GE Interlogix

ARITECH

UN2011

Universal Node

Installation Manual

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CONTENTS

1 INTRODUCTION

1.1 Package contents

- UN2011 Universal Node.
- Mains cable plug.
- RS232 cable.

1.2 Description

The Universal Node provides an access point for external systems to the FP2000 ARCNET network. It links the FP2000 serial communication format, implemented via RS232, and the FP2000 ARCNET protocol, implemented via RS485 / Optical fibre.

Figure 1: UN2011 Universal Node
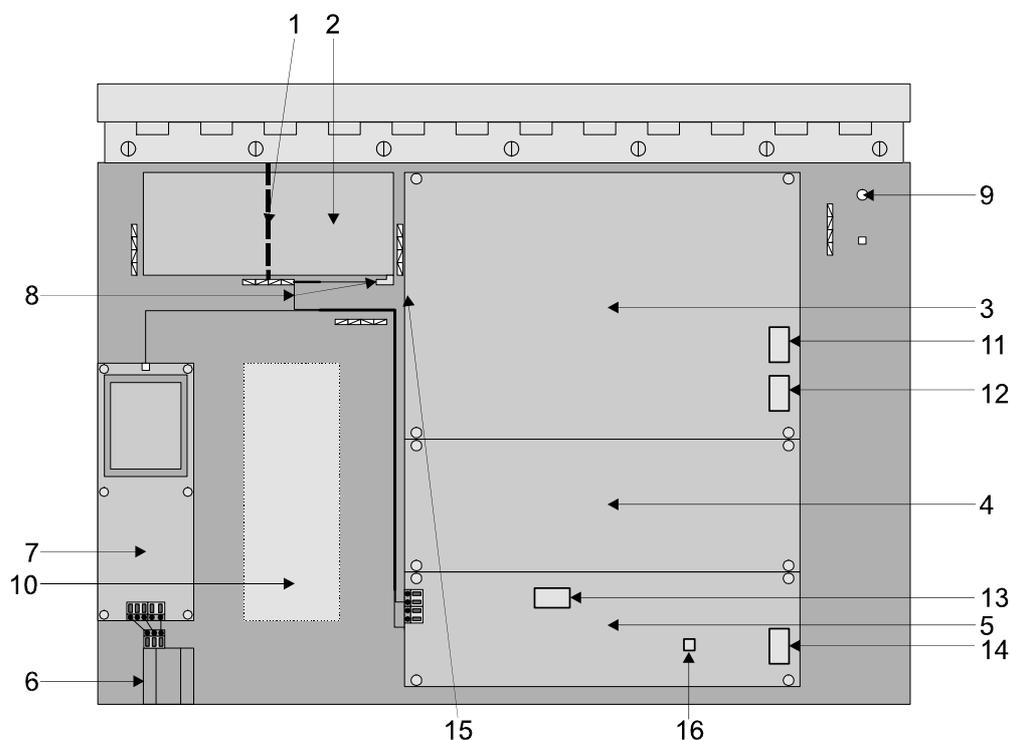
1. Strap to hold battery in place
2. Battery (not included) - 12V 1.2Ah
3. Host CPU card (FC2011)
4. Network Card (NC2011/NC2051)
5. Power supply (PS1200U)
6. Mains plug with fuse
7. Transformer
8. Battery terminals (Note: When connecting battery observe correct polarity)

9. Mounting holes (4) 5 mm diameter
10. Modem (MOD2000) - Optional
11. Serial port (SER1)
12. Serial port (SER2)
13. Modem power connection
14. Fault relay
15. Memory lock and service switches
16. Start-up switch

1.2.1 Power supply

The UN2011 Universal Node is powered from mains. Provision is made for charging an internal battery (not supplied) to serve as a standby power supply if mains power fails. Space is provided to mount the battery inside the unit. The power supply is fitted with a connection to supply power to a modem (MOD2000). A fault relay is supplied on the power supply board. This relay can be used to remotely indicate a faulty power supply (mains failure, battery not connected/under voltage etc.).

1.2.2 Mains power connection

When connecting the mains plug to a suitable power cord, ensure that mains Live is connected to the terminal marked "L", mains Neutral is connected to the terminal marked "N" and that mains Earth is connected to the terminal marked "GND" or "⏚".

1.2.3 ARCNET interface

A NC2011 network card is fitted as standard to provide for interfacing to a two wire RS485 FP2000 ARCNET Network. Using network extension modules NE2011/NE2051 the unit can be configured to provide for conversion between optical and RS485 mediums as well as implementation of a wide range of topologies. For details regarding ARCNET network topologies refer to the FP2000 Network Configuration Guide.

1.2.4 Interface to external RS232 systems

Connections to external systems are made by means of a RS232 cable supplied with the Universal Node. Two RS232 ports are provided. These are referred to as SER1 and SER2.

A modem (not supplied) is required if the UN2011 is to be interfaced to a telephone line. The modem (MOD2000) is to be ordered separately and is to be installed by the User. Space is provided inside the Universal Node to fit the Modem.

1.2.5 Configuring the Universal Node

The Universal Node is provided with default configuration settings for both serial ports SER1 and SER2. Only SER2 settings can be changed if required.

2 INSTALLATION

2.1 Precautions

- The Universal Node is intended for installation by qualified and trained personnel.
- Ensure that the correct procedures are followed when installing the equipment
- Ensure that the input voltage of the equipment corresponds with that of the power outlet before connecting it to mains power.
- Always disconnect unit from Mains power before opening it. Close the unit before connecting power
- Shock hazards may exist if the Universal Node is not properly grounded.
- Ensure that the lid of the Universal Node is in the closed position and that the two screws provided for fixing the lid in position are properly tightened.
- Any modification, maintenance or repair are permitted only by authorised personnel.

To ensure safe operation and to keep the product safe, pay heed to the information, cautions and warnings in this manual. Failure to do so will violate the safety standards of design, manufacture and intended use of the equipment.

2.2 Installation

The following procedure is to be followed for installing a Universal Node (assuming that the ARCNET network design is completed):

2.2.1 Configuring and connecting the ARCNET card to the FP2000 network

1. Ensure that mains power is disconnected from the Universal node before opening it; disconnect the battery.

2. Ensure that the default configuration of the ARCNET Network meets the requirement (node ID / operational mode / data rate / topology)

3. Configure and connect the ARCNET Card NC2011 as follows (bus topology only):

   - Remove the Jumper J1 on the ARCNET card (select Bus Topology mode)

   - Determine if the Universal Node is positioned at an end-of-line position. If it is, then the RS485 Line must be terminated with an end-of-line resistor equal to the characteristic impedance of the cable. Insert jumper J1 next to the RS485 connections on the network extension card. This terminates into a resistance of 120 Ω. Resistance can be added if the cable characteristic impedance is not 120 Ω.

   - Ensure that the screen of the RS485 cable is continued between nodes and that it is grounded at one point only. This can be done through inserting a jumper J2 on the network card.

   - Connect the RS485 wires

For more information on topologies, network cards, network extension cards as well as wiring refer to the Network Configuration Guide.

Figure 2: RS485 network card connections (NC2011)
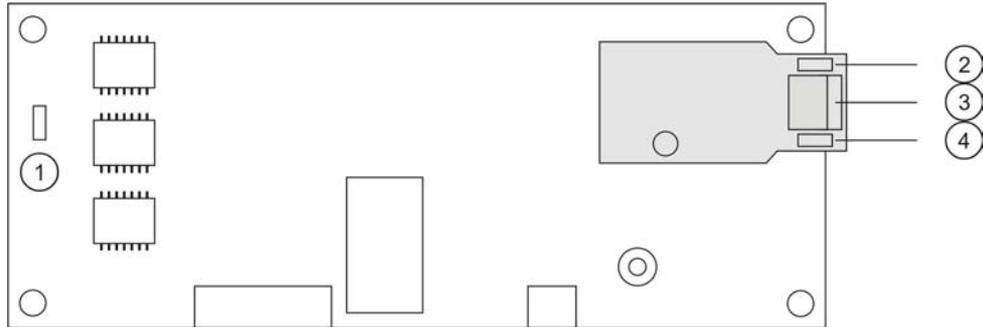
1. Repeater mode selection.
2. Jumper termination end-of-line (J1).
3. Channel A.
4. Jumper-Earth connection (J2).

2.2.2 Installation of a battery

1. Ensure that mains power is disconnected before opening the unit.
2. Ensure that the battery selected complies with specification (see Section 4 Technical Specifications).
3. Remove the protective cover from the double sided self adhesive tape and position the battery as shown in Figure 1. Fix it in position with the strap provided. Ensure that the strap is sufficiently tightened to prevent it from coming lose.
4. Connect the battery as shown. Observe correct polarity. Incorrect polarity can seriously damage the unit.

2.2.3 Connecting the power supply and fault relay

1. Ensure that the mains power is disconnected before opening the unit.
2. Connect the fault relay as shown in Figure 3.
3. Route the wires away from sharp edges and corners and fix in position.

Figure 3: Fault relay connections
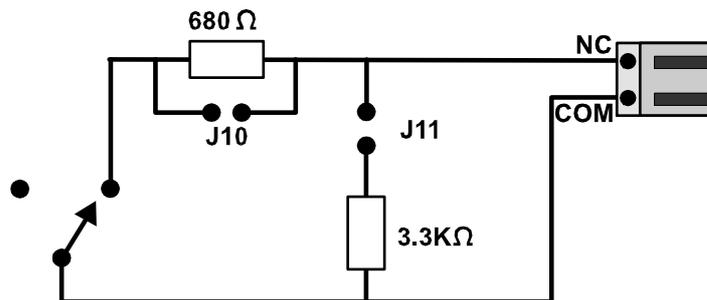
The relay is shown in the fault condition.

2.2.4 Connecting the RS232 external system

1. Ensure that the Universal Node is disconnected from mains power before opening it.
2. Ensure that the default configuration of the Serial Port SER2 as detailed in section 3.1 Default settings meets that of the External RS232 System. If not see section 3.2 Changing default settings.

3. Check the RS232 cable.

4. Connect the RS232 cable to the serial port SER2 on the CPU card as well as to the RS232 port of the External System.

5. Configure the RS232 system (Unique Node Identification, RS232 protocol parameters).

6. Connect mains to the Universal Node and start the external RS232 system.

The RS232 serial connection is via a 9-Pin D-type male connector. See Figure 4 DB9 (UN2011 – female) to DB9 (PC side – female) connection and Figure 5 DB9 (UN2011 – female) to DB25 (PC side – female) connection for pin-out connections.

Figure 4: DB9 (UN2011 – female) to DB9 (PC side – female) connection
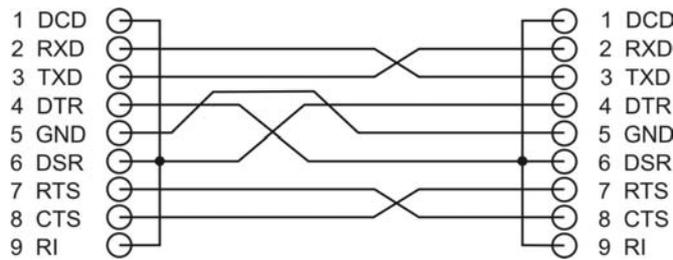
Figure 5: DB9 (UN2011 – female) to DB25 (PC side – female) connection
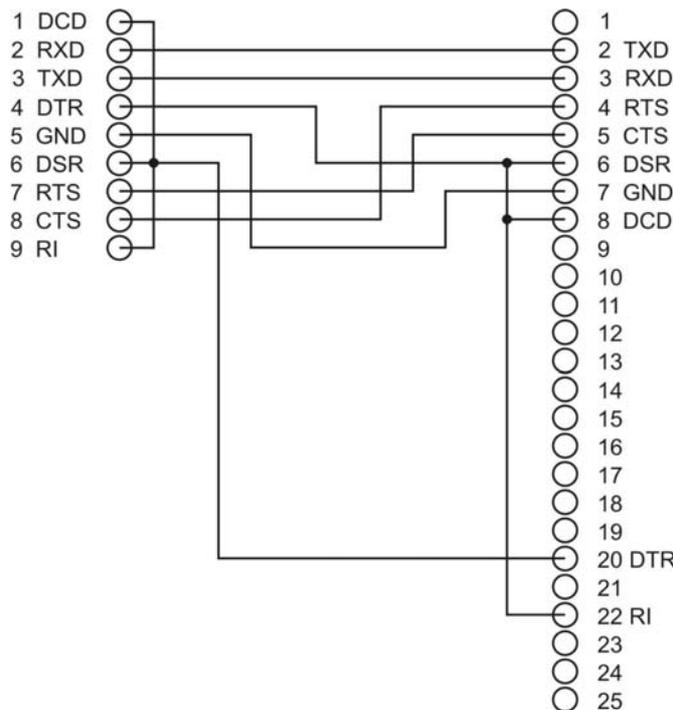
2.2.5 Connecting the modem

The following procedure describes the installation of the MOD2000 modem.

The MOD2000 modem (not supplied) is provided with a bracket for wall mounting. For installing this bracket into the Universal Node see Figure 1:

1. Remove the protective cover from the double sided self adhesive tape on the rear mounting surface of the bracket supplied with the modem.

2. Position the mounting bracket inside the Universal Node and fix in position using the double sided self adhesive tape.

3. Before connecting the Modem to the Universal Node ensure that the battery and the mains power is isolated.

4. Carefully study the Modem User's Manual. For connecting the Modem to the Universal Node and Telephone Line (see Figure 6).

5. Connect the Earth wire leading from the modem to the Earth stud inside the Universal Node. The modem and associated circuitry is only protected if this connection is made.

6. Connect the power harness leading from the modem to the power supply. Observe correct polarity. The connector leading to the printer is not used and should be tied down using mounting studs provided inside the Universal node.

7. Connect the RS232 input on the modem to serial port SER2.

8. Connect the telephone line to the modem protection board (use the adapter supplied if required).

9. Slide the modem into the bracket inside the panel and fix all cables in position using the hardware supplied. Ensure that the modem cannot slide out of the bracket if the Universal Node is turned upside down.

10. Restore battery and mains power to the Universal Node and turn the power switch and the modem on.

11. Configure the serial port SER2 (see section 3.2).

Figure 6: Modem MOD2000 Interconnection Diagram

1. 5V to printer (not used). Fix in position to prevent contact.

2. To 5V power supply.

3. To telephone line (adapter may be required).

4. Phone (not used).

5. Line.

6. To SER2

7. Modem.

8. Line.
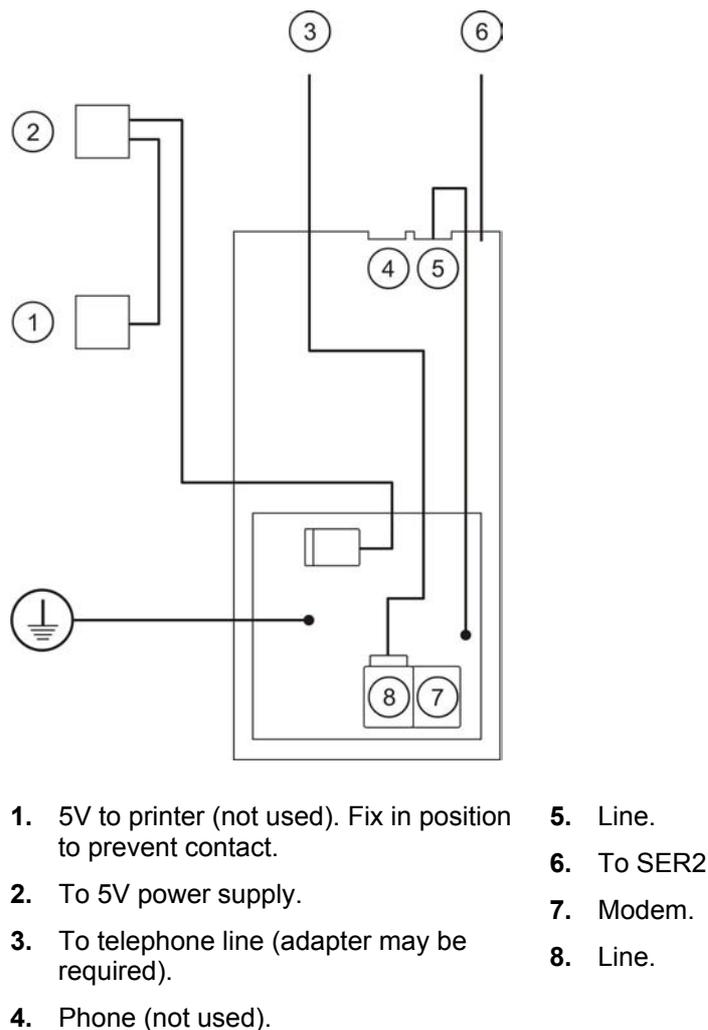
3 SOFTWARE CONFIGURATION

3.1 Default settings

UN2011 Default configuration settings	
Network node address	0/5 Note: every node on the network must have a unique address.
Network operational mode	15/15 Note: the operational mode must be the same for all items connected to the network.
Serial port SER1	Emulation Mode - this allows for connecting to the serial port of a PC to change default settings.
Serial port SER2	Set-up mode - this allows for direct connection to a PC to enable upload or download of data (FP Config application software) as well as emulation (maintenance manager application software). SER1 and SER2 protocol: - Baud rate 9600. 8 data bits. 1 stop bit. - No parity. - DTE Equipment.
ARCNET port	Data rate 156 Kbps / Bus

3.2 Changing default settings

Changing the default setting of serial port SER1 on the Universal Node is not possible.

The following procedure is recommended to change the default configuration settings of the Universal Node:

1. Before you attempt to change the software default settings ensure that you have Windows 95 or later and that you have access to Hyper Terminal (Copyright 1995 - Hilgraeve Inc.) or similar application software.

2. Connect SER1 of the Universal Node to the COM1, COM2 or COM3 port.

3. Configure COM1, COM2 or COM3 port using Hyper Terminal to the following:

   - Baud rate 9600

   - 8 data bits

   - 1 stop bit

   - No parity

   - DTE Equipment

4. Using Hyper Terminal connect the relevant COM1, COM2 or COM3 port to the Universal Node

5. Configure the Universal Node as required using the Emulation Control keys as detailed in section 5 Appendix: Emulation Control Keys. For detail on menus and how to navigate through them refer to the FP2000 reference Guide.

3.3 Modem settings

3.3.1 Modem Settings at the Universal Node

The following procedure is to be followed to configure serial port SER2 for a modem application:

1. Give the Universal Node a Node ID:

SYSTEM\CONFIGURATION\ID. (Format 0/R or P/0) (R = Repeater, P = Panel)

For the Universal Node the following option is available : un-m : 0/0. Change this into the Node ID of the PC acting as a global repeater. Example: 'PC Own Node ID =2 → un-m : 0/2

2. Assign the serial port SER2 to be a modem port:

SYSTEM\CONFIGURATION\COMMUNICATION\PORT SETUP : SER(2) : MODEM

3. Complete your modem set-up:

SYSTEM\CONFIGURATION\COMMUNICATION\MODEM

The following parameters must be configured :

- Wait for connection
- Pause between dials
- Max. dialling attempts
- Init string : for example : ATL1E1&F0M1\N0\J0\Q3&Q0&W0S0=2
- Dial command
- Escape
- Hang-up
- Test
- ID (this is the identification string of the site. This string is being used to locate the events).

Note that these settings can be configured (depending on modem type) using the 'Modem' function in the SYSTEM\SET DEFAULT menu.

4 TECHNICAL SPECIFICATIONS

Mechanical

Dimensions ....65 x 400 x 300 mm

Weight without batteries .... 5 Kg

Electrical

Power supply ....230 VAC, 50 Hz, 10 VA

Weight without batteries ....5 kg

Fuse .... 160 mA 250V T

Battery ....1.2 Ah / 12V

Fault relay maximum switching current ....2A @ 24 VDC

Fault relay maximum power rating ....50 WDC

Environmental

Working temperature .... 0°C to 40°C.

Storage temperature.. -30°C to 65°C.

Relative humidity ....80% maximum without condensation

Data communications

Serial ports...2

ARCNET port..1

RS232 protocol (default).. See table

RS485 protocol (default).. See table

RS232 protocol (default)	RS485 protocol (default)
▪ 8 data bits ▪ 1 stop bit ▪ No parity ▪ 9600 bits per second ▪ DTE equipment On options - refer to FP2000 Reference Guide	▪ 156 Kbps ▪ Bus topology On options - refer to FP2000 Reference Guide

5 APPENDIX: EMULATION CONTROL KEYS

No.	Description	Keyboard key
0	Reserved	Ctrl+@
1	Scroll	Ctrl+A
2	Display Alarm	Ctrl+B
3	Reserved	Ctrl+C
4	Print Screen	Ctrl+D
5	Alpha Numeric	Ctrl+E
6	Right Arrow	Ctrl+F
7	Reserved	Ctrl+G
8	Left Arrow	Ctrl+H
9	Silence Buzzer	Ctrl+I
10	Down Arrow	Ctrl+J
11	Reset	Ctrl+K
12	Disable	Ctrl+L
13	Enter	Ctrl+M
14	Test	Ctrl+N
15	Sound Sounder	Ctrl+O
16	Sounder Delay	Ctrl+P
17	Sounder Disable	Ctrl+Q
18	Silence Sounder	Ctrl+R
19	Fire Brigade Disable	Ctrl+S
20	Fire Brigade Delay	Ctrl+T
21	Reserved	Ctrl+U
22	Fire Brigade Stop	Ctrl+V
23	Reserved	Ctrl+W
24	Reserved	Ctrl+X
25	Reserved	Ctrl+Y
26	Up Arrow	Ctrl+Z
27	Exit	Ctrl+[
28	Reserved	Ctrl+\
29	Panel	Ctrl+]
30	All	Ctrl+^
31	Fire Brigade signal	Ctrl+_

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