E2 and XM679K

Installation, Replacement, and Quick Start Guide

PART 1: Device Setup

This Quick Start Guide is intended for XM setup using the most commonly utilized parameters, default settings, and adaptive control. To simplify setup and installation, the most commonly used parameters are visible and default values are provided. The adaptive algorithm is on by default to eliminate the need for manual PI tuning. For custom control configurations, or PI tuning, check the **Show Advanced** parameter box and refer to the XM679K manual (*P/N 026-1218*) for a complete listing of parameters. For device wiring and network connections, please refer to ***Appendix A: XM679K Device Wiring Diagram***.

Figure 1 - CX660 Keyboard

Setting the Address on XM679K

1. Press SET + ▽ at the same time for 5 seconds to open the first level of programming. The display will stop flashing and **EEU** appears once it has entered the programming mode.
2. Navigate through the parameters by pressing ▽ or △ until **Adr** is displayed.
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 for a few seconds without pressing any key; the display will start flashing.

E2 Serial Port Setup

1. Log on to 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.
6. Press the down arrow to highlight the **COM2 Connection** value (if COM2 is being used, select other available COM port).
7. Press F4 (*LOOK UP*) and select **MODBUS-1** (if MODBUS-1 is being used, select **MODBUS-2** or **MODBUS-3** connection).

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8. Press Enter to set configuration.
9. Press F4 to select options and Enter to set configuration.
10. Set the **MODBUS** connection as follows:
    - **COM2 Baud**: 9600 baud
    - **COM2 Data Size**: 8
    - **COM2 Parity**: None
    - **COM2 Stop Bits**: 1

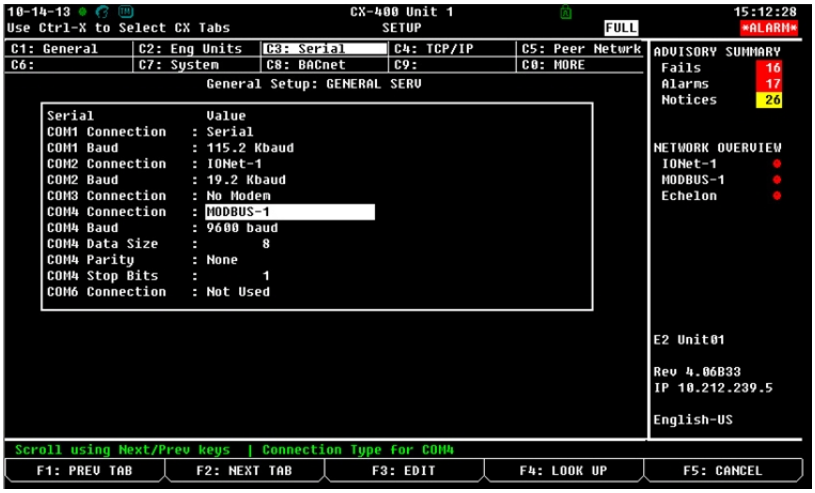


Figure 2 - E2 Serial Setup

11. Press to save changes.
12. Press to go back to the *Home* screen.

Note: When selecting the XM679K in E2, check if the version number shown matches the version number of the device. For example, if the device is XM679K version 3.4, select **XM679K_34** *in E2.*

PART 2: Adding the XM679K 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 (Electronics Communications Tab). Highlight the **XM679K** application and enter the desired number of devices under **Quantity**.

Note: When selecting the XM679K application in E2, check if the version number shown matches the version of the device. For example, if the device is XM679K version 3.4, select **XM679K_34** *in E2.*

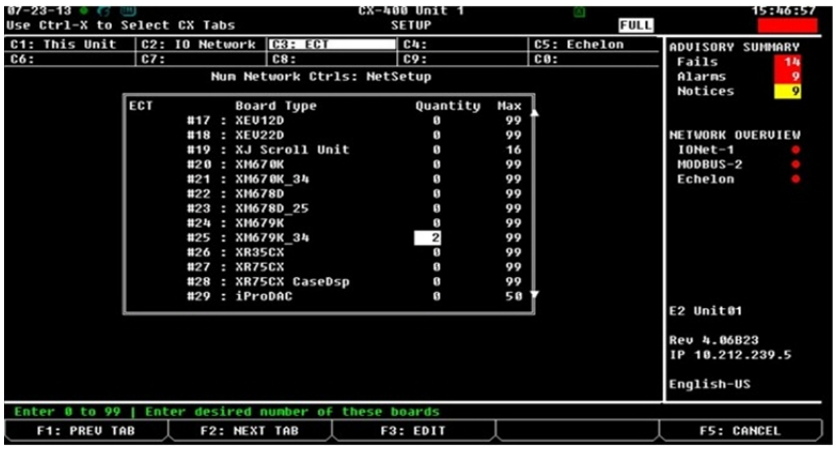


Figure 3 - C3:ECT (Electronics Communication Tab)

3. Press  to save changes.

4. Press  to go back to the *Home* screen.

Note: The XM Circuit has native support for the XM679K version 3.4. If you have an open 3.4 description file loaded on your E2, it should be deleted to take advantage of the native XM Circuit feature. To see all open description files loaded on the E2, press  *(Description File Report).*

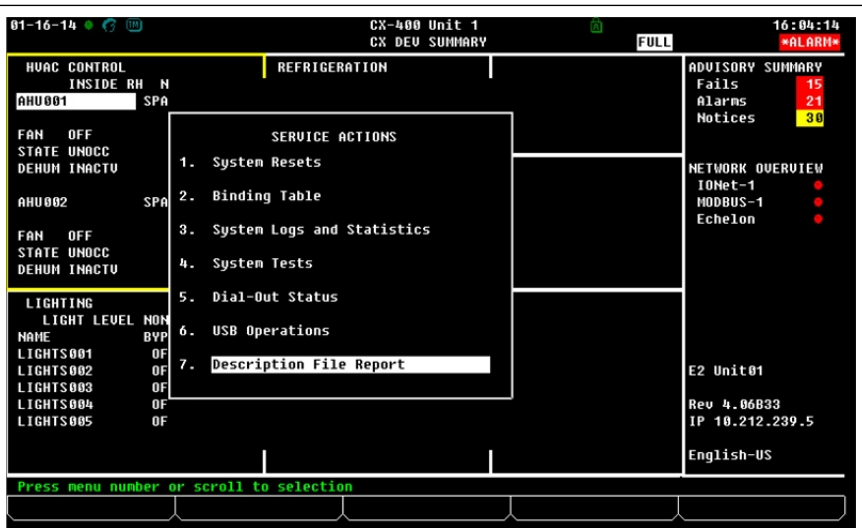


Figure 4 - Description File Report

PART 3: Commissioning the XM679K Controller

1. Press Menu, 7, 7, 1 to open the *Network Summary* screen.

2. Highlight the **XM679K** controller to be commissioned by pressing the down arrow, then press F4 (*COMMISSION*).

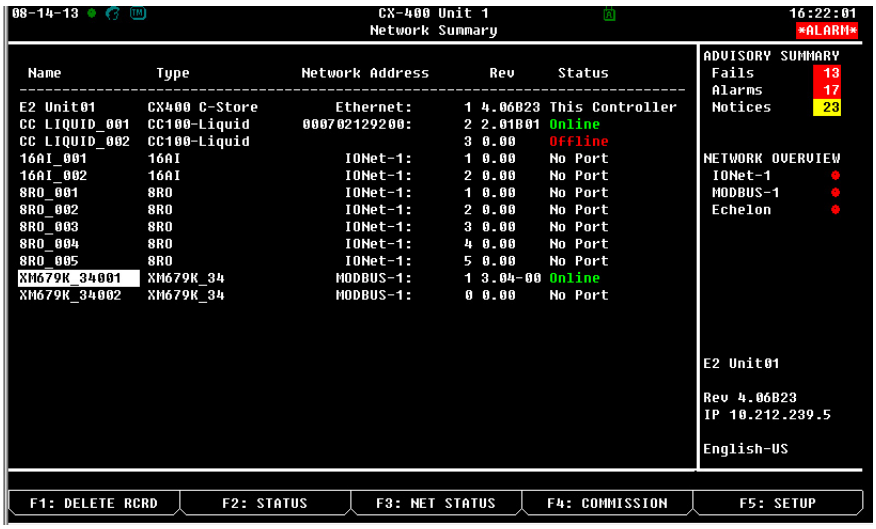


Figure 5 - Network Summary Screen

3. Select an (unused) address for the device and press Enter.

Note: The device address selected in the E2 must match the address assigned to the XM device using the XC660 remote display; please refer to **Figure 1 - CX660 Keyboard**.

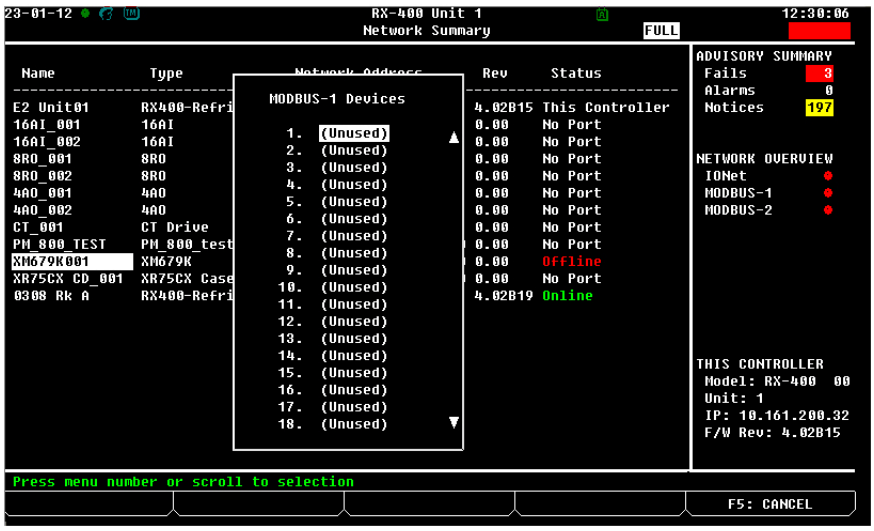


Figure 6 - MODBUS Device Address Selection

4. Press to save the assigned address.

5. Press to return to the *Home* screen.

6. Press Menu, 7, 7, 1 to open the *Network Summary* screen.

7. The **XM679K** should appear **Online** after a few minutes.

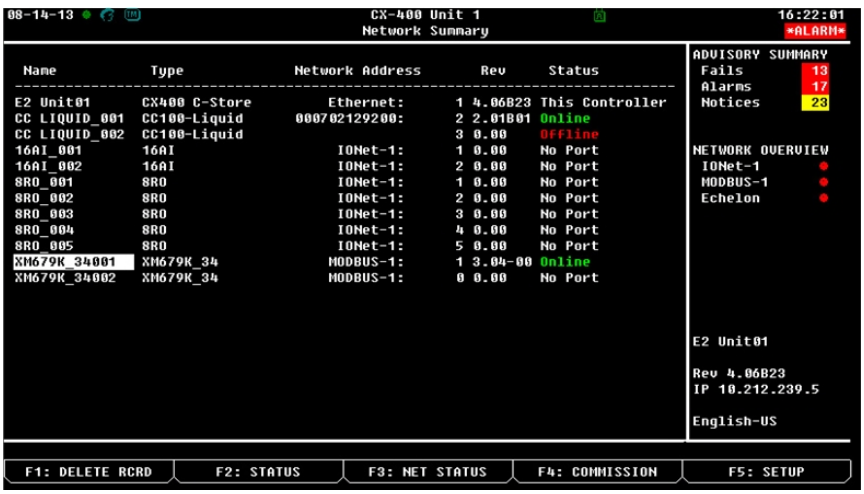


Figure 7 - MODBUS Device Address Should Appear Online

8. Repeat the process for other XM devices.

Note: If an **Out of Sync** *status appears under the* **Status** *column, allow the E2 to synchronize with the XM679K controller until the status shows* **Online** *in green.*

PART 4: Setting Up Parameters on the XM679K

1. From the *Network Summary* screen, select the **XM679K** device and press F5 (*SETUP*).

Note: On the General tab, the **Show Advanced** *parameter is set to* No *by default. The basic XM setup uses default parameters and adaptive control to simplify and speed up installation. If you want to use more advanced parameters for custom applications or PI tuning, enter* **Y** *for* **Show Advanced** *or refer to the XM679K manual (P/N 026-1218) for the list of all available XM device parameters.*

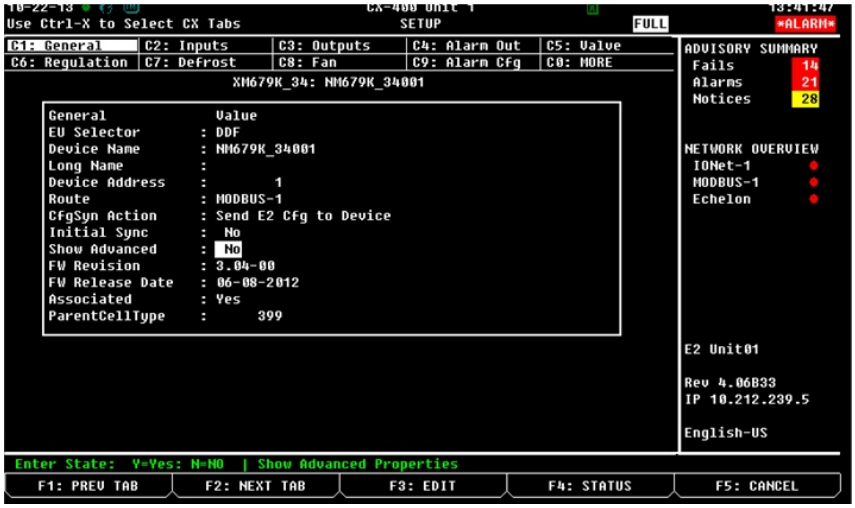


Figure 8 - XM679K Setup Screen General Tab

Note: On the General tab, **CfgSync Action** *is set to send the E2 configuration to the XM device by default. Any parameter change made in the E2 will be sent down to the XM. This is an appropriate setting if you are using the E2 as the supervisory controller. Every 12 hours the E2 synchronizes settings by sending the configuration to the XM device. This is to ensure that settings on the controller are not changed or lost. If the user makes any changes to the settings on the XC660 remote display during the normal 12 hour synchronization, those changes are overwritten by the settings in the E2.*

2. Press F2 four times to go to the *C5: Valve* tab to continue with the basic parameter setup.

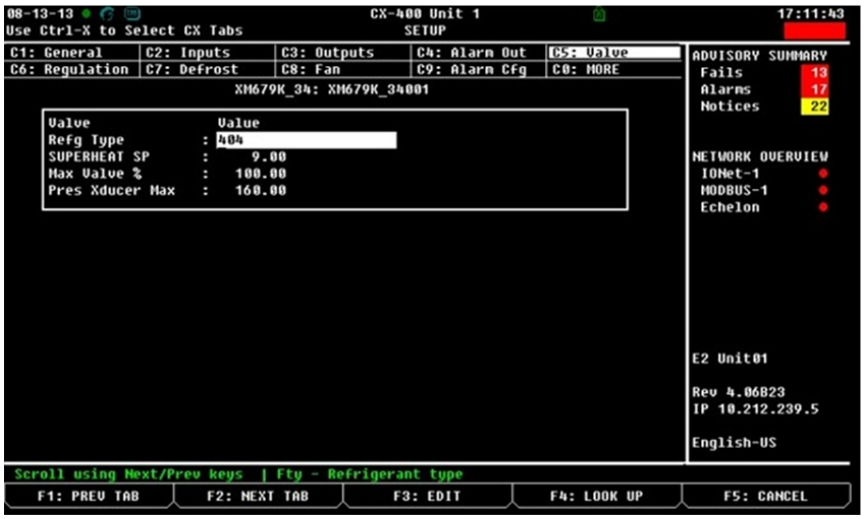


Figure 9- XM679K Device Parameter Setup

Note: The default refrigerant type is **404***. To select a different refrigerant type, press* F4 *and use the arrow to highlight the appropriate refrigerant type, then press* Enter.

3. Press F2 to go to the *C6: Regulation* tab.

Figure 10 - XM679K Setup Screen Regulation Tab

Note: To simplify and speed up installation, adaptive control is enabled by default. If you wish to disable adaptive control and manually tune the system, return to the General tab, enter **Yes** *in the* **Show Advanced** *field and refer to the XM679K manual (P/N 026-1218) for all available XM parameters.*

4. The temperature and pressure units are Fahrenheit and PSI by default. To change the engineering units, highlight the **Temp Unit** or **Pressure Unit** field and press F4 (*LOOK UP*). Then select the desired unit and press Enter to continue.

Note: If the XM679K controller is associated to an XM Circuit, do not enter Case SP Offline duration. The XM Circuit will send the value for Stand Alone Time when the circuit is associated with the XM device.

5. Press F2 to go to the *C7: Defrost* tab.

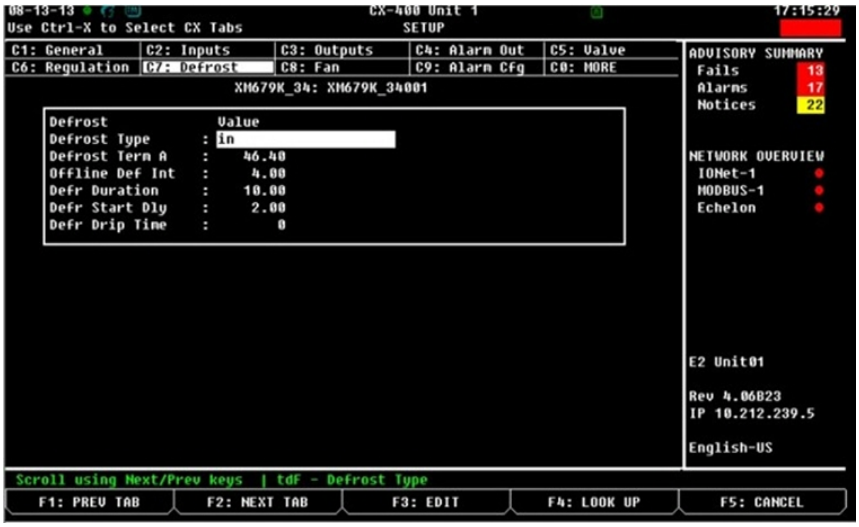


Figure 11 - XM679K Setup Screen Defrost Tab

Note: If the XM679K controller is associated to an XM Circuit, do not enter a defrost type duration. The XM Circuit will send the appropriate defrost setpoint, number of defrosts per day, and defrost duration when the appropriate case type is selected in the XM Circuit. Also, by default, the XM Circuit defrost type is Electric.

6. Press F2 to go to the *C8: Fan* tab.

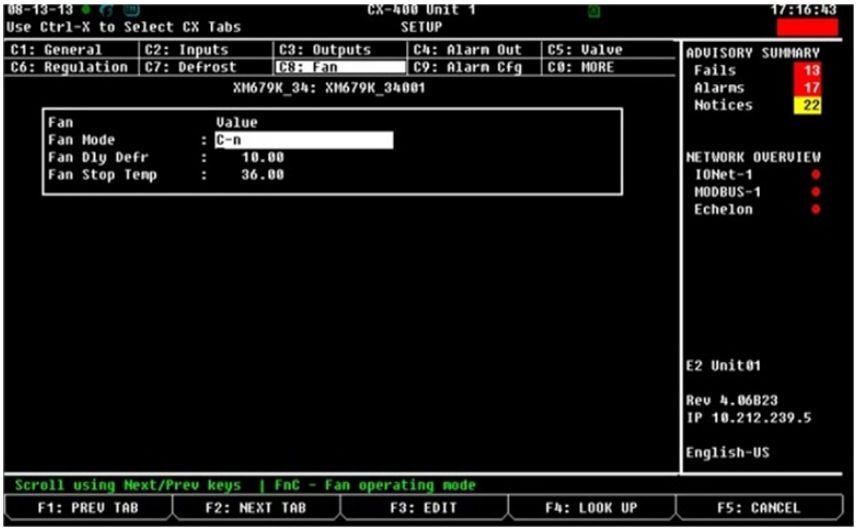


Figure 12 - XM679K Setup Screen Fan Tab

By default, the fan mode is set to **C-n**. The fan runs during refrigeration and turn off during defrost. The fan delay (**Fan Dly Defr**) is 10 minutes. The fan starts 10 minutes after defrost ends. To change the default values, use the up and down arrows to highlight the parameter and press F4 (*LOOK UP*). Enter your change into the fields and press Enter to continue.

7. Press F2 to go to the *C9: Alarm Configuration* tab.

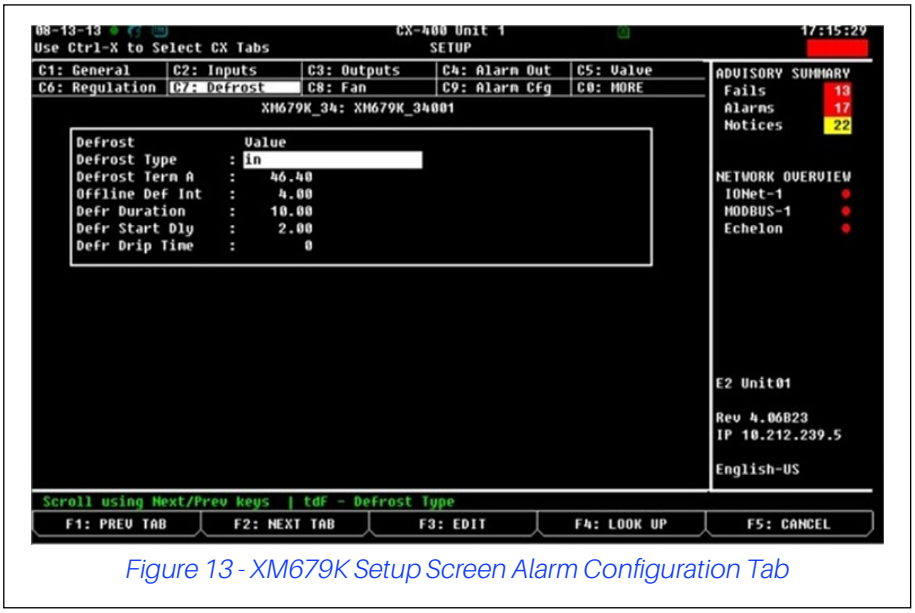


Figure 13 - XM679K Setup Screen Alarm Configuration Tab

By default, temperature alarms are configured to **Ab** or absolute setpoint alarming. The default setting is appropriate for the majority of applications. To change the default to **rE** or relative setpoint alarming, use the arrow button to highlight the parameter and press F4 (*LOOK UP*). Highlight your change and press Enter to continue.

NOTE: If the XM679K is associated to an XM Circuit, do not set the alarm setpoints. If using Electric defrost, the XM Circuit will send the appropriate high and low alarm setpoints and alarm delay when the appropriate case type is selected in the XM Circuit.

8. Press F2 to go to the *C0: MORE* tab for digital input configuration for Door Alarm.

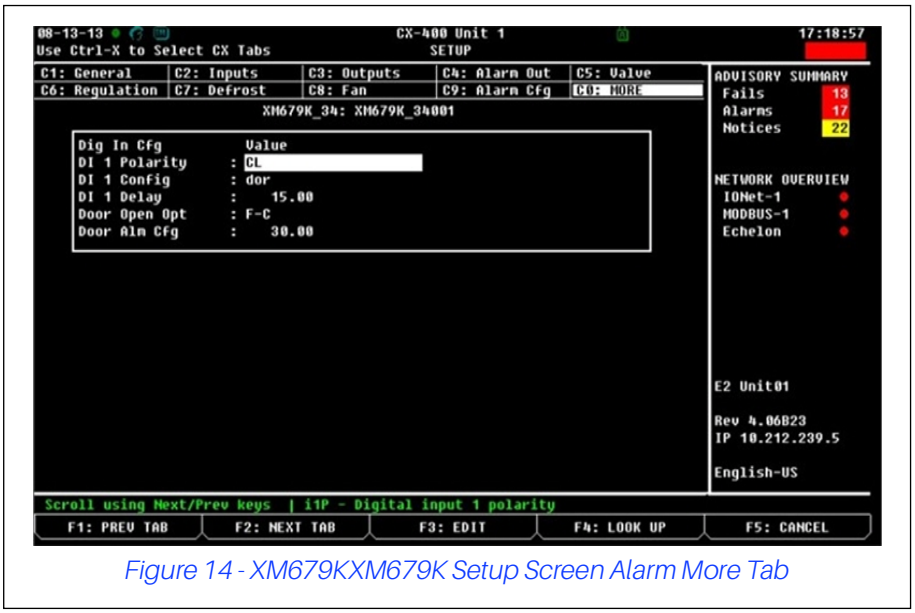


Figure 14 - XM679KXM679K Setup Screen Alarm More Tab

By default, **DI 1 Config** is configured as the door alarm, see ***Appendix A: XM679K Device Wiring Diagram*** for the wiring illustration. The default value for door alarm delay (**DI 1 Delay**) is set to 15 minutes. Door open operation mode (**Door Open Opt**) is set to **F-C** and Fan and Compressor to off when the door is open. **Door Alm Cgf** is the amount of time the fan and compressor remains off while the door is open.

9. Press  to save the changes and return to the *Network Summary* screen. Highlight the **XM679K** device installed previously and press F2 to view the *Status* screen of the XM679K device.

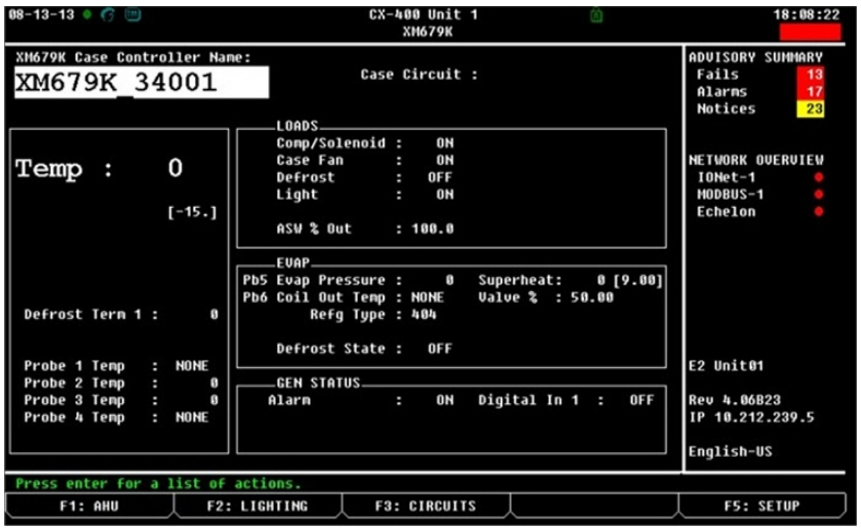


Figure 15 - XM679K Device Status Screen

PART 5: Creating an XM Circuit

1. Press Menu, 6, 1, to open the *Add Application* screen.
2. Press F4 (*LOOK UP*).
3. Scroll down and highlight **30. XM Circuit** and press Enter.

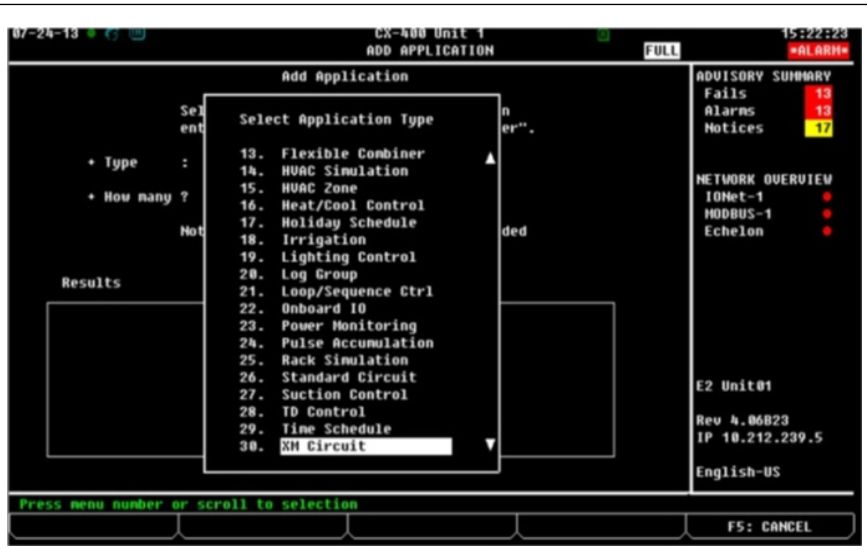


Figure 16 - Add Application Screen

4. Enter the desired number of XM Circuit applications to add and press Enter.

5. A message appears asking if you want to edit the newly added application. Press **Y** for yes and the setup screen opens.

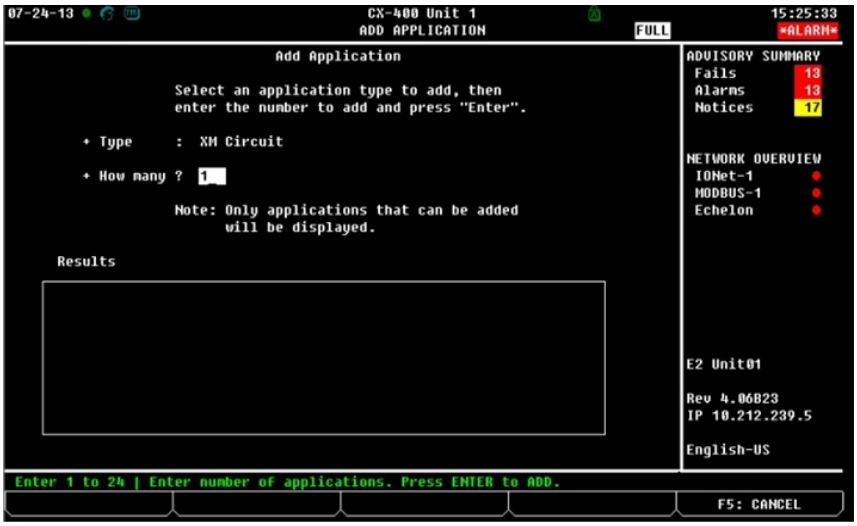
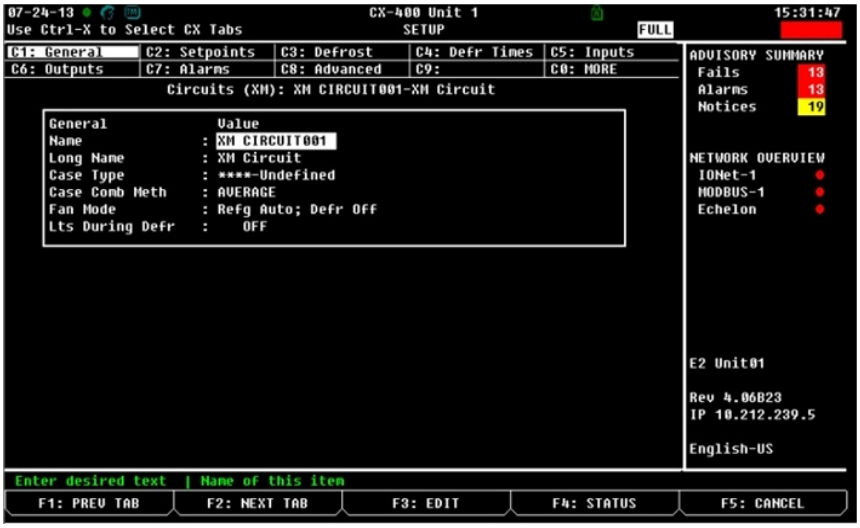


Figure 17 - Enter the Number of XM Circuit to Add

6. Under the *General* tab, enter an appropriate name for the XM Circuit application.



Fiigure 18 - Enter Name for XM Circuit Application

7. Highlight the **Case Type** then press F4 (*LOOK UP*).

8. A list of different types of cases appears. Select the appropriate case type for your application. For example, **RIFF Reach-in frz food** is a low temp cooler that has reach-in doors. In order to reduce setup time, each case type has appropriate default settings for setpoint, Hi/Low alarm, alarm delay, number of defrosts, and defrost time for the type of case. These default setpoints are sent down to the XM device when the XM Circuit is associated with that XM device. There are 70 case types to

choose from. Press Shift ? $ 4 to see the list of the default settings of each case type or refer to ***Appendix B: Default Setpoints for Case Types***.

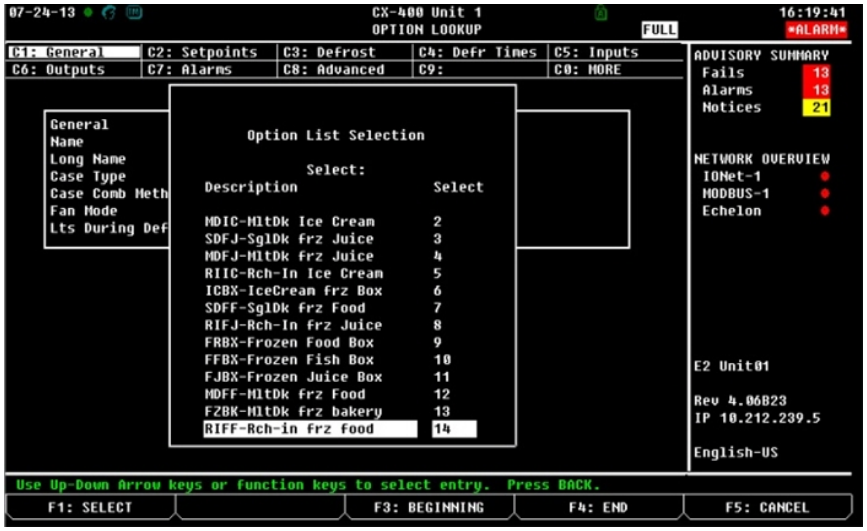


Figure 19 - Case Type Selection Screen

9. Press ⚡ to save changes, then press ⌂ to return to the *Home* screen.

PART 6: Associating the XM Device to the XM Circuit Application

The XM Circuit is used to share alarms, defrost, and setpoints to all XM devices associated to the circuit. Connecting the XM Circuit and the XM device is called "associating." To associate the XM device with the XM Circuit application:

1. Press Menu, & 7, & 7, $ 4 to open the *Controller Associations* menu. Highlight **XM Circuit** and press Enter.

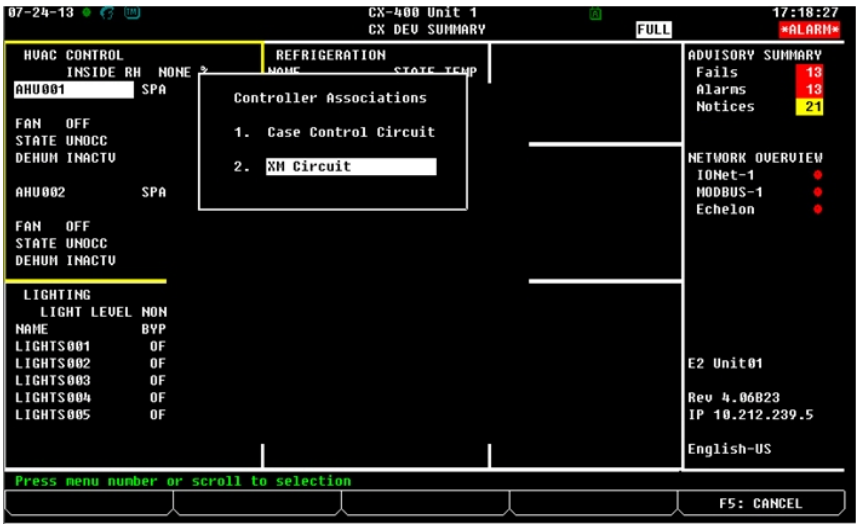


Figure 20 - Controller Associations Menu

2. Highlight the **XM679K** device and press F4 (*LOOK UP*).

3. Highlight the XM Circuit application that was created in ***Part 3: Creating an XM Circuit***, then press Enter.

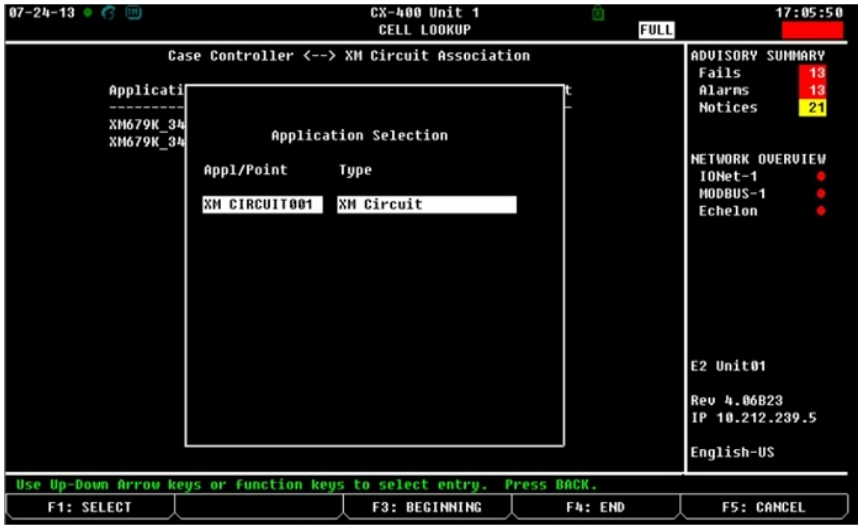


Figure 21 - XM Device and XM Circuit Association

4. Repeat steps 2 and 3 to associate other XM devices to the XM Circuit.

Figure 22 - XM Circuit Association Screen

5. Press  to save changes, then press  to return to the *Home* screen.

To View the Circuit Summary Screen of the XM Circuit

1. Press Menu, % 5, then highlight **3. Circuits** and press Enter.

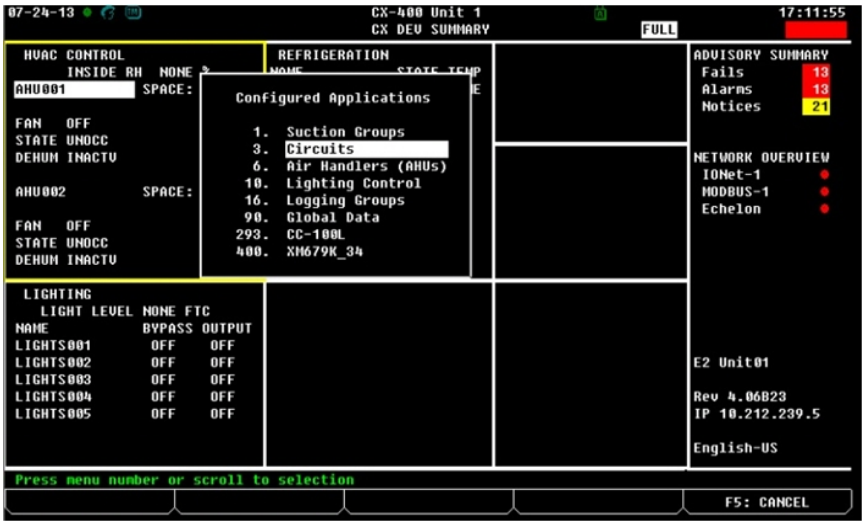


Figure 23 - Circuit Summary Screen

2. Highlight the previously created XM Circuit. Press Enter to open the *XM Circuit* status screen.

Note: The Circuit Summary Screen shows all the circuits in the system.

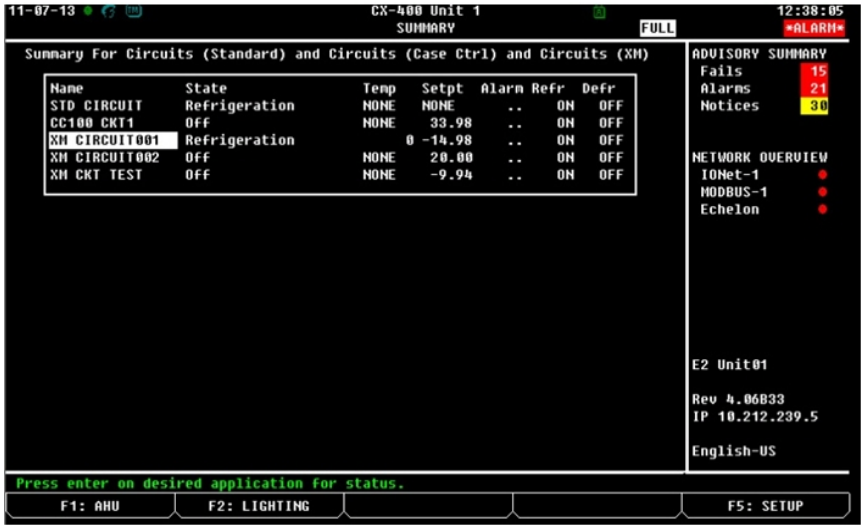


Figure 24 - Circuits Available in the System

To View the XM Devices on the XM Circuit

1. From the *XM Circuit* status screen, highlight the **XM Circuit** then press Enter.

Note: The XM Circuit Status screen shows all XM devices on the selected XM Circuit.

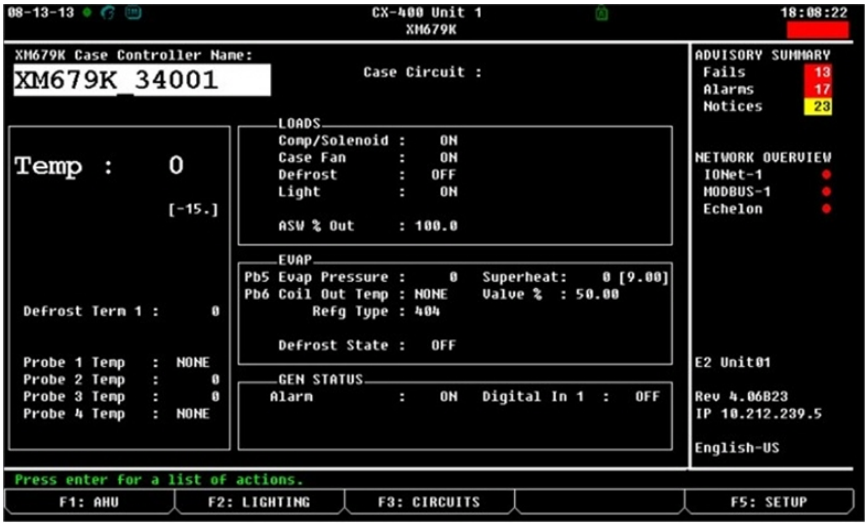


Figure 25 - XM Circuit Status Screen

To View Details of the XM Device

1. From the *XM Circuit* status screen, highlight the **XM Device**, then press Enter.

Note: Review the setpoints that are sent to the XM during the association in the previous steps.

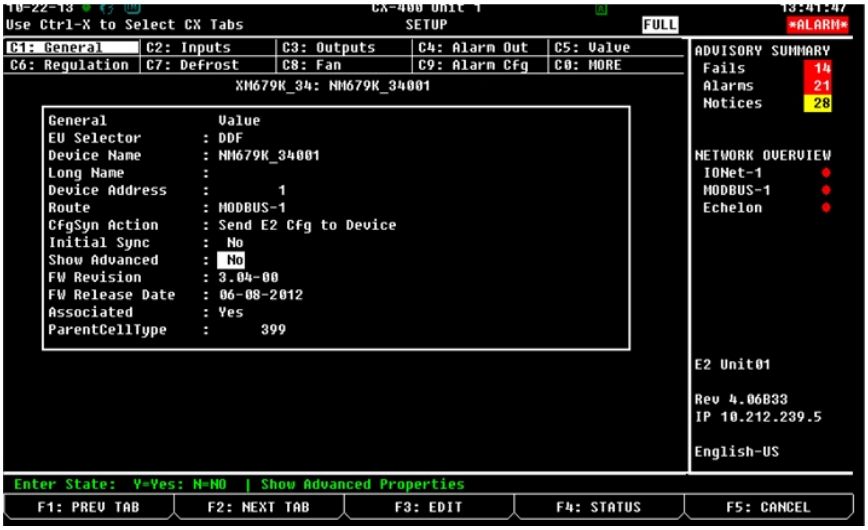


Figure 26 - XM Circuit Setup Screen

Appendix A: XM679K Device Wiring Diagram

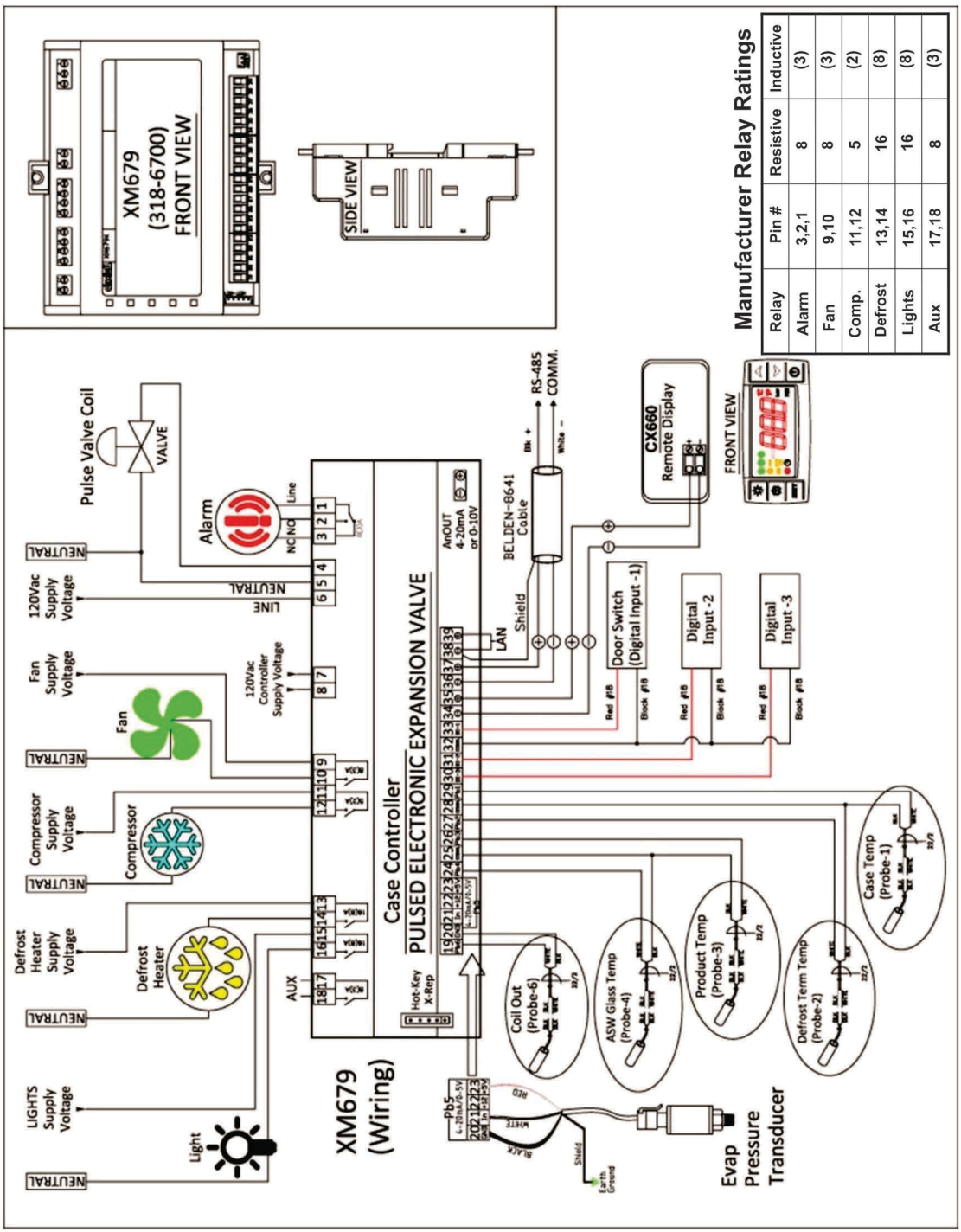


Figure 27 - XM679K Device Wiring Diagram

UL Ratings

XM679K UL Ratings

	Ratings	Terminal
Relay Outputs UL Ratings	Evaporator Fan: 120/240V, 50/60 Hz, 1/4 HP, 30k cycles 125V, 50/60 Hz, 1/3 HP, 6k cycles 250V, 50/60 Hz, 1/2 HP, 30k cycles	Terminals 9 and 10
	Compressor: 120 V/240V, D300 Pilot Duty, 30k cycles	Terminals 11 and 12
	Auxiliary (not populated in XM66 series): 120/240V, 50/60 Hz, 5A, General Purpose, 6k cycles 120/240V, 50/60 Hz, 3A, Resistive, 100k cycles	Terminals 18 and 17
	Light: 120V, 50/60 Hz, 5A, General Purpose, 6k cycles, 120 VAC, 1000 W Tungsten, 6k cycles 240 VAC, 1400 W Tungsten, 6k cycles	Terminals 16 and 15
	Defrost: 120/240V, 50/60 Hz, 10A, Resistive, 30k cycles 120/240V, 50/60 Hz, C300, Pilot Duty, 30k cycles	Terminals 14 and 13
	Alarm (not populated on XM66 series): 120/240V, 50/60 Hz, 5A, General Purpose, 6k cycles 120/240V, 50/60 Hz, 3A, Resistive, 100k cycles	Terminals 1, 2 and 3
	Pulse Valve (not populated on XM66 series): 230V, 30 Watt	Terminals 4, 5 and 6

Appendix B: Default Setpoints for Case Types

The table below (**Default Setpoints for Case Types**) lists the sixty-four default case types that may be used in Standard Circuit or Case Control Circuit applications along with the recommended defaults for each case type.

When one of these sixty-four case types is selected, the E2 automatically enters the following information from the table into the Circuit application:

- The setpoint
- The number of defrosts per day and the defrost time length from the **Elec (DEF)** column under Defrost types

For example, if you select #**14 RIFF** (**Reach-in frozen food**), the E2 sets the circuit's setpoint at -10, the number of defrosts at 1, and the defrost time at 60 minutes.

The other columns in this table, such as the **High Alarm**, **Low Alarm**, and **Delay** columns and the **Hot Gas**, **Rev. Air**, and **Timed** columns, are suggested values that are not automatically entered into the Circuit application.

High Alarm, Low Alarm, and Delay

The High Alarm, Low Alarm, and Delay columns are the suggested high and low case temperature alarm setpoints and the report delay.

To set up the alarm setpoints and delays:

1. Locate the Case Temperature control input and select the **Generic Alarm Setup** action from the Actions Menu.
2. Enter the High and Low setpoints in the **Normal Hi** and **Normal Low** fields.
3. Enter the Delay in the **Report Delay** field.

Defrost Type

The E2 assumes by default that all cases have electric defrost. If this is not the case, new values need to be entered for the **Number of Defrosts** and the **Defrost Time** in the circuit. The suggested defaults are listed under the **Hot Gas**, **Elec (DEF)**, **Rev. Air**, and **Timed** columns. The number to the left of the slash indicates the suggested number of Defrost Times Per Day, and the number to the right of the slash indicates the recommended Defrost Time Length.

Default Setpoints for Case Types

							Defrost Type			
Type	Abbr.	Description	Setpoint	High Alarm	Low Alarm	Delay	Hot Gas	Elec. (DEF)	Rev. Air	Timed
0	****	Undefined								
1	SDIC	Single deck ice cream	-25	-5°	-30°	01:00	2/18	1/45	1/60	1/60
2	MDIC	Multi-deck ice cream	-25	-5°	-30°	01:00	3/22	3/45	2/60	2/60
3	SDFJ	Single deck freezer juice	-18	0°	-30°	01:00	2/18	1/45	1/60	1/60
4	MDFJ	Multi-deck freezer juice	-10	5°	-25°	01:00	3/22	3/45	2/60	2/60
5	RIIC	Reach-in ice cream	-15	-5°	-25°	01:00	2/22	1/45	1/60	1/60
6	ICBX	Ice cream freezer box	-20	-5°	-30°	01:00	3/20	2/45	2/60	2/60
7	SDFF	Single deck freezer food	-15	5°	-25°	01:00	2/18	1/60	1/60	1/60
8	RIFJ	Reach-in freezer juice	-15	-5°	-20°	00:15	2/22	1/45	1/60	1/60
9	FRBX	Frozen food box	-12	-5°	-20°	00:15	3/18	3/45	2/60	2/60
10	FFBX	Frozen fish box	-12	-5°	-20°	00:15	3/18	3/45	2/60	2/60
11	FJBX	Frozen juice box	-12	-5°	-25°	01:00	3/18	3/45	2/60	2/60
12	MDFF	Multi-deck freezer food	-10	0°	-20°	01:00	2/22	1/45	2/60	2/60
13	FZBK	Multi-deck freezer bakery	-10	0°	-20°	01:00	2/22	1/45	2/60	2/60
14	RIFF	Reach-in freezer food	-10	5°	-15°	01:00	1/20	1/60	1/60	1/60
15	SDMT	Single deck meat	22	32°	12°	01:00	3/18	3/45	3/60	3/60
16	SDPF	Single deck prepared	22	32°	12°	01:00	3/18	3/45	3/60	3/60
17	PZZA	Single deck pizza	22	32°	12°	01:00	3/18	3/45	3/60	3/60

Default Setpoints for Case Types

18	KOSH	Single deck kosher	22	32°	12°	01:00	3/18	3/45	3/60	3/60
19	SDFH	Single deck fish	22	32°	12°	01:00	3/18	3/45	3/60	3/60
20	MDMT	Multi-deck meat	23	34°	18°	01:00	4/18	4/45	4/60	4/60
21	MDPO	Multi-deck poultry	23	34°	18°	01:00	4/18	4/45	4/60	4/60
22	MDFH	Multi-deck fish	23	34°	18°	01:00	4/18	4/45	4/60	4/60
23	RIMC	Reach-in meat	25	35°	15°	01:00	2/18	2/45	2/60	2/60
24	SVMT	Service meat	22	35°	15°	01:00	2/18	2/45	2/60	2/60
25	SVFH	Service fish	22	35°	15°	01:00	2/18	2/45	2/60	2/60
26	MTBX	Meat cooler	30	42°	22°	01:00	3/18	3/45	2/60	2/60
27	HDBX	Meat holding box	30	44°	22°	01:00	3/18	3/45	2/60	2/60
28	DYCS	Multi-deck dairy	35	44°	24°	01:00	4/20	4/45	2/60	4/60
29	RFDY	Rear load dairy	28	38°	18°	01:00	4/20	4/45	2/60	4/45
30	RIDY	Reach-in dairy	30	40°	20°	01:00	4/20	4/45	2/60	2/60
31	DYBX	Dairy cooler	34	44°	24°	01:00	2/22	2/45	2/60	2/60
32	BKBX	Bakery Cooler	36	46°	26°	01:00	2/22	2/45	2/60	2/60
33	PRBX	Produce cooler box	36	50°	30°	01:00	2/22	2/45	2/60	2/60
34	MILK	Milk case	34	40°	20°	01:00	4/20	4/45	2/60	2/60
35	PKDL	Packaged deli	32	38°	18°	01:00	4/20	4/45	2/60	2/60
36	DLDS	Deli display case	34	38°	18°	01:00	4/20	4/45	2/60	2/60
37	CHEZ	Cheese case	34	40°	20°	01:00	3/18	3/45	2/45	2/60
38	POBX	Poultry box	36	42°	22°	01:00	4/20	4/45	2/45	2/60
39	BEER	Beer/Beverage	34	44°	24°	01:00	2/18	2/45	2/45	2/60
40	BVCS	Beverage case	34	44°	24°	01:00	2/18	2/45	2/45	2/60
41	DLBX	Deli cooler box	36	46°	26°	01:00	3/18	3/45	2/45	2/60
42	FHBX	Fish cooler box	36	46°	26°	01:00	3/18	3/45	2/45	2/60
43	SVDL	Service deli	32	42°	22°	01:00	2/16	2/45	2/60	1/40
44	PRCS	Produce case	35	45°	25°	01:00	2/16	2/45	2/60	3/40

Default Setpoints for Case Types

45	ISPR	Produce case (island)	35	45°	25°	01:00	2/16	2/45	2/60	1/60
46	SALD	Salad table	36	50°	30°	01:00	2/16	2/45	2/60	1/60
47	FLBX	Flower cooler box	40	54°	34°	01:00	2/16	2/45	2/60	2/40
48	FLWR	Flower cooler	40	54°	34°	01:00	2/16	2/45	2/60	2/40
49	CTBX	Controlled temp box	50	75°	40°	00:15	2/16	2/45	2/60	2/45
50	SDPO	Single deck poultry	24	38°	18°	01:00	2/16	2/45	2/45	2/60
51	CAKE	Bakery cake case	40	55°	35°	01:00	2/16	2/45	2/45	2/60
52	BART	Bakery retarder	35	60°	40°	01:00	2/16	2/45	2/45	2/60
53	RTDR	Bakery retarder	35	60°	40°	01:00	2/16	2/45	2/45	2/60
54	MTPK	Meat packaging room	45	60°	40°	01:00	2/16	2/45	2/45	2/90
55	MTCU	Meat cutting room	45	60°	40°	01:00	2/16	2/45	2/45	2/90
56	MTPR	Meat prep room	45	60°	40°	01:00	2/16	2/45	2/45	2/90
57	MTWR	Meat wrapping room	45	60°	40°	01:00	2/16	2/45	2/45	2/90
58	FHPR	Fish prep room	45	60°	40°	01:00	2/16	2/45	2/45	2/90
59	SBCL	Subcooler	55	60°	45°	00:15	2/16	2/45	2/60	2/45
60	PRPR	Produce prep room	55	65°	45°	01:00	2/16	2/45	2/45	2/90
61	SDFM	Single deck freezer meat	-10	0°	-20°	01:00	2/18	2/40	1/35	1/45
62	RIFM	Reach-in freezer meat	-10	2°	-18°	01:00	2/18	2/40	1/35	1/45
63	MDFM	Multi-deck freezer meat	-10	0°	-20°	01:00	2/18	2/40	2/60	1/45
64	BKFZ	Bakery freezer box	-12	-2°	-22°	01:00	2/18	2/30	2/60	1/45

Visit our website at copeland.com/en-us/products/controls-monitoring-systems for the latest technical documentation and updates.
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026-4230 R1

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