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.



Setting Address on XM678D Device Using CX660 Keyboard



1. Press 📰 + 🗹 at the same time for five seconds to open the first level programming. The display will stop flashing when it has entered programming mode.

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2. Navigate through the parameters by pressing \leq or \leq until **Adr** is displayed.



- 3. Press 📰 and assign the corresponding address for the device by pressing 🗹 or 🔼.
- 4. Press **T** to save changes.
- 5. To exit, press 📰 + 🔤 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 Logimont button.
- 2. Enter USER in the **Username** field and press **Ener**.
- 3. Enter PASS in the Password field and press
- 5. Press F2 twice to move to the C3: Serial tab.

11-2 IIse	0-13 Ctrl-X	(? 🛄	lect	CX.	Tabc		RX-	400 Un SETUP	it 2			۵	E111 1		6:28:33
C1:	Gener	al	C2:	Eng	Units	C3: S	erial	C4:	TCP/IP	C	5:	Peer	Netwrk	ADVISORY	SUMMARY
C6:			C7:	Syst	en	C8: B	ACnet	C9:	Sys Ala	rns C	0:	MORE		Fails	0
					Gene	ral Set	up: ALAS	E2E						Alarms Notices	1
	Seria	1			Value										
	COM1	Connec	tion		Serial										
	COM1	Baud			115.2	Kbaud								NETWORK (DVERVIEW
	COM1	Data S	ize			8								MODBUS-1	I 🔶
	COM1	Parity			None										
	COM1	Stop B	its			1									
	COM1	FiFo S	ize		14										
	COM2	Connec	tion		Not Us	ed									
	COM3	Connec	tion		No Hod	en									
	COM4	Connec	tion		MODBUS	-1									
	COM4	Baud			9688 b	aud									
	COM4	Data S	ize			8									
	COM4	Parity			None										
	COM4	Stop B	its			1									
	COM6	Connec	tion		Not Us	ed								E2 Unit0	2
	COM6	FiFo S	ize		14										
	COM4	Avail			Yes									Rev 4.061	334
	COM6	Avail			Yes									IP 10.16	1.200.204
													1		
														English-	12
Scr	011 US	ing Ne	xt/P	rev l	keys	Connec	tion Typ	e For	COM4						
	F1: PR	EV TAB		_	2: NEX1	TAB		F3: ED	ιт	E F	4: 1	LOOK	UP	F5: 0	ANCEL
						Fi	aure 3	- (3	: Seria	l 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 to set configuration.
 - 6.c. Set **MODBUS Connection** as follows: (Press **F4** to select options and **Ener** 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.

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PART 2: Adding the XM678D Controller in E2

- 1. Press , 1, 2, 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**.

11-20-13 👩 💷 Use Ctrl-X to Select C	RX-4 X Tabs	00 Unit 2 SETUP	S FULL	6:30:17
C1: This Unit C2: IO	Network C3: ECT	C4:	C5: Echelon	ADVISORY SUMMARY
C6: C7: Sy	sten C8:	C9:	C0:	Fails 0
	Num Network Ctrls: Net	Setup	_	Alarms 1 Notices 6
ECT	Board Type	Quantity Max		
	#17 : XEV12D_84	8 99	Ť.	
	#18 : XEV22D_11	1 99		NETWORK OVERVIEW
	#19 : XJ Scroll Unit	0 16		HODBUS-1 😑
	#20 : XH670K_13	6 99		
	#21 : XH670K_34	0 99		
	#22 : XH678D_20	0 99		
	#23 : XH678D_25	1 99		
	#24 : XH679K_13	0 99		
	#25 : XH679K_34	1 99		
	#20 : XR35CX_50	0 99		
	#27 : XR75CX CaseUsp	0 99		
	#28 : XR/5CX_50	0 99	Ļ	
	#29 : 1Prodac	0 0		E2 Unit02
				Rev 4.06B34
				IP 10.161.200.204
				English-US
Enter 0 to 99 Enter	desired number of these	boards		
F1: PREV TAB	F2: NEXT TAB	3: EDIT		F5: CANCEL
	Figure 4 - Adding	the Number of	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 (1, 2, 2, 2, 1) to open the *Network Summary* screen.
- 2. Highlight the **XM678D** device to be commissioned by pressing the down arrow key and press **F4**.

11-20-13 🥳		RX-400 U Network S	nit 2 ummary	FULL	6:35:46
Nane	Туре	Network Address	Rev	Status	ADVISORY SUMMARY Fails 0
E2 Unit02 xF9510 11001 BN678D 25001	RX400-Refrig XEV22D_11 XH678D_25	LONWorks: NODBUS-1: NODBUS-1:	2 4.06834 0 0.00 5 2.05-00	This Controller No Port Online	HIARAS 6 Notices 6
Xhu,	XM679K_34	HODBUS-1:	2 3.04-00	No Port	NETWORK OVERVIEW Hodbus-1 🔶
					E2 Unit02
					Rev 4.06B34 IP 10.161.200.204
					English-US
F1: DELETE	RCRD F2: ST	ATUS F3: NET S	STATUS	F4: COMMISSION	F5: SETUP
	Figure 5 -	XM678D on the	Network	Summary Scre	en

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

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.

1-20-13 🥝		RX-400 Unit 2 Network Sunmary	Ö FULL	6:36:56 *ALARM*
Name E2 Unit02	Tuno MODBUS-1 Devices	Natuack Addeace Pau	 	ADUISORY SUHMARY Fails 0 Alarms 1 Notices 6
416780 251 Xho	1. (Unused) 2. XH679K_3400 3. (Unused) 4. (Unused) 5. (Unused) 7. (Unused) 8. (Unused) 9. (Unused) 10. (Unused) 11. (Unused) 12. (Unused) 13. (Unused) 14. (Unused) 15. (Unused) 16. (Unused)	1 ХН679К_34	T T	NETWORK OVERVIEW MODBUS-1
Press menu n	umber or scroll to	selection		F5: CANCEL
	Figure 6	- Selecting the MODBUS	Device Addre	ss

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

11-20-13 🕜 🛛			RX-400 I	Unit 2	۵			6:38:17
			Network S	Sunnary		FULL		
			RH678D_	25001			ADVISORY	SUMMARY
Name	Tuno	Notwork	Addroce	Dou	Statur.		Fails	8
							Alarns	1
E2 Unit02					ntro	oller	Notices	6
M6780 256								
0.11704							NETWORK	DVERVIEW
							NODBUS-	1 😐
	Setting	Phusical Addres	s for:	RH678D 25001				
	second y							
	Specify	Physical Addres	s Of Cont	roller				
		Adduocci	í.					
		nuuress s						
							E2 Unit0	2
							Rev 4.06	334
							10.16	1.200.204
							English-	JS
Enter value a	nd Press EN	IER to Set Addre	\$5					
							F5: 0	ANCEL

Figure 7 - Physical Address Screen

- 6. Press 🖘 to save the assigned address.
- 7. Press **(**) to return to the *Home* screen.
- 8. Press (1), 2, 2, 1 to open the *Network Summary* screen.

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

11-20-13 🕜		RX-400 U Network S	Jnit 2 Summary	() FULL	6:35:46
Nane E2 Unit02 01678D_2500 XHG	Туре RX400-Refrig XEU220_11 XH678D_25 XH679K_34	Network Address LONWorks: HODBUS-1: HODBUS-1: HODBUS-1:	Rev 2 4.06834 9 6.00 5 2.05-00 2 3.04-00	Status This Controller No Port Online No Port	ADUISORY SUMMARY Fails 0 Alarms 1 Notices 6 NETWORK OVERVIEW MODBUS-1 0
					E2 Unit02 Rev 4.06834
					IP 10.161.200.204 English-US
F1: DELETE	RCRD F2: ST	ATUS F3: NET	STATUS	F4: COMMISSION	F5: SETUP
	Figure 8	- XM678D on Ne	etwork Sur	mmary Screen	

10. Repeat the process for the other devices.

PART 4: Adding the XM Circuit Application

1. Press (), i to open the Add Application screen.

01-04-06 • 😚 🖮	RX-400 RX DEU	Unit 2 SUHMARY	Ó FULL	13:53:45
		Circuits	State Temp	ADUISORY SUMMARY Fails 0
	HAIN MENU 1. Suction Groups	KD C	IR .Kefr -24.8	Hiarns 0 Notices <mark>80</mark>
	2. Condenser Control			NETWORK OVERVIEW IONet-1 • MODBUS-1 •
	 Circuits Sensor Controls 			1000031
	5. Configured Applications			
	 Add/Delete Application System Configuration 			
	8. Status			E2 Unit02 Rev h_06831
				IP 10.161.200.228
Press nenu number o	or scroll to selection			engrisn-us
· · · · · · · · · · · · · · · · · · ·	Figure 9 - Main Me	nu - Add App	olication	/



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

11-29-13 🔹 🥱 📖		RX-400 Unit 2 🖄 ADD APPLICATION	4:11:43
		Add Application	ADUISORY SUMMARY
	Se1 ent	Select Application Type n er".	Alarms 1 Notices 14
+ Type	:	11. Enhanced Suction ▲ 12. Flexible Combiner	
+ How many	?	13. HVAC Simulation 14. Heat/Cool Control	IONet-1
	Not	15. Holiday Schedule ded	HODBOS-1
D		17. Log Group 18. Loop/Sequence Ctrl	
Results		19. Hodular Chiller Ctrl	
		20. Onboard IU 21. Power Monitoring	
		22. Pulse Accumulation	
		23. Rack Simulation 24. Standard Circuit 25. Suction Control	E2 Unit02
		26. TD Control 27. Time Schedule 28. Wi Ciecult	Rev 4.06834 IP 10.161.200.177
			English-US
Press menu number	or sc	roll to selection	
	L		F5: CANCEL
		Figure 11 - Selecting Application Type	

4. Press _____.

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

11-29-13 🔹 🦪 🖮	RX-400 Unit 2 Add Application	6 FULL	4:15:53
	Add Application Select an application type to add, then enter the number to add and press "Enter".		ADUISORY SUMMARY Fails 1 Alarms 1 Notices 14
+ Type + How many	: XH Circuit ? 1 Note: Only applications that can be added will be displayed.		NETWORK OVERVIEW IONet-1 © MODBUS-1 ©
Results			E2 Unit02 Rev 4.06834 IP 10.161.200.177 English-US
Enter 1 to 64 En	ter number of applications. Press ENTER to ADD.		F5: CANCEL
	Figure 12 - Enter Number of Application	ns to Add	

6. Press

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

1-29-13 🗕 🕜 💷	RX-400 Unit 2 ADD APPLICATION	0 FULL	4:19:01
	Add Application		ADVISORY SUMMARY Fails 1
	Select an application type to add, then enter the number to add and press "Enter".		Alarms <mark>1</mark> Notices <mark>14</mark>
+ Type	: XM Circuit		
+ How many	? 1_		IONet-1 • MODBUS-1 •
Do	you wish to edit new applications now?		
Results	Press Y=Yes or N=No		
- Control app -	lication(s) added: 1 Name prefix used: XH CIRCUIT001		
There are	now 1 XM Circuit application(s).		E2 Unit02
			Rev 4.06B34 IP 10.161.200.177
			English-US
			F5: CANCEL
	Figure 13 - Edit New Applic	cation	

- 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 , 💆 for System Configuration.

01-84-86 🔹 🥱 💷	RX-400 RX DEV	Unit 2 SUMMARY	<u>ía</u> FULL	16:06:01
		Circuits	State Temp	ADVISORY SUMMARY Fails 0
	MAIN MENU	RD CIR Itogi	.Refr -24.8 .Off NONE	Alarms 0 Notices <mark>82</mark>
1	 Suction Groups 			
2	2. Condenser Control			NETWORK OVERVIEW IONet-1 •
3	. Circuits			MODBUS-1 🔶
4	. Sensor Controls			
5	 Configured Applications 			
6	5. Add/Delete Application			
7	. System Configuration			
8	. Status			E2 Unit02
L				Rev 4.06B31 IP 10.161.200.228
				English-US
Press menu number or	scroll to selection			
	Figure 14 - Choose S	System Config	uration	

2. Press **7** for Network Setup.

81-84-86 🔹 🦪 📟	RX-400 RX DEV	Unit 2 SUMMARY	<u>í</u> FULL	16:06:27
	SYSTEH CONFIGURATION 1. Input Definitions 2. Output Definitions 3. System Information 4. Remote Communications 5. Alarm Setup 6. Logging Setup 7. Network Setup 8. Global Data 9. Licensing	Circuits RD CIR IT001	State Temp .Refr -24.8 .Off NONE	ADUISORY SUMMARY Fails 0 Alarms 0 Notices 82 NETWORK OVERVIEW IONet-1 0 MODBUS-1 0 E2 Unit02 Rev 4.06831 IP 10.161.200.228
				English-US
Press nenu number (or scroll to selection			
	Figure 15 - Choo	se Network Se	etup	,

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

81-84-86 🔹 🥱 💷	RX-400 RX DEU	Unit 2 SUNNARY	۵ FULL	16:86:44
		Circuits RD CIR IT001	State Temp .Refr -24.8 .Off NONE	ADUISORY SUHMARY Fails 0 Alarns 0 Notices <mark>82</mark>
	NETWORK SETUP 1. Network Sunmary 2. Connected I/O Boards & Con 3. Router Setup 4. Controller Associations	trollers		NETWORK OVERVIEW IONet-1 • MODBUS-1 •
				E2 Unit02
				Rev 4.06B31 IP 10.161.200.228
				English-US
Press menu number (or scroll to selection			
<u></u>	Figure 16 - Contr	oller Associati	ions	

4. Select XM Circuit.



5. Press .

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

81-84-86 🔹 🧖 🖮		RX-400 Xm circu	Unit 2 IT ASSOC	ñ FULL	16:07:22
Case	Controller	<> XM Circuit	Association		ADVISORY SUMMARY Fails Ø
Application	Bus	Node	Case Ctrl Circuit		Alarns 0
xm678DevicE	MODBUS	1	_		HULILES 02
					NETVORK OUERUIEW IONet-1 ● MODBUS-1 ●
					E2 Unit02
					Rev 4.06B31 IP 10.161.200.228
					English-US
Scroll applications with	th NEXT/PREU	J keys or use LO	OK-UP to select		
F1: SETUP APP	F2: SETUP C	KT _	F4:	LOOK UP	F5: CANCEL
Fi	igure 18	- Associating	XM678D to XI	M Circuit	

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

11-30-13 🔹 🤭 📖	RX-400 CELL L	Unit 2 🖄 DOKUP	FULL *ALARN*
Ca Applicati	e Controller <> XM Circuit	Association	ADUISORY SUMMARY Fails 1 Alarms 1
XH678D_25	Application Selecti Appl/Point Type XH CIRCUIT 01 XH Circuit	9n	NETWORK OVERVIEW IONEL-1 HODBUS-1
lice IIo-Bose Arrow ka	us av Lunetian kous to colort	anteu Deace DAPN	E2 Unit02 Rev 4.06834 IP 10.161.200.130 English-US
F1: SELECT	F3: BEG	INNING F4: END	F5: CANCEL
	Figure 19 - Application	Selection - XM Circ	uit



11-30-13 🔹 🕝	111		RX-4 XH CI	00 Unit 2 RCUIT ASSOC	0 FULL	1:31:35
	Case Con	troller <>	> XM Circ	uit Association		ADVISORY SUMMARY
Ap	plication	Bus	Node	Case Ctrl Cir	cuit	Alarns 1
XH		MODBUS	1	XM CIRCUIT 01		Notices 23
						NETWORK OVERVIEW IONet-1 • HODBUS-1 •
						E2 Unit02 Rev 4.06834 IP 10.161.200.130
						English-US
Scroll applic	ATIONS WITH M MPP F2:	EXT/PREU key Setup CKT	ys or use	LOOK-UP to sele	F4: LOOK UP	F5: CANCEL
	Figu	ıre 20 - D	evice A	ssociation wi	th 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

хм	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	ХМ	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	ХМ	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	ХМ	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	ХМ	Current per phase to maintain the actual position (Holding current).	0
HSF	Motor Movement	ХМ	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	ХМ	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	ХМ	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	
ΗY	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	ХМ	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	ХМ	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			Temperature measurement unit. °C = Celsius	

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	ХМ	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



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