E2 and XM678D with EX3 Installation, Replacement, and Troubleshooting Guide

Troubleshooting Guide

PART 1: Device Setup

This document contains installation, replacement, and troubleshooting information for the E2 and XM678D with EX3. For XM678D with EX3 wiring connections, refer to *Figure 21- XM678D and EX3 Wiring Diagram*.

Figure 1 - XM678D with EX3 and CX660 Keyboard

Setting Address on XM678D Device Using CX660 Keyboard

Figure 2 - XM678D Display and Keyboard

1. Press SET + ▼ at the same time for five seconds to open the first level programming. The display will stop flashing when it has entered programming mode.
2. Navigate through the parameters by pressing ▼ or ▲ until **Adr** is displayed.

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3. Press SET and assign the corresponding address for the device by pressing ▽ or △.
4. Press SET to save changes.
5. To exit, press SET + △ or wait a few seconds without pressing any key; the display will start flashing.

E2 Serial Port Setup

1. Log into the E2 controller by pressing the Log In/Out button.
2. Enter USER in the **Username** field and press Enter.
3. Enter PASS in the Password field and press Enter.
4. Press Menu, 7, 3, 1 (*General Controller Info*).
5. Press F2 twice to move to the *C3: Serial* tab.

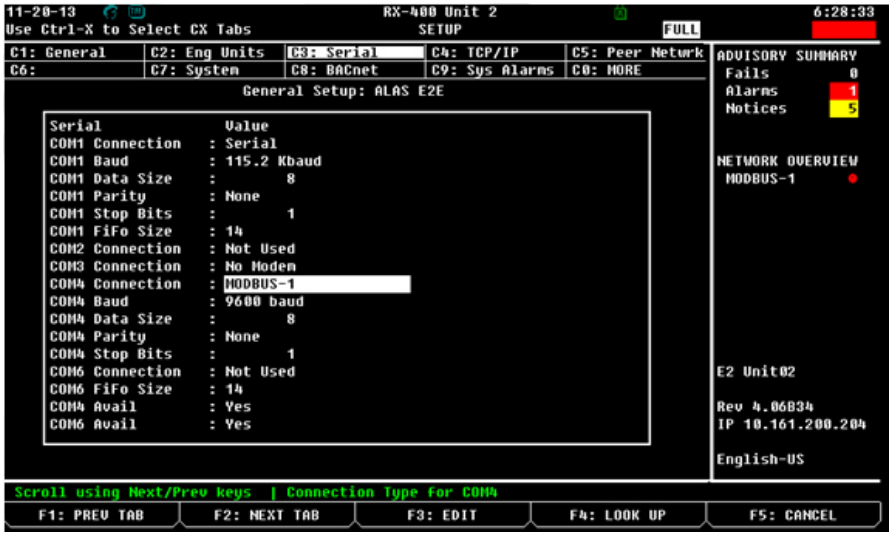

Figure 3 - C3: Serial Tab

6. Press the down arrow key to highlight the **COM2 Connection** value:
   - 6.a. Press F4 (*LOOK UP*) and select **MODBUS-1** (if MODBUS-1 is being used, select **MODBUS-2** or **MODBUS-3** connection).
   - 6.b. Press Enter to set configuration.
   - 6.c. Set **MODBUS Connection** as follows: (Press F4 to select options and Enter to set configuration).
     - **COM2 Baud**: 19200 baud
     - **COM2 Data Size**: 8
     - **COM2 Parity**: None
     - **COM2 Stop Bits**: 1
7. Press ↘ to save changes.
8. Press ⌂ to go back to the *Home* screen.

Note: MODBUS Connection must be set to 9600 baud.

PART 2: Adding the XM678D Controller in E2

1. Press Menu, &7, &7, @2 (*Connected I/O Boards and Controllers*).
2. Press F2 once to move to the *C3: ECT* tab. Highlight the **XM678D** device and enter the desired number of devices under **Quantity**.

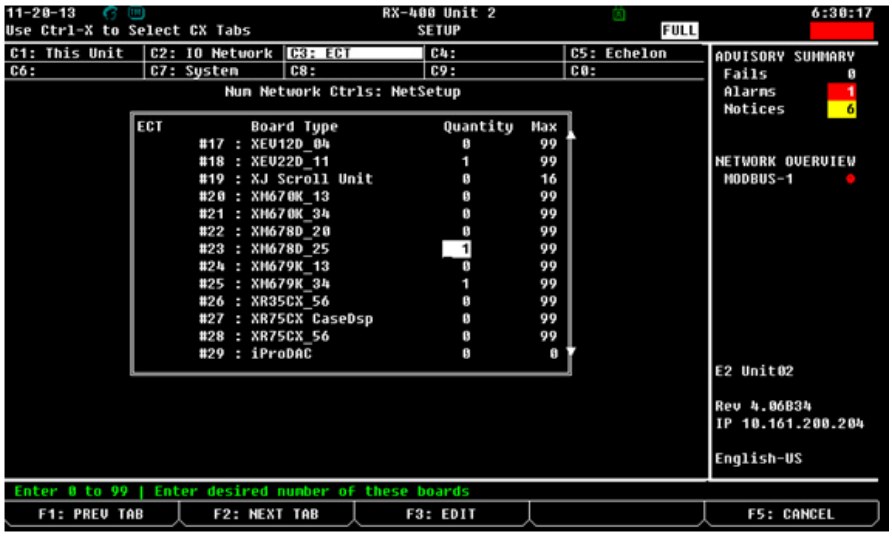

Figure 4 - Adding the Number of Devices

3. Press ↵ to save changes.
4. Press ⌂ to go back to the *Home* screen.

PART 3: Commissioning the XM Case Circuit Controller

1. Press Menu, &7, &7, !1 to open the *Network Summary* screen.
2. Highlight the **XM678D** device to be commissioned by pressing the down arrow key and press F4.

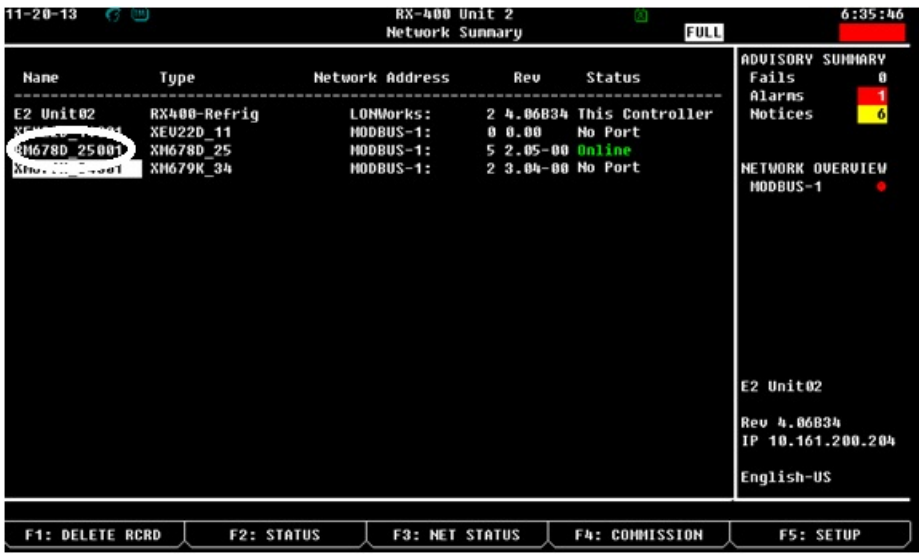

Figure 5 - XM678D on the Network Summary Screen

3. If a *Select Network* box appears, select the MODBUS number where you configured the device and press Enter.
4. Select the address for the device and press Enter.

*NOTE: The MODBUS device address must be the same as the address assigned on the device in the **Setting Address on XM678D Device Using CX660 Keyboard** section.*

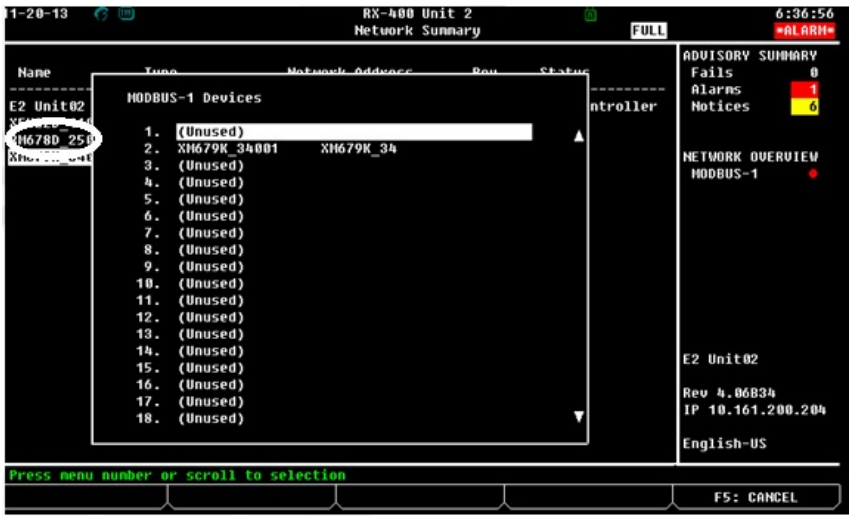

Figure 6 - Selecting the MODBUS Device Address

5. The screen for setting the physical address appears, press Enter to continue.

Figure 7 - Physical Address Screen

6. Press to save the assigned address.
7. Press to return to the *Home* screen.
8. Press Menu, 7, 7, 1 to open the *Network Summary* screen.

9. Wait for a few seconds and the XM678D device should appear online.

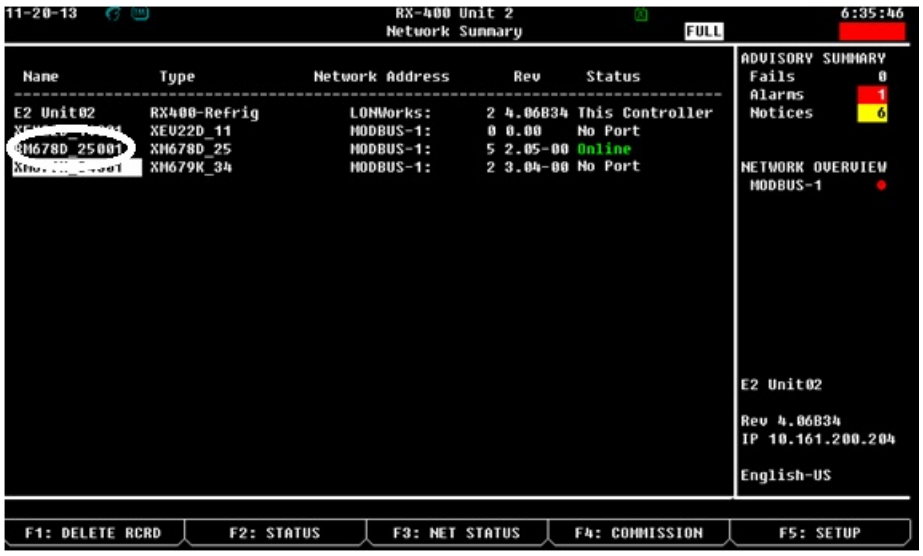

Figure 8 - XM678D on Network Summary Screen

10. Repeat the process for the other devices.

PART 4: Adding the XM Circuit Application

1. Press Menu, 6, 1 to open the *Add Application* screen.

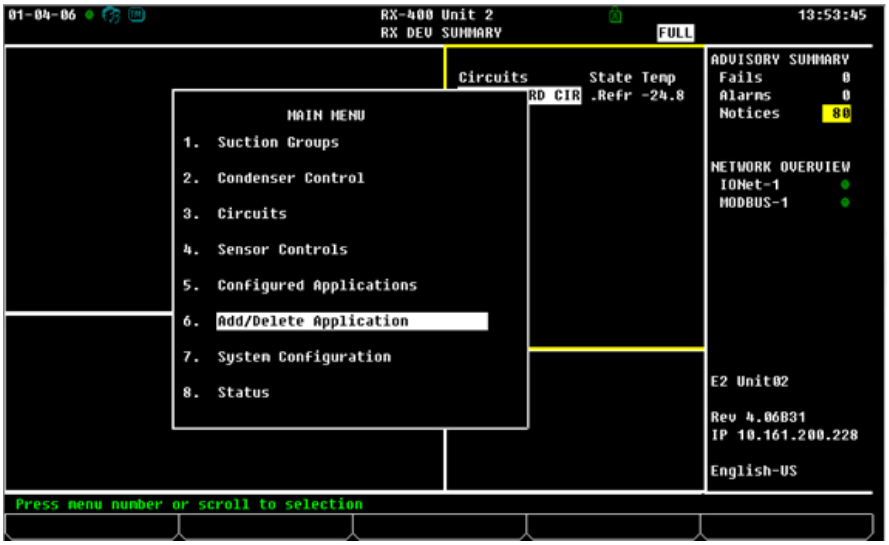

Figure 9 - Main Menu - Add Application

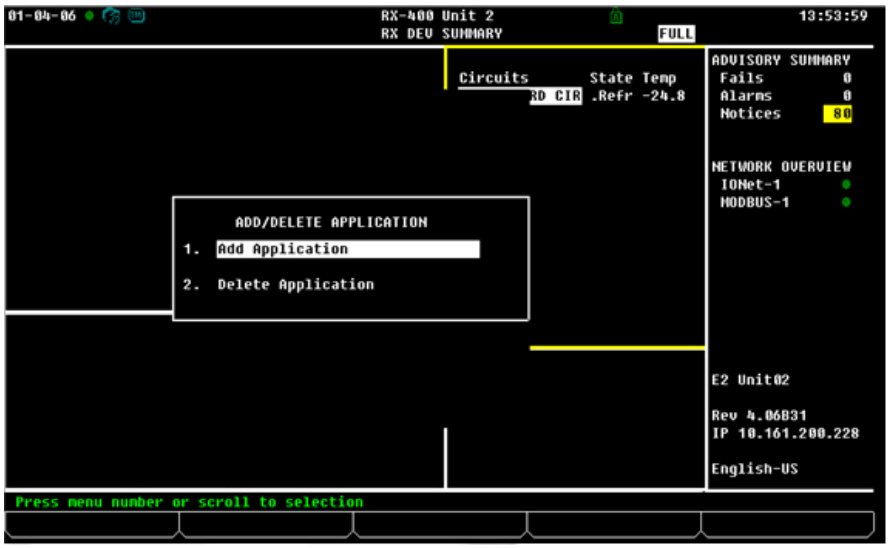

Figure 10 - Add Application Screen

2. Press F4 (*LOOK UP*).
3. Scroll down by pressing the down arrow key and highlight **XM Circuit**.

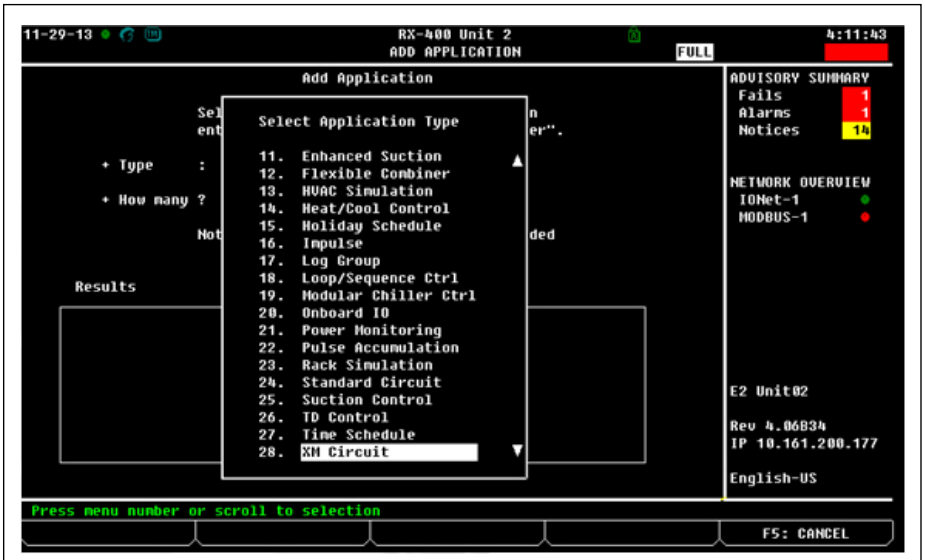

Figure 11 - Selecting Application Type

4. Press Enter.

5. Enter the desired number of XM Circuit applications to add.

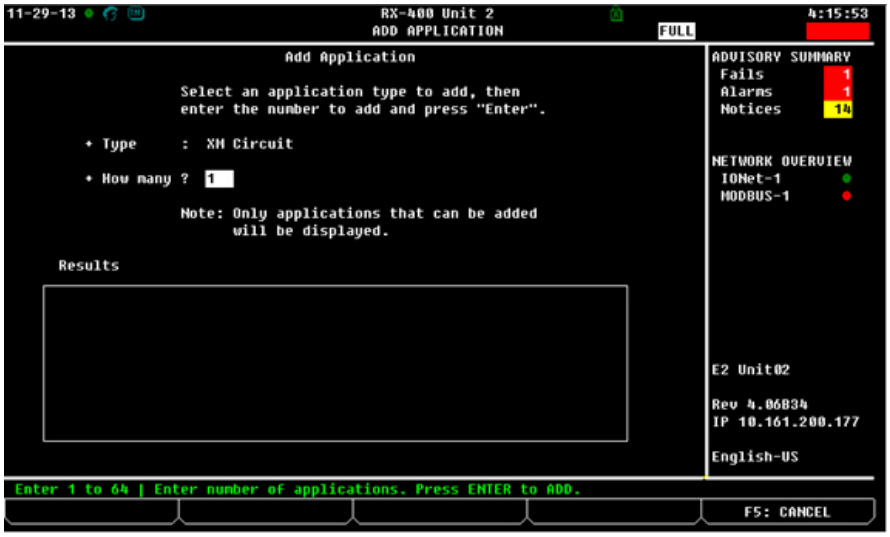

Figure 12 - Enter Number of Applications to Add

6. Press Enter.
7. A message will appear; press **Y** for Yes if you want to edit the newly added application.

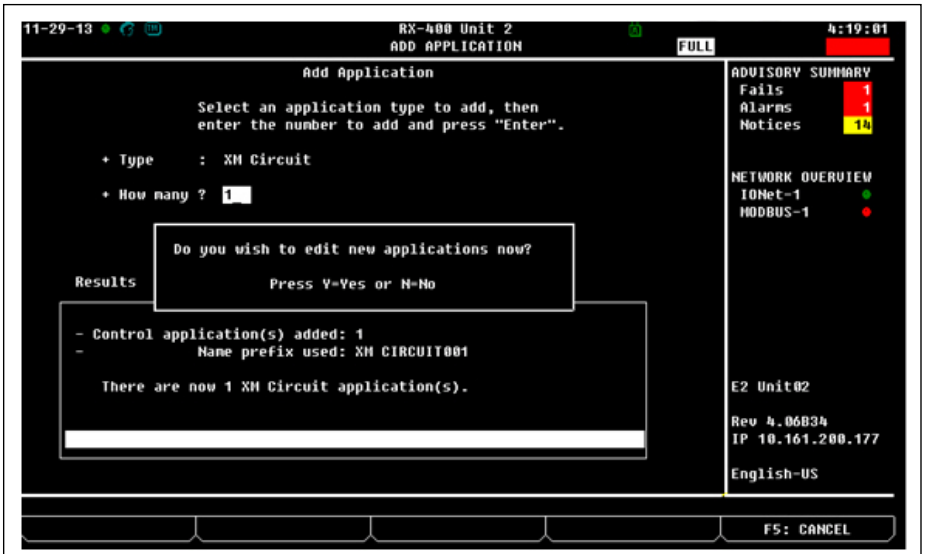

Figure 13 - Edit New Application

8. Enter the appropriate name for the XM Circuit application.
9. Press to save changes.
10. Press to go back to the *Home* screen.

PART 5: Associating XM678D to the XM Circuit Application

1. Press Menu, 7 for *System Configuration*.

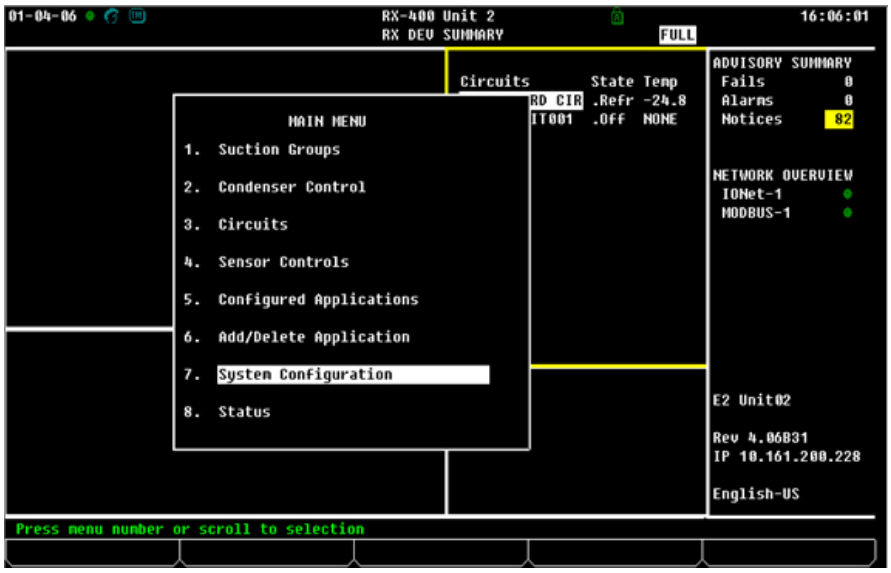

Figure 14 - Choose System Configuration

2. Press 7 for *Network Setup*.

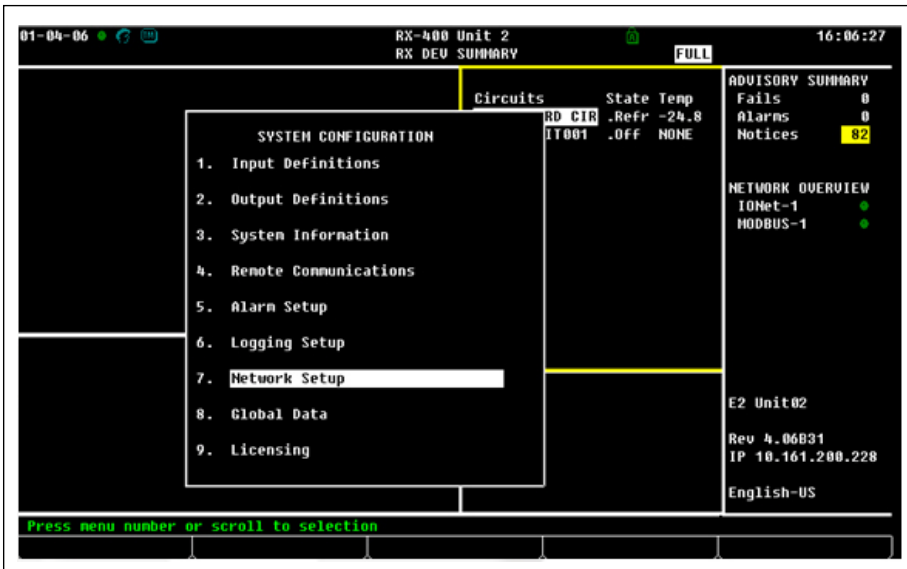

Figure 15 - Choose Network Setup

3. Press $ 4 to open the *Controller Associations* screen.

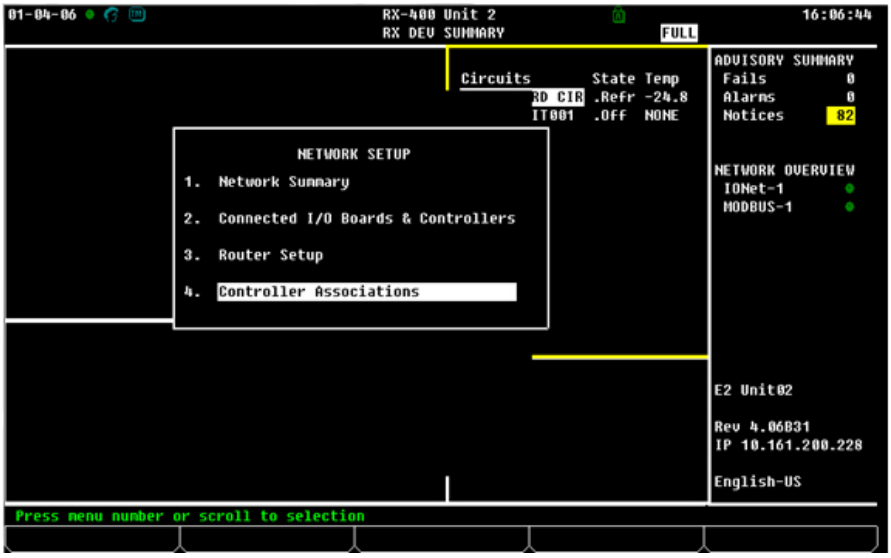

Figure 16 - Controller Associations

4. Select XM Circuit.

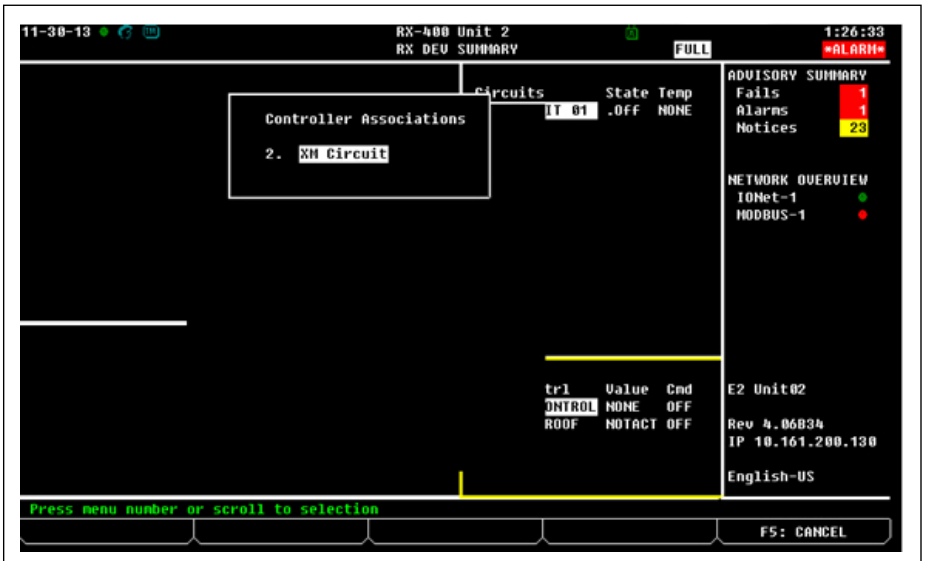

Figure 17 - Controller Associations - XM Circuit

5. Press Enter.

6. Select the **XM678D** device that you will associate to the XM Circuit.

Figure 18 - Associating XM678D to XM Circuit

7. Press F4 (*LOOK UP*) and highlight the **XM Circuit** application.

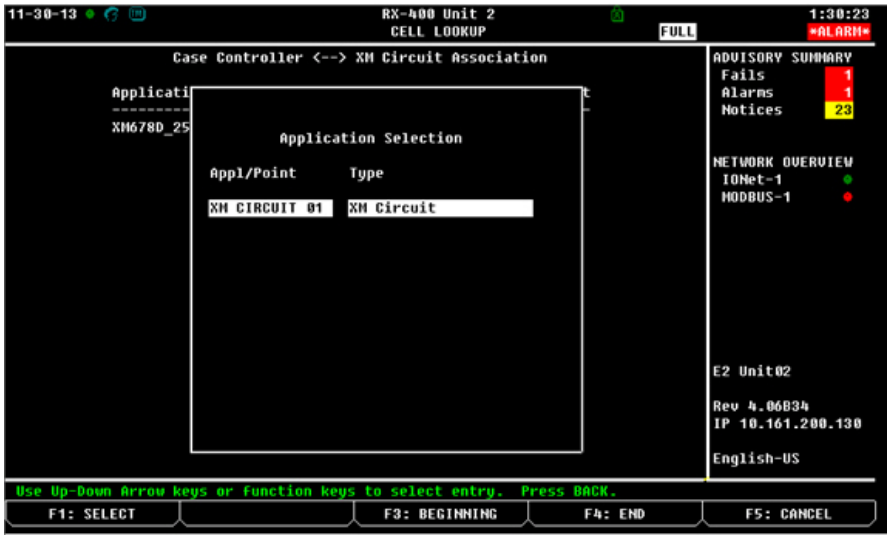

Figure 19 - Application Selection - XM Circuit

8. Press Enter.

Figure 20 - Device Association with XM Circuit

9. The **XM678D** device is now associated with an **XM Circuit**. Repeat the same procedure when associating other XM678D controllers with an XM circuit.
10. Press to save changes.
11. Press to go back to the *Home* screen.

Suggested Starting Values for XM678D

XM	Retail Solutions	Device	Description	Starting Value
Electronic Expansion Valve				
FtY	Refrig Type	XM	Kind Of Gas used by plant. Fundamental parameter for correct functioning of all system.	404
PMU	Pressure Unit	XM	Pressure Measurement Unit. MPA means the value of pressure measured by kPA*10.	bAr(0); PSI(1); MPA(2)
Atu	Autotune SH	XM	Minimum Stable Superheat. This function automatically reduces the setpoint in order to optimize the use of the evaporator while at the same time keeping the superheating regulation stable. The minimum allowed **SH** setpoint is LSH+2°C.	ATU=y
AMS	Auto Superheat	XM	Self Adaptive SH regulation enabling. The parameter **AMS** enables the self adaptive mode for the superheat regulation. In this functioning the values of **Pb** and **inC** parameter are automatically set by the controller according to the kind of applications and the response of the system.	AMS=y
SSH	Superheat SP	XM	Superheat Setpoint. This is the value used to regulate superheat.	8.0 °C (default) 46 °F
Pb	SH TR	XM	Proportional Band. The valve changes its opening on the band [**SSH**, **SSH** + **Pb**]. At **SSH** value of superheat the valve will be at 0% (without integral contribution) and at [**SSH** + **Pb**] value of superheat the valve will be at **MnF**. For values bigger than [**SSH** + **Pb**] the valve is completely opened.	8 °C (default) 46 °F
rS	SH TR Offset	XM	Proportional Band Reset	0
inC	SH I-Gain	XM	Integration time for superheat regulation.	200
PA4	Sens Min Pres	XM	Value of pressure at 4mA for current probe [4 to 20mA] or value at 0V for ratiometric probes. The value is absolute or relative according to **PrU** parameter.	-0.5 bAr (default) -7.25 PSI
P20	Sens Max Pres	XM	Value of pressure at 20mA for current probe [4 to 20mA] or value at 5V for ratiometric probes. The value is absolute or relative according to **PrU** parameter.	11.0 bAr (default) 159 PSI
oPE	Start %	XM	Opening valve percentage during hot gas defrost. During hot gas defrost there is not SH control.	85
SFd	Start Dur	XM	Duration of soft start phase with opening at **OPE**. Set start function duration and post-defrost duration. During this phase the alarms are neglected. Format: min.10sec, resolution: 10sec.	0.1
FRC	Fast Recov Cont	XM	Integration additive constant (Fast recovery). It permits the integral action when SH value is below the setpoint to decrease faster. With higher values the valve closes faster. If [**FrC** = 0] fast recovery function is disabled.	0

Table 1 - XM678D Starting Values

LSt	Valve Min Steps	XM	Minimum number of steps where the valve can be considered as completely closed.	0
USt	Valve Max Steps	XM	Maximum number of steps that can be performed.	0
ESt	Extra Steps	XM	Extra steps in closing valve.	0
Sr	Step Rate	XM	The speed to change step. Too high value causes a wrong driving.	10
CPP	Max Phase Cur	XM	Current per phase during bipolar valve driving.	0
CHD	Hold Phase Cur	XM	Current per phase to maintain the actual position (Holding current).	0
HSF	Motor Movement	XM	Kind of Motor Movement. **HAF** = half step. Use this setting for the unipolar valve. **FUL** = half step. Use this setting for the bipolar valve.	FUL
teP	Valve List	XM	Predefined valve selection. If (**tEP** = 0) the user has to modify all the parameters of configuration in order to use the valve. If **tEP** is different from 0 the device performs a fast configuration of the following parameters: **LSt**, **uSt**, **Sr**, **CPP**, **CHd**.	0
teU	Valve Type	XM	Type of Stepper motor. It permits to select the kind of valve. **uP** = 5-6 wires unipolar valves; **bP** = 4 wires bipolar valves. **WARNING!** by changing this parameter the valve has to be reinitialized.	uP-bP
Regulation				
HY	HY/TR	XM	Differential. If [**CrE** = **n**] then HY is the hysteresis for ON/OFF thermoregulation. If (**CrE** = **Y**) or (**CrE** = **EUP**) then **HY** is the proportional band for temperature **PI** controller. On these cases the value should be greater than 5°C.	2.0 °C (default) 35.6 °F
int	I-Gain Case	XM	Integral time for room temperature regulation. This value is used only when (**CrE** = **Y**) or (**CrE** = **EUP**). It is the integral time for thermoregulation: high values mean slower regulation. 0 (zero) = no integral action.	150
CrE	Continuous Reg	XM	Continuous regulation activation. With (**CrE** = **Y**) or (**CrE** = **EUP**) the regulation become **PI**, **HY** become a band and **int** an integral time n = standard regulation Y = continuous regulation; to be used only in centralized plants EUP = evaporator valves	n
CF	Temp Unit	XM	Temperature measurement unit. °C = Celsius °F = Fahrenheit **WARNING!** When the measurement unit changes, all parameters with temperature values will have to be checked.	°C (default)

Table 1 - XM678D Starting Values

Fan				
FnC	Fan Mode	XM	Fan Operating Mode. **C-n** = running with the solenoid valve, OFF during the defrost **C-Y** = running with the solenoid valve, ON during the defrost **O-n** = continuous mode; OFF during the defrost **O-Y** = continuous mode; ON during the defrost	O-n
FSt	Fan Delay	XM	The fan is always OFF when above the evaporator probe temperature.	10.0 °C (default) 50 °F

Table 1 - XM678D Starting Values

Notes:

- Parameters with (-) are site specific.
- For XM678D Version 2.5, probes are Retail Solutions type.
- The same Engineering Unit needs to be used in the PA4 and P20 parameters as set in the device. See example below.
  - > If a PP11 transducer is connected to an XM678D, **Prn** set to **rEL** and **PMU** (**PNU** in device) set to **Bar**, the following settings should be done:

    a. PA4= -0.5

    b. P20= 11
  - > To change the pressure reading on screen from **bar** to **psi**, the **ff.** procedures should be done in order:

    a. Set PNU to psi

    b. Set PA4= -7

    c. Set P20= 161

XM Wiring Diagram

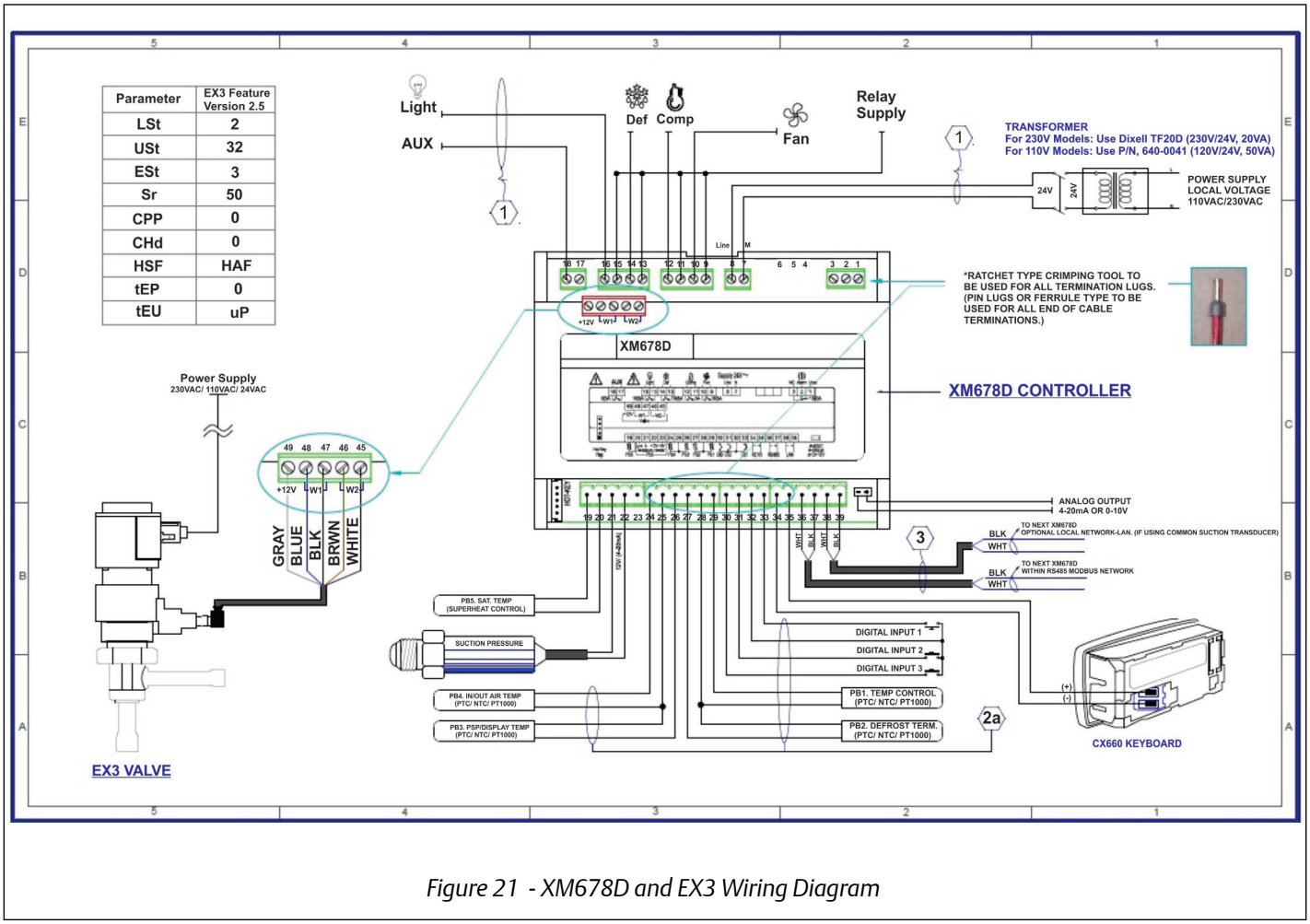

Figure 21 - XM678D and EX3 Wiring Diagram