You can read the recommendations in the user guide, the technical guide or the installation guide for HONEYWELL XL1000. You'll find the answers to all your questions on the HONEYWELL XL1000 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual HONEYWELL XL1000
User guide HONEYWELL XL1000
Operating instructions HONEYWELL XL1000
Instructions for use HONEYWELL XL1000
Instruction manual HONEYWELL XL1000

		Honeywell
		XL 1000 Series
		FOR SMOKE CONTROL
HONEYWELL EXCEL 5000 OPEN SYSTEM		
		INSTALLATION AND COMMISSIONING INSTRUCTIONS
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EN1B-0409GE51 R0908A



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...32 Trademark Information Echelon, LON, LONMARK, LONTALK, LONWORKS, Neuron, are trademarks of Echelon Corporation registered in the United States and other countries. EN1B-0409GE51 R0908A 2 XL1000 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. 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. FULL-SIZE CABINET General The XL1000 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 UL2017 applications, the product can be used as a type NM (Non-Monitored) system. It is also approved for UL916 (Energy Management Equipment.) The XL1000 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 XL1000 from carton. Check equipment and report any damage to a Honeywell representative. 2. Verify cabinet is installed correctly.

3. Securely mount the XL1000 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.

SIX NO. 10 x 1/2-INCH (13 mm) SHEET METAL SCREWS Fig. 1. Mounting controller subpanel in cabinet (full-size subpanel cabinet shown) 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. 3 EN1B-0409GE51 R0908A Wiring XL1000 Wiring All wiring to the XL1000 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, LONWORKS 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. 13 through Fig.

15 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.



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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 analog input digital input analog output digital output totalizer output signal ground (1 pin signal type AI DI AO DO TI GND input / output input input output output input -1 (2 voltage type SIGNAL SIGNAL SIGNAL AC/DC SIGNAL -- max. voltage $\pm 12\text{ V} \pm 10\text{ V} \pm 10\text{ V} \pm 12\text{ V}$ -- max. current $\pm 20\text{ mA} \pm 20\text{ mA} \pm 2\text{mA}$ interface (8-position, shielded RJ45 connector jack, CAT5) LonWorks interface (8-position, unshielded RJ45 connector jack) Fig. 3. Connections to the XL1000 Controller 7 EN1B-0409GE51 R0908A Description of the XL1000 Controller XL1000 Terminal Blocks The XL1000 features two rows of removable terminal blocks (located at the front left-hand side; see Fig. 3) for the connection of cables to the two binary outputs and the binary input as well as for connecting LONWORKS and the power supply. A nearby sticker provides an overview of the terminal assignment (see Fig. 4). LonWorks Interface The XL1000 is equipped with a LONWORKS interface (specifically: an RJ45 jack) for communication on LONWORKS networks. 87654321 LON 7 8 9 10 11 12 ! LonWorks Fig.

5. LonWorks interface (RJ45 jack) There are two methods of connecting the XL1000 to the LONWORKS network (both or either connection method can be used): · via terminals 5+6 and 11+12 of the terminal blocks (see Fig. 3); and/or · via the corresponding jack located to the right of the terminal blocks (see Fig. 5). See also section "LonWorks Service LED and Service Button" on page 9 for details on the corresponding LONWORKS service LED and one LONWORKS service button.

24V LON -0 123456 Fig. 4. Terminal assignment sticker Maximum torque for fastening the wiring terminal screws is 0.5 Nm (4.5 lb-in).

Table 6 provides a more-detailed explanation of the terminals and their functions. Table 6. Overview of terminals and functions term. 1+2 function power supply (24 Vac) a binary input (normally-open, 36 Vdc; pin 4 is the signal ground), freely configurable (using CARE 7) to read input from either 1) a field device or 2) a collective alarm input or 3) a 2nd XL1000 whose duties it could then assume in the event of its failure LONWORKS a binary output / "watchdog relay" (SPDT, normally closed, 24 Vac, max. 2 A permanent load), permanently configured to output to an alarm device (which can then signal that XL1000 is malfunctioning) a binary output (potential-free contact, SPST, normally-open, 24 Vac, max. 2 A permanent load), configurable (using CARE) to output to either 1) a field device or 2) a 2nd XL1000 which could then assume the 1st XL1000's duties in the event of its failure Ethernet Interface The XL1000 is equipped with a 10/100-Mbaud Ethernet interface (specifically: an RJ45 jack) permitting communication (as per IEEE 802.3) on BACnet/IP networks. 3+4 5+6 87654321 7+8 9+10 Fig. 6. Ethernet interface When thus connected, the user sitting at a platform hosting EBI can thus e.

g. view and edit the time programs, trend values, etc. of the other devices in the BACnet/IP network. This Ethernet jack conforms to the specifications of the following two Ethernet sub-standards: · 100Base-TX (twisted pair / star wiring; 100 Mbaud Ethernet based on Manchester signal encoding over category 5 or better twisted pair cable; max. segment length = 100 meters) and 11+12 LONWORKS EN1B-0409GE51 R0908A 8 XL1000 Description of the XL1000 Controller · 10Base-T (twisted pair / star wiring; 10 Mbaud Ethernet based on Manchester signal encoding over category 3 or better twisted pair cable; max. segment length = 100 meters). 12.5 mm RS232C Serial Interface Ports The XL1000 is equipped with three male 9-pin sub-D jacks into which corresponding female 9-pin sub-D plugs can be inserted for various different purposes (see following subsections). These ports allow data transmission rates of 9.6, 19.2, 76.8, or 115.2 kBaud (the default). Fig. 8.

USB interface Alternatively, either of the following two adapters can also be used: SMC 2208USB/ETH and SMC 2209USB/ETH. LEDs and Buttons LonWorks Service LED and Service Button The XL1000 is equipped with a LONWORKS service LED and a LONWORKS service button, together marked "LON" (see Fig. 3). They are used for commissioning the XL1000 and for troubleshooting. LonWorks Service Button When the LONWORKS service button is pressed, the service pin message is broadcast on the LONWORKS network, and all LONWORKS tools currently connected to the LONWORKS network will receive this message.

LonWorks Service LED The LONWORKS service LED can display various behaviors having different meanings (see Table 7). Fig. 7. RS232C serial interface The user can configure the specific desired data transmission rate of each individual RS232C port; it is thus possible for the three ports to operate simultaneously at three different rates. Port 1 (Factory Service Interface) Port 1 is intended for the connection (as needed) of a platform for the purpose of servicing (in the factory, only) the XL1000. In this context, "servicing" comprises a group of different activities including: · updating portions of the XL1000's Operating System (namely: LINUX, BACstack, Apache Web-Server) and · diagnostics (Linux, firmware). Power Supply LED The LED marked " " indicates whether or not the XL1000 is currently under power. Specifically, when it is lit, the XL1000 is under power; when it is dark, the XL1000 is not under power. Port 2 (Browser Interface) NO CONNECTION. Port 3 (Modem Interface) NO CONNECTION.

Binary Input (terminals 3+4) LED The LED marked " " indicates the state of the binary input (which is a normally-open contact) located at terminals 3 and 4. Specifically, when it is lit, the binary input is closed; when it is dark, the binary input is open. CF Port LED, Request Button, and Slot NO CONNECTION. USB Interface Downloads The XL1000 is equipped with a USB port into which a standard USB type-A connector can be inserted. This USB interface is the recommended interface for downloading applications. The following USB host networking adapter has been approved: BELKIN DIRECT CONNECT (BELKIN order no.: F5U104 or F5U104G at www.belkin.com). Binary Output (terminals 7+8) LED The LED marked " " indicates the state of the binary output ("watchdog" relay) at terminals 7 and 8 (which is a normally closed contact).



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Specifically, when it is lit, the alarm contact is open; when it is dark, the alarm contact is closed. 9 EN1B-0409GE51 R0908A Mounting XL1000 Binary Output (terminals 9+10) LED The LED marked " " indicates the state of the binary output at terminals 9 and 10 (which is a normally-open contact). Specifically, when it is lit, this means that the application has closed the relay; when it is dark, the relay is open. Table 7. LONWORKS service LED behaviors / meanings LED behavior 1 LED remains OFF after power-up.

LED is lit continuously after first power-up. LED flashes at power-up, goes OFF, and then is lit continuously. LED flashes briefly periodically. LED repeatedly blinks ON for 1 s and OFF for 1 s. OFF for approx. 10 s. Afterwards, the service LED turns ON and remains ON, indicating completion of the blanking process. OFF for approx. 1 s. Afterwards, the service LED is lit continuously. Ethernet Link LED The LED marked " " indicates the Ethernet link's status. Specifically, it is lit whenever an Ethernet jack has been inserted into the corresponding port and the software has established the Ethernet link. It is dark when the link has been disabled. meaning Defective XL1000 hardware (e.g. power supply problems, clock problems, or defective Neuron Chip). Defective XL1000 hardware. Neuron chip lacks LONWORKS interface program. Remedy: Use Excelon or LonMaker, set XL1000 online. XL1000 probably experiencing continuous watchdog resets, or external memory or EEPROM is corrupt. XL1000 is unconfigured but has an application. Remedy: Commission XL1000. Ethernet Activity LED The LED marked " " indicates whether or not the Ethernet link is currently active. Specifically, when it flashes, this means that signals are being transmitted / received on the Ethernet network; when it is dark, no messages are being transmitted/received. 2 3 LEDs L1 and L2 At present, these LED's are not in use.

4 Reset Button The reset button can be pressed only using a long, thin tool (e.g. a screwdriver). Pressing it reboots the XL1000's operating system and restarts the application. 5 6a Return XL1000 to factory.

Mounting Before Installation IMPORTANT To allow the evaporation of any condensation resulting from low shipping / storage temperatures, keep the controller at room temperature for at least 24 h before applying power. In order to meet the criteria for CE certification, the XL1000 must be mounted inside an electrical panel. 6b Return XL1000 to factory. 6c OFF for 1 15 s, depending on application size and system XL1000 is unconfigured but clock. Afterwards, service LED has an application.

Remedy: repeatedly flashes ON for 1 s Commission XL1000. and OFF for 1 s. LED remains OFF after a short ON duration. LED flashes ON. XL1000 is configured and running normally. XL1000 received a WINK command from LONWORKS; other physical outputs are unaffected. 7 Dimensions The XL1000 has the following dimensions (W x L x H): 278 x 190 x 61 mm. Its housing conforms to IP20. Its pollution degree (2) makes it suitable for use in residential controls, commercial controls, in a clean environment, or non-safety controls for installation on or in appliances. The XL1000 is suitable for mounting on a standard rail (DIN EN 50022-35 x 7,5) for installation in appropriately-sized wiring cabinets.

Allow sufficient clearance (approx. 30 mm) to access the interfaces and to open the swivel cover (see Fig. 9). 8 In case of a problem, check if the LONWORKS service LED's behavior is changed by resetting the XL1000 using the reset button. Please contact Honeywell if this does not solve the problem. Ethernet LEDs The XL1000 is equipped with two Ethernet LEDs (see Fig. 3). EN1B-0409GE51 R0908A 10 XL1000 Mounting Allow 30 mm clearance for opening swivel cover. step 1 190 LON CF LON 1 2 3 100 mm Allow 30 mm clearance for accessing interfaces. 36.

5 278 4.4 +/- 0.3 step 3 step 4 0.6 60.6 step 2 fastening plate 141.

5 +/- 0.3 Fig. 11. @ @ @ @ 9. @ @ @ 10.

@ @ @ 11): 1. Hang the upper slot onto the upper DIN rail. 2. Swing the unit down until it is flush with the lower DIN rail. 3. @ @ @ 4. @ @ @ @ 12. @ @ @ @ @ @ @ @ @ @ AGC-2 LITTLE FUSE PART NO. 312002 ~ G 14507063-002 POWER CABLE (incl. @ @ @ @ 13.

@ @ @ @ 2 AMP MAX. @ @ @ @ @ @ 14. @ @ 15. @ @ @ @ Different network configurations (daisy-chain, loop, and star configurations, or any combination thereof) are possible (see also Excel 50/500 LONWORKS Mechanisms Interface Description, EN0B-0270GE51). Interfaces and Bus Connections The XL1000 System can be connected to the following devices and systems: LonWorks Bus · For communication with other LONWORKS Bus devices within the building · FTT10, link power compatible · Polarity-insensitive Connecting to the LONWORKS Network IMPORTANT Do not bundle wires carrying field device signals or LONWORKS communications together with high-voltage power supply or relay cables. Specifically, maintain a min. separation of 3 inches (76 mm) between such cables. Local wiring codes may take precedence over this recommendation. IMPORTANT Try to avoid installing in areas of high electromagnetic noise (EMI). Technical Data System Data Table 8.

System data operating voltage power consumption NOTE: 24 VAC/DC, 60 Hz max. 7 A (one XL1000 + 40 I/O modules) XL1000 The max. permitted number of LonWorks I/O modules depends upon the type of modules used. In the case, e.g. , of XL800 Binary Input Modules, a maximum of 21 may be used. 11 12 56 XL1000 11 12 56 termination module Operational Environment Table 9.

Operational environment ambient operating temperature ambient operating humidity ambient storage temperature ambient storage humidity 0 49 °C (32 122 °F) 5 93 % relative humidity (non-condensing) 20 70 °C (4 +158 °F) 5 95 % relative humidity (non-condensing) Fig. 16. Connection to LONWORKS network and termination module (here: daisy-chain network configuration) The XL1000 can be connected to the LONWORKS network via terminals 5+6 and 11+12 of the removable terminal plug or via the LONWORKS jack (see also section "LonWorks Interface" on page 8).

This permits individual XL1000 controllers to be connected / disconnected from the LONWORKS network without disturbing the operation of other devices. Depending upon the chosen network configuration, one or two terminations may be required. Two different LONWORKS termination modules are available: · LONWORKS termination module, order no.: 209541B · LONWORKS connection / termination module (mountable on DIN rails and in fuse boxes), order no.: XAL-Term EN1B-0409GE51 R0908A 14 XL1000 Binary Input and Outputs The binary input is protected against miswiring. Specifically, it is protected against voltages of up to 29 Vac; when miswired, the XL1000 is unable to detect a valid input signal. Honeywell XAL-Term 3 1 shield 0 4 5 shield 6 LON Termination FTT/LPT Bus FTT/LPT Free Park Position Binary Outputs The XL1000 is equipped with two binary outputs.



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3 4 plug-in jumper removable screw-type 3-pole terminal block L O N L O N Hardware Limits . . . A min. current of 50 mA is required to ensure a reliable contact. The binary outputs are designed for a max.

continuous current of 2 A. Switching voltage = 24 Vac, 60 Hz Fig. 17. LONWORKS connection and termination module Protocolling In the context of the XL1000, "protocolling" means creating a log of the values or states of the data-points which have been assigned to this particular XL1000. Using the browser interface, the user must place the corresponding data-points into "trend." If, at some later point in time, i.e. after lengthy operation, a protocol of the XL1000's history is desired, the corresponding trend data can be generated, viewed, and downloaded (in CSV format) via the browser interface. For the storage of larger amounts of trend data (more than 64,000 trend entries corresponding to approx. 2 MB), a CF card (see section "CF Port LED, Request Button, and Slot") can be used.

Binary Input and Outputs Wiring When wiring the two binary outputs and the binary input, use 2 a min. size of 20 AWG (0.5 mm) and a maximum of 14 AWG 2 (2.5 mm). The max.

length of all cables is 400 m. Binary Input The XL1000's binary input (a normally-open contact) is not electrically isolated. It is suitable for connection with / signalling via 24 Vdc voltage or external resistor or dry contact. XL1000 Configuration 1 14507287-001, -002, -003, -007 POWER SUPPLY XL1000C500U (XL WEB) LON 120 VAC 60 Hz 2 ANALOG INPUT ANALOG OUTPUT ANALOG OUTPUT DIGITAL INPUT DIGITAL OUTPUT DIGITAL OUTPUT 14502412-014 LIGHTNING PROTECTOR 14506944-01 TOTAL EQUALIZER PROTECTOR 14506944-01 TOTAL EQUALIZER PROTECTOR 14506944-01 TOTAL EQUALIZER PROTECTOR 14506944-01 TOTAL EQUALIZER PROTECTOR 14506944-01 TOTAL EQUALIZER PROTECTOR 14502412-014 LIGHTNING PROTECTOR XFL821AU XFL822AU XFLR822AU XFL823AU XFL824AU XFLR824AU 3 ETHERNET 4 5 6 14507678-004 DITEK SURGE SUPPRESSOR 14507678-004 DITEK SURGE SUPPRESSOR 14507719-001 BLACK BOX HUB 14507678-004 DITEK SURGE SUPPRESSOR 14507678-004 DITEK SURGE SUPPRESSOR EBI (R310) 120 VAC 60 Hz 120 VAC 60 Hz Fig. 18. XL1000 configuration 15 EN1B-0409GE51 R0908A XL1000 Configuration XL1000 1 Power supply output power 24 VAC, 60 Hz, 48 VA (-001, -002, -003, and -007) 24 VAC, 60 Hz, 100 VA (-002 and -003, only) 24 VAC, 60 Hz, 40 VA (-002, only) 24 VDC, 60 Hz, 0.6 A (-003, only) LONWORKS wire distance 1200 m (approx. 4000 ft.) 24 ohm total line resistance 47 microfarad capacitance XFL822AU / XFLR822AU 8 analog outputs 10 V, 1 mA each XFL824AU / XFLR824AU 6 digital outputs 4 A max. per output (relay current) 12 A max. per module W7761A2010/U W7751D2016/U W7751F2011/U W7751B2010 W7751H2025 separately listed S4804, Vol. 3 Ethernet line load pin 1 10 ohm pin 2 10 ohm pin 3 10 ohm pin 6 10 ohm 3 4 5 6 7 8 Locate per UL555S. Locate separate from and below all building exhaust fans and upstream of any prevailing winds. Exhaust to outside of building. Locate airflow differential switch.

Locate UL-listed damper pressure / position indicator per damper installation instructions. 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. Refer to NFPA 92A. 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. 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.). 2 3 4 9 10 5 6 11 Smoke Control Configuration SMOKE CONTROL CONFIGURATION Data File Set-Up 9 SUPPLY FAN XL1000 11 AO 4 5 3 UL-LISTED FIRE ALARM CONTROL UNIT AIRFLOW SENSOR AO EXHAUST FAN 8 FIREFIGHTERS' SMOKE CONTROL PANEL (FSCS) 14505068 AUDIBLE ANNUNCIATOR 2 AO Generate the engineering data file for the XL1000 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 XL1000 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 XL1000, 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. DAMPER VERIFICATION 1 STATUS CONTROL 10 6 7 Fig. 19.

Typical smoke control configuration NOTES: 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. 1 Locate and configure per NFPA 92A, Section 3-4.3.4. UL-listed annunciator / FSCS panel switches have a minimum rating of 24V, 1/10 Amp, and lamps / LEDs have a rating of 24 V, limited to 50 mA. Locate so as to minimize control wiring and piping. Avoid running wires or piping through areas that have a high fire risk. 2 EN1B-0409GE51 R0908A 16 XL1000 XL1000 Configuration CAUTION Risk of electric equipment damage! Failure to use listed/approved replacement parts can Connecting Single Bus Controller Systems This section describes how to connect a controller system which uses LONWORKS I/O modules, only. 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. XL1000, I/O Modules on Single Rail Connect XL1000 and I/O modules using the bridge connectors. This provides power supply and communication connection. No further wiring is necessary. Typical Power Limited Circuit for XL1000 POWER LIMITED POWER LIMITED XL1000, I/O Modules on Rails in Single Cabinet The multiple rails of a controller system are connected in series. Connect the rail ends as follows: 2 NON-POWER LIMITED CPU ANALOG INPUT MODULE ANALOG OUTPUT MODULE DIGITAL INPUT MODULE DIGITAL OUTPUT MODULE Power supply via power supply terminals 73, 74 or 77, 78 Communication via communication terminals 71, 72 or 75, 76 POWER LIMITED 24VAC CONTROL 24VAC ACCESSORY 24VAC NON-POWER LIMITED 2 1 NON-POWER LIMITED 3 2 1 71 72 LonWorks 73 I/O MODULE 74 71 72 LonWorks 73 I/O MODULE 74 75 71 72 LonWorks 76 73 I/O MODULE 74 71 72 LonWorks 73 I/O MODULE 74 75 76 77 78 NON-POWER LIMITED Fig.



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20. Typical power-limited circuit for XL1000 LonWorks I/O MODULE LonWorks I/O MODULE 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. 14507287-001, -002, -003, and -007 control power module 24 VAC output is inherently power-limited. Thus, all sourced power from the XL1000 controller is power-limited.

All field wiring from these controllers meet NFPA 70, Article 725 power limited Class II requirements. If a separate auxiliary power-limited 24 VAC power source is required, use a control power module (14507287-001 or -007 control supply). 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. 5 6 XL1000 12 11 12 75 71 72 LonWorks 76 I/O MODULE 77 78 2 3 4 Fig. 21. Wiring power supply and communication lines to the I/O modules 17 EN1B-0409GE51 R0908A Mounting/Dismounting Modules XL1000 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 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 room 2: via communication terminals 71, 72 or 75, 76 ROOM 1 75 71 72 LonWorks 76 I/O MODULE 77 73 78 74 5 6 XL1000 12 11 12 75 71 72 LonWorks 76 I/O MODULE 73 74 controller system. More than one disconnect switch may be required to deenergize 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. ROOM 2 LonWorks 73 I/O MODULE LonWorks I/O MODULE LonWorks 76 I/O MODULE 77 Mounting/Dismounting Sockets 75 Mounting Sockets LonWorks LonWorks I/O Module I/O Module 74 78 XL1000 LonWorks LonWorks I/O Module I/OBUS Module LonWorks I/O max. no.: approx. 40 (depending upon mix) Fig. 22. Wiring LONWORKS I/O modules in separate rooms Fig.

23. Max. number of LONWORKS I/O modules NOTE: The max. permitted number of LonWorks I/O modules depends upon the type of modules used. In the case, e.g., of XL800 Binary Input Modules, a maximum of 21 may be used. Maximum Cable Length Max. cable length: 1200 meters (4000 ft), supervised. 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 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. 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 terminal sockets flush with one another along the rail.

If desired, mount stoppers at the ends of the rail to prevent sliding. EN1B-0409GE51 R0908A 18 XL1000 Mounting/Dismounting Modules Fig. 25. Connecting terminal sockets with bridge connector NOTE: Fig. 24. Mounting terminal sockets Bridge connectors transmit both communication signals and power supply between I/O modules. Removing bridge connectors will interrupt the transmission of both communication signals and power supply between the I/O modules. Connecting Sockets Terminal sockets on the same DIN rail can be connected mechanically and electrically with bridge connectors. The XL1000 and terminal sockets must be connected using cables. Dismounting Terminal Sockets Disconnecting Terminal Sockets Release all bridge connectors before removing the terminal sockets from the DIN rail.

Press down at the same time both the gray side wings next NOTICE Risk of malfunction! LONWORKS I/O modules must be connected to the XL1000 to the red button and then pull the bridge connector out of the terminal socket. via LON terminals 5 and 6 and/or 11 and 12. Position the bridge connector on terminals 71 74 of the right-hand terminal socket and on terminals 75 78 of the left-hand terminal socket. Then press the bridge connector down. Fig. 26. Releasing bridge connectors Dismounting Terminal Sockets Insert a screwdriver into the latch on the underside of the terminal socket and lever the red latch 23 mm downwards. The terminal socket can then be swung away from the rail. 19 EN1B-0409GE51 R0908A Mounting/Dismounting Modules XL1000 Fig. 27. Releasing latch Fig. 29. Locking the electronic module Mounting/Dismounting Electronic Modules Mounting Electronic Modules NOTE: Electronic modules can be removed from the terminal socket or inserted into the terminal sockets without switching off the power supply. The behavior of connected field devices must be taken into consideration. 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 terminal socket or inserted into the terminal 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, Open the red locking mechanism by sliding it to the left i.e.

, left-hand, position. Gently push the electronic module onto the terminal socket and then gently pull the electronic module out of the terminal socket. until snug. Fig. 30. Dismounting the electronic module Connecting HMIs or Laptops Fig. 28. Inserting the electronic module Laptops or HMIs (e.g., XI882) can be connected via the XL1000's Ethernet interface (see section "Ethernet Interface" on page 8) or its USB interface (see section "USB Interface Downloads" on page 9).

Lock the red locking mechanism by sliding it to the right. Connecting Laptops (XW-Online/CARE) Connect a laptop (on which e.g., XW-Online or CARE has been installed) to the XL1000's Ethernet interface (see section "Ethernet Interface" on page 8) or its USB interface (see section "USB Interface Downloads" on page 9).



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ENIB-0409GE51 R0908A 20 XL1000 Description of the I/O Modules Description of the I/O Modules Common Features Switches Located on the Terminal Socket Table 10. Terminal socket switches feature function Service button · LED test, see section "Troubleshooting" S1 on page 31 · LONWORKS service button functionality for LONWORKS I/O modules Hex switch S2 · No function. LEDs Located on the I/O Module Table 11. LEDs on I/O module feature Service LED (yellow) Power LED (green) function · Service information, see section "Troubleshooting" on page 31 · Information on power supply, see section "Troubleshooting" on page 31 For the location of these elements, see figures of the respective modules. 21 ENIB-0409GE51 R0908A Description of the I/O Modules XL1000 Analog Input Modules Types of Analog Input Modules Table 12. XL800 Analog Input Modules type XFL821 XS821-822 description LONWORKS Analog Input Module terminal socket housing dark-gray light-gray Terminals 71 COM A 72 73 74 COM B 24 V~ 24 V~0 COM A COM B 24 V~ 24 V~0 75 76 77 78 VAUX VAUX AII AI2 AI3 AI4 AI5 AI6 AI7 AI8 21 22 1 2 3 4 5 6 7 8 Features · 8 analog inputs · Sensor-break and short-circuit detection, see section "Troubleshooting" on page 31.

GND GND GND GND GND GND GND GND GND 9 10 11 12 13 14 15 16 17 18 25 26 1 Fig. 32. Terminal assignment and internal connections of Analog Input Modules 2 Table 13. Description of Analog Input Module terminals terminal 71, 75 72, 76 73, 77 74, 78 18 9 18 signal COM a COM b 24 V~ 24 V~0 AII AI8 GND 10 VDC / 5 mA comment 2-wire LONWORKS communication bus 2-wire LONWORKS communication bus Power supply Power supply Analog inputs 1 8 Ground. All grounds are connected internally to each other Auxiliary voltage signal (used e. g. for supplying setpoint potentiometers). Connections to these terminals must be made in the same room. Shield connection (functional earth), internally connected to the DIN rail 21, 22 3 4 Fig. 31.

XFL821AU Analog Input Module with terminal socket Legend 1 2 3 4 Service button S1 Hex switch S2 (no function) Service LED Power LED 25, 26 NOTE: Shield connection to be used for shielded I/O cables only. It is not allowed to connect a LONWORKS shield. Functionality of service LED and power LED: see Table 24 and following. ENIB-0409GE51 R0908A 22 XL1000 Description of the I/O Modules XFL821AU Connection Examples 400 OHM 1 1 18 2 25 SHIELD 2 1 12 2 25 SHIELD 0(4) to 20 mA 0(4) to 20 mA (VIA EXTERNAL 500 OHM RESISTOR). 0 to 10 V 0 TO 10 VDC 5 10 14 11 22 12 25 SHIELD 3 1 13 2 25 SHIELD VMP Pt1000 NTC20kW Fig. 33. XFL821AU Analog Input Module, connection to field devices 23 ENIB-0409GE51 R0908A Description of the I/O Modules XL1000 Analog Output Modules Types of Analog Output Modules Table 14. XL800 Analog Output modules type XFL822 XFLR822 XS821-22 description LONWORKS Analog Output Module LONWORKS Analog Output Module with manual overrides terminal socket housing dark-gray dark-gray light-gray Functionality of service LED and power LED: see Table 24 and following. Terminals 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) · XFLR822AU: 8 manual overrides Fig. 35.

Terminal assignment and internal connections of the Analog Output Modules Table 15. Description of Analog Output Module terminals 1 2 terminal 71, 75 72, 76 73, 77 74, 78 18 9 18 signal COM a COM b 24 V~ 24 V~0 GND N.C. comment 2-wire LONWORKS communication bus 2-wire LONWORKS communication bus Power supply Power supply Ground. All grounds are connected internally to each other Do not use! Shield connection (functional earth), internally connected to the DIN rail AO1 AO8 Analog outputs 1 8 3 21, 22 25, 26 NOTE: 4 5 6 Shield connection to be used for shielded I/O cables only. It is not allowed to connect a LONWORKS shield. Technical Data Fig. 34. XFLR822AU Analog Output Module with terminal socket Legend 1 2 3 4 5 6 Service button S1 Hex switch S2 (no function) Manual overrides Output LEDs Service LED Power LED Table 16. Analog Output Module status LED behavior automatic mode override mode brightness follows the commanded output signal flashes ENIB-0409GE51 R0908A 24 XL1000 Description of the I/O Modules Modules with Manual Overrides The 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 XFLR822AU Connection Example L N 24V 14507287 POWER MODULE ~ XFLR822AU 8 11 1 73 Umax = 11 VDC Imax = 1 mA, -1 mA XSL511 GND SIGNAL 24VAC M Fig.

36. XFLR822AU Analog Output Module, connection to field devices 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. 25 ENIB-0409GE51 R0908A Description of the I/O Modules XL1000 Binary Input Modules Types of Binary Input Modules Table 17. XL800 Binary Input Modules type XFL823 XS823 description LONWORKS Binary Input Module terminal socket housing dark-gray light-gray Terminals 71 COM A 72 73 74 COM B 24 V~ 24 V~0 COM A COM B 24 V~ 24 V~0 75 76 77 78 BI1 BI2 BI3 BI4 BI5 BI6 BI7 BI8 BI9 BI10 BI11 BI12 1 2 3 4 5 6 7 8 9 10 11 12 Features · 12 binary inputs · 12 configurable status LEDs (green/red, yellow/OFF) · Binary inputs can be used as static digital inputs (drycontacts) GND GND GND GND GND GND GND GND GND GND GND GND 13 14 15 16 17 18 19 20 21 22 23 24 25 26 Fig.

38. Terminal assignment and internal connections of Binary Input Modules 1 2 Table 18. Description of Binary Input Module terminals terminal 71, 75 72, 76 73, 77 74, 78 13 24 signal COM a COM b 24 V~ 24 V~0 GND comment 2-wire LONWORKS communication bus 2-wire LONWORKS communication bus Power supply Power supply Ground.



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All grounds are connected internally to each other. Shield connection (functional earth), internally connected to the DIN rail. Shield connection to be used for shielded I/O cables only. It is not allowed to connect a LONWORKS shield. 1 12 B11 B112 Binary inputs 1 12 3 25, 26 NOTE: 4 5 Fig. 37. XFL823AU Binary Input Module with terminal socket Legend 1 2 3 4 5 Service button S1 Hex switch S2 (no function) Input LEDs Service LED Power LED Technical Data Table 19.

Technical data for of Binary Input Modules input type current rating (closed input) open contact voltage dry-contact 2 mA 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). Functionality of service LED and power LED: see Table 24 and following. EN1B-0409GE51 R0908A 26 XL1000 Description of the I/O Modules XFL823AU Connection Examples 1 1 13 2 5 TO 24V 25 SHIELD 2 14 2 MIN. 25 MS MIN. 25 MS 1 1 CONTACT SUITABLE FOR LOW VOLTAGE (GOLD). @ @39. @ @ @ @ @41. Terminal assignment and internal connections of Relay Output Modules 1 2 3 4 5 6 Fig. 40.

XFLR824AU Relay Output Module with terminal socket Legend 1 2 3 4 5 6 Service button S1 Hex switch S2 (no function) Manual overrides Status LEDs Service LED Power LED Functionality of service LED and power LED: see Table 24 and following. EN1B-0409GE51 R0908A 28 XL1000 Description of the I/O Modules Table 21. Description of Relay Output Module terminals terminal 71, 75 72, 76 73, 77 74, 78 11 12 13 RELAY BLOCK 1 signal COM a Permissible Loads Table 22. Permissible loads of Relay Output Modules max. load per relay output module (total) (common) per normally open contact (common) 24 VAC, 60 Hz 12 A 24 VDC 12 A resistive, 12 A, 0.

6 PF 24 VAC, 60 Hz 4A 24 VDC 4 A resistive, 4 A, 0.6 PF 24 VAC, 2 A, 60 Hz 24 VDC 4 A resistive, 4 A, 0.6 PF comment 2-wire LONWORKS communication bus COM b 2-wire LONWORKS communication bus 24 V~ Power supply 24 V-0 Power supply REL1 N.O. Relay 1 N.

O. contact REL1 N.C. Relay 1 N.C. contact R1 COM relay 1 common contact For connection of relay 1 common via R1 COM 14 cross connector* REL2 N.O. Relay 2 N.O. contact 21 REL2 N.

C. Relay 2 N.C. contact 22 R2 COM 23 Relay 2 common contact For connection of relay 2 common via R2 COM 24 cross connector* REL3 N.O. Relay 3 N.O. contact 31 REL3 N.C. Relay 3 N.

C. contact 32 R3 COM 33 Relay 3 common contact For connection of relay 3 common via R3 COM 34 cross connector* REL4 N.O. Relay 4 N.O. contact 41 REL4 N.C. Relay 4 N.C. contact 42 R4 COM 43 Relay 4 common contact For connection of relay 4 common via R4 COM 44 cross connector* REL5 N.

O. Relay 5 N.O. contact 51 REL5 N.C. Relay 5 N.C. contact 52 R5 COM 53 Relay 5 common contact For connection of relay 5 common via R5 COM 54 cross connector* REL6 N.O. Relay 6 N.

O. contact 61 REL6 N.C. Relay 6 N.C. contact 62 R6 COM 63 Relay 6 common contact For connection of relay 6 common via R6 COM 64 cross connector* Shield connection (functional earth), 25 internally connected to the DIN rail * Do not connect by wire! per normally closed contact (common) Status LEDs with Manual Overrides 5 6 1 2 4 3 Honeywell --1 --0 --AUTO RELAY BLOCK 2 ! Fig. 42. Manual overrides (toggle switches) The 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 23.

Relay Output Module status LED behavior mode automatic mode, state "logical ON" automatic mode, state "logical OFF" override mode (setting "0") override mode (setting "1") LED ON OFF flashes flashes N.O.* N.C.* (direct) (reverse) ON OFF OFF ON OFF ON ON OFF *As configured during engineering.

29 EN1B-0409GE51 R0908A XL1000 Connection Example 71 COM A 72 73 74 COM B 24 V~ 24 V-0 COM A COM B 24 V~ 24 V-0 75 76 77 78 72 COM B 73 74 24 V~ 24 V-0 71 COM A NO NC COM CON 11 12 13 14 NO 21 NC 22 COM 23 CON 24 NO NC COM CON 31 32 33 34 NO NC COM CON 41 42 43 44 NO NC COM CON 51 52 53 54 NO NC COM CON 61 62 63 64 25 12 14507287 SERIES POWER MODULE Fig. 43. XFL824AU connection example M EN1B-0409GE51 R0908A 30 XL1000 Troubleshooting 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 in Fig. 44.

Fig. 44. Testing wiring connections 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 XFL821AU, XFL822AU, XFLR822AU, and XFL823AU I/O modules. Replace the problem LONWORKS 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 LONWORKS I/O module was defective. For troubleshooting purposes on all LONWORKS I/O modules, the following features can be used: · Power LED · Service LED · Service button In addition, a module-specific troubleshooting may be necessary. 31

EN1B-0409GE51 R0908A XL1000 Power LED of I/O Modules Table 24. Power LED of LonWorks I/O modules case 1 2 3 ON OFF flashing continuously power LED meaning LONWORKS I/O module is powered No power remedy No action necessary Check power supply If the LONWORKS I/O module's service LED is Wait until rebooting (firmware likewise flashing, the LONWORKS I/O module is download) has been completed in the boot mode Service LED of I/O Modules Table 25. Service LED of LonWorks I/O modules case 1 Service LED LED remains OFF after power-up meaning If the power LED is also OFF, then Defective device hardware Possible power supply problems, clock problems, defective processor Defective hardware LONWORKS I/O module lacks application Replace hardware remedy 2 3 LED is lit continuously after first power-up LED flashes at power up, goes OFF, and then is lit continuously LED repeatedly blinks ON for 1 sec and OFF for 1 sec LED remains OFF after a short ON duration LED flashes continuously in following pattern: 4 x ON/OFF followed by pause LED flashes continuously in following pattern: 5 x ON/OFF followed by pause LED flashes continuously in following pattern: 6 x ON/OFF followed by pause LED flashes continuously in following pattern: 7 x ON/OFF followed by pause Replace hardware Download application 4 LONWORKS

I/O module is unconfigured, but has Set module to configured mode an application LONWORKS I/O module is configured and running normally Sensor failure of Analog Input Module (this behavior can occur only if the appropriate NV has been bound) LONWORKS I/O Module has received the wink command from network, physical outputs are unaffected Boot loader problem or hardware defect No action necessary Check sensor or connection Check sensor configuration 5 6 7 No action necessary 8 Replace hardware 9 Communications failure Check bus wiring Check heartbeat Manufactured for and on behalf of the Environmental and Combustion Controls Division of Honeywell Technologies Sàrl, Ecublens, Route du Bois 37, Switzerland by its Authorized Representative: Automation and Control Solutions Honeywell GmbH Böblinger Strasse 17 71101 Schönaich / Germany Phone: (49) 7031 63701 Fax: (49) 7031 637493 http://ecc.

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