



MEXM-1 MAC Expansion Module - Model 1	Version 1.00 November 2011
Reference Manual	MAN1025

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This warranty is the full extent of obligation and liability assumed by Comlab with respect to its products. Comlab neither makes nor authorizes any person or company to make any other guarantee or warranty concerning its products.

Safety information

The Davicom MEXM should be installed by qualified technical personnel only. Installation of this device by an unqualified person could result in hazardous conditions to the installer or other personnel, and/or damage to the MEXM or to other equipment. Ensure that proper safety precautions have been taken before installing this MEXM and any associated equipment.

The MEXM is designed to meet standard safety requirements, and it is extremely important that it not be modified in any way. Modification of this equipment will void the warranty and could pose a hazard to the user of this equipment or to maintenance personnel. Service of the MEXM should be performed by qualified technical personnel who are familiar with the unit. Note that the Davicom MEXM is designed for indoor use in a dry location, Installation and operation in other locations could be hazardous.

Depending on your installation, the MEXM may contain HIGH VOLTAGES. Exercise caution when working in and around the unit if it is connected to your site wiring.

Regulatory Compliance

FCC (USA)

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful interference, and
- (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Industry Canada

This Class A digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

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1. About Davicom MAC Expansion Module - Model 1 (MEXM-1)

1.1. Introduction

The Davicom MAC from Comlab, is designed for the Monitoring and Alarm Control of equipment installed at remote transmission sites. Surveillance is accomplished by sampling the analog and digital input signals, while control is obtained through the opening and closing of relay contacts.

The MEXM-1 is designed as an easy and cost effective solution to expand the Davicom MAC's monitoring capacity. It effectively adds 24 analog inputs, 24 digital inputs and 24 relay outputs to the Davicom MAC. The added I/Os are programmed through MacComm's software as simply as with the MAC's standard I/Os. MEXM's I/Os are scanned at the same rate as the MAC's I/Os (10 Hz).

The MEXM-1 uses the Modbus communication protocol and can be used with third party Modbus equipment. However, when used with a Davicom MAC, communication is completely transparent and does not require any knowledge of the Modbus protocol.

1.2. Front & rear panel description

1.2.1. Front panel

The MEXM-1 front panel is free of any parts. This allows the installation of MEXM units in racks (front or rear mounting) or on any flat surface thus allowing direct access to connectors, configuration switches and visual information.

1.2.2. Rear panel

The rear panel is divided into 4 sections (see figure 1). The blue section on the left is dedicated to the status inputs (Weidmuller terminals and DIP switches).

The gray section identifies metering inputs (Weidmuller terminals).

The orange section identifies relays (Weidmuller terminals and DIP switches).

Finally, the blue section on the right is dedicated to communications interconnect and power supply.

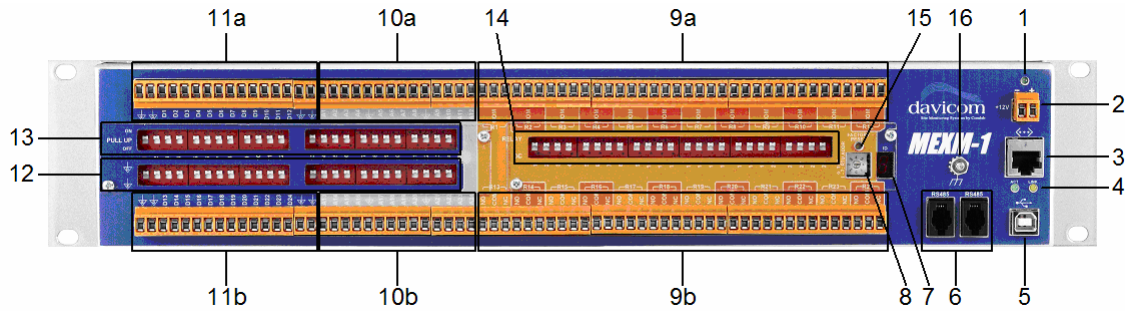


Figure 1 : Connectors on the MEXM-1 rear panel

1. 12 VDC power led indicator
2. 12 VDC input power screw terminals
3. RJ-45 Ethernet jack for TCP communication mode
4. Ethernet Activity/Link leds
5. USB port for RTU communication mode
6. RJ9 connectors for daisy-chain in RTU communication mode
7. Slave ID 7-segment led indicator
8. TCP/RTU communication mode selector
9. Relays screw terminals
10. Metering inputs screw terminals
11. Status inputs screw terminals
12. Status inputs ground selection DIP switches
13. Status inputs pull-up selection DIP switches
14. Relays/Open collector selection DIP switches
15. Factory reset switch
16. Ground screw terminal

2. Connecting MEXM-1 units to a MAC unit.

2.1. MEXM-1 communications modes

The MEXM-1 uses the Modbus protocol. Modbus is a serial communications protocol published by Modicon in 1979 for use with its programmable logic controllers (PLCs). It has become a de facto standard protocol for industrial communications, and is now the most commonly available means of connecting industrial electronic devices.

The MEXM-1 may be configured to communicate in one of these two Modbus protocol versions: RTU (Remote Terminal Unit) or TCP (Transmission Control Protocol).

Modbus RTU is used with serial communication (RS422/RS485) whereas Modbus TCP is used for communications over TCP/IP networks.

In TCP mode, a single MEXM-1 may be connected to a Davicom MAC with a crossover Ethernet cable. Up to 8¹ MEXM-1 can also be connected to an existing network infrastructure through an Ethernet switch (not provided).

In RTU mode, up to 7 MEXM-1 can be “daisy chained” to a Davicom MAC unit. When using the RTU mode, no additional equipment other than the MAC and the MEXMs are required.

2.2. Setting up a MEXM-1 in TCP mode

To configure a MEXM-1 in TCP mode, set the TCP/RTU communications mode selector switch in position 0 (line item 8 in figure 1). The default parameters for the MEXM-1 are shown in table 1.

IP Address	192.168.5.240
Subnet Mask	255.255.255.0
Default gateway	0.0.0.0
IP port	502

Table 1 : Default MEXM IP parameters

¹ The Davicom MAC units do not support connection of more than 8 MEXMs.

2.3. Setting up a MEXM-1 in RTU mode

To configure a MEXM-1 in RTU mode, set the TCP/RTU communication mode selector switch to any positions between 1 and 7. When more than one MEXM-1 are used in RTU mode **each unit TCP/RTU communications mode selector switch must be set to different values.**

Default MEXM-1 RTU parameters are shown in Table 2.

Baud Rate	115200
Parity	N

Table 2 : Default MEXM-1 RTU parameters

2.4. Restoring the factory default parameters

To completely restore factory default parameters, press and hold the Factory Reset Button (item 15 in figure 1) until the 7-segment led display blinks 3 times.

2.5. Connecting MEXM-1 units in TCP mode

The MAC and MiniMAC units support the Modbus protocol only on the RJ45 Ethernet Jack 2. This connector should always be used to connect a MEXM-1 to the MAC unit. The MicroMAC Ethernet jack fully supports the Modbus protocol.

2.5.1. Connecting one MEXM-1 in TCP mode

To connect a single MEXM-1 to a MAC/MiniMAC/MicroMAC unit, use the crossover Ethernet cable provided with the MEXM-1. Connect the cable between the MAC/MiniMAC RJ45 Ethernet Jack 2 and the MEXM-1 RJ45 Ethernet jack as shown in Figures 2 and 3.

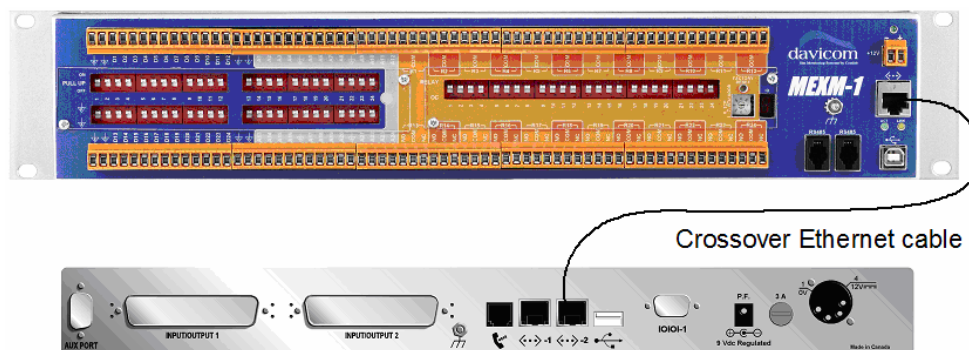


Figure 2 : MEXM to MiniMAC TCP mode connection (crossover)

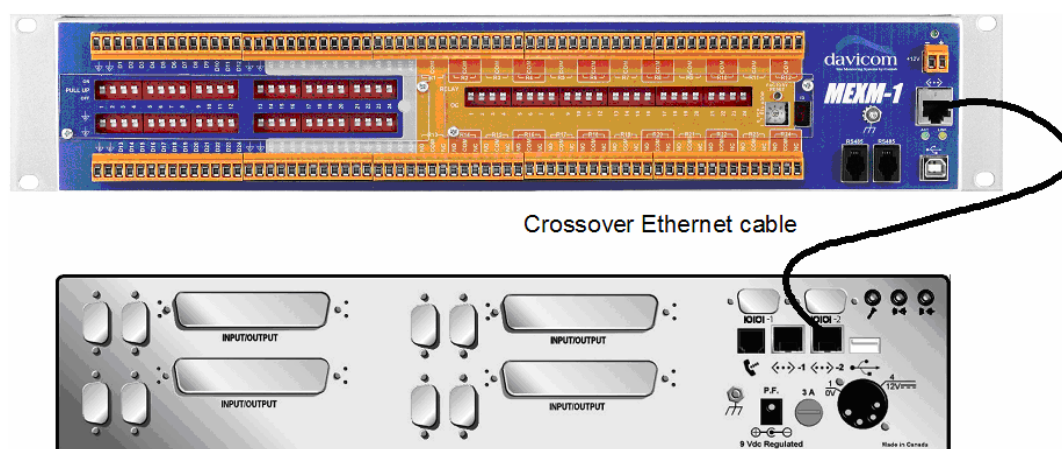


Figure 3 : MEXM-1 to MAC TCP mode connection (crossover)

2.5.2. Connecting more than one MEXM-1 in TCP mode

Connecting a MEXM-1 to a MAC unit via an Ethernet switch or an existing network infrastructure requires the use of a straight Ethernet cable (not included with the MEXM-1).

2.6. Connecting MEXM-1 units in RTU mode

To connect a MEXM-1 to a MAC unit in RTU mode, use the USB cable provided with the MEXM-1 and connect it between the MEXM-1 USB connector (Device) and the USB connector (Host) located on the rear panel of the MAC unit.

To add more MEXM-1 devices in RTU mode, connect them in “daisy-chain” with the provided RJ9 cables as shown in Figure 4, the first MEXM-1 being connected to a MAC unit with the USB cable. **Each MEXM must be set to a different RTU Address** (see section 2.3).

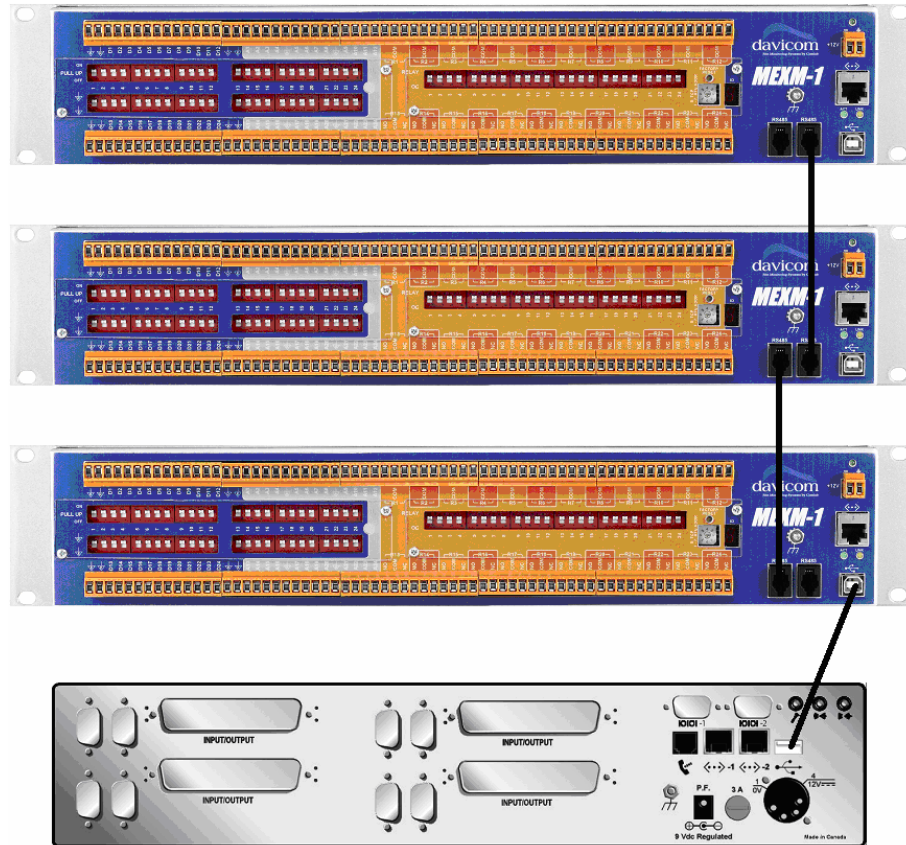


Figure 4 : Three RTU-mode MEXM-1 units connected to a Davicom MAC

2.7. Power supply

All Davicom MAC and MEXM-1 units operate from a 12 VDC power supply. Battery backup installations are also strongly recommended to insure uninterrupted operation during power outages.

3. Input/Output configuration

Metering inputs, status inputs and relay outputs offer different user-configurable settings. The following sections present detailed DIP switch configurations specific to each setting.

3.1. Detailed metering input connections

The MEXM-1 metering inputs can be configured independently for any of the following input voltage ranges: ± 2.5 V, ± 5 V, ± 10 V, ± 25 V and ± 50 V. The voltage range selection is controlled through the MACCOM software.

Warning: Do not exceed the voltage scale limits set for each metering input to prevent saturation of the internal variable gain amplifier.

Metering inputs are bipolar and have a minimum input impedance of 1 M Ω .

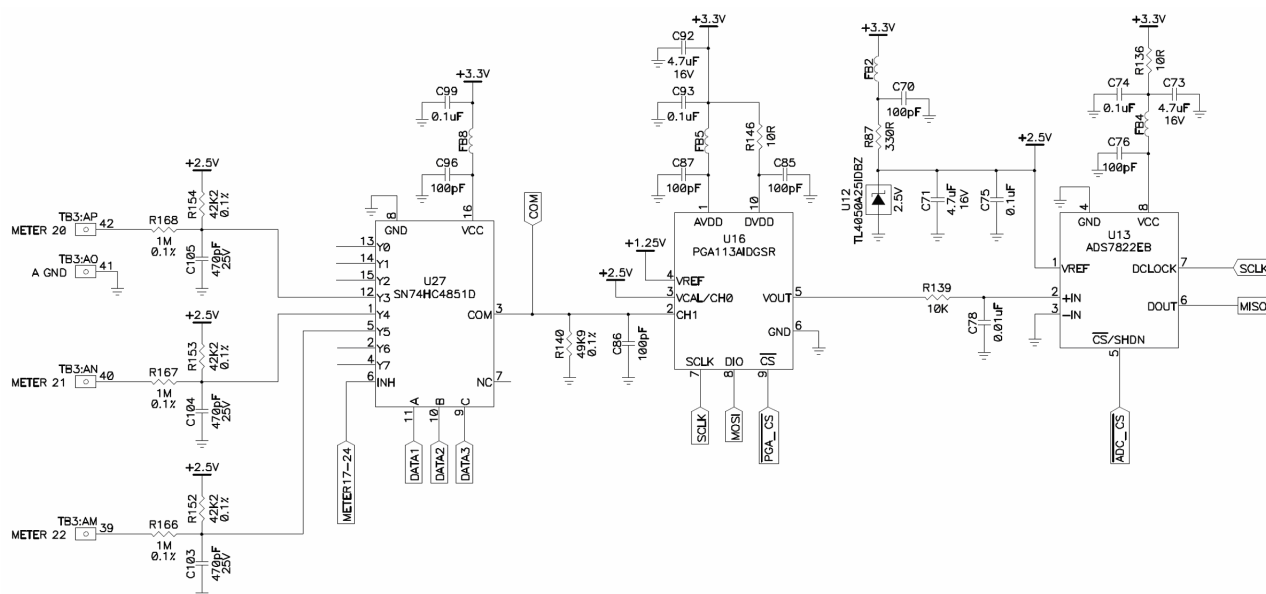


Figure 5 : Typical metering input circuit

3.2. Detailed status input connections

All status inputs are opto-isolated and the input impedance is greater than 22 k Ω . Input voltages ranging from -12 V to $+0.8$ V are considered a logic Low level, while voltages from $+2.4$ V to $+12$ V are considered a logic High level. DIP switches are used to place a 22 k Ω pull-up resistor in or out on the status input positive terminal. DIP switches are also used to set the ground terminal to internal or external.

Note: Make sure the DIP switch settings of the MEXM-1 unit match your status input signal source (the pull-up resistors shall be IN or OUT, see Figure 6).

3.2.1. Dry-contact (pull-up) configuration

When pull-up resistors are used, an open circuit is taken as a logic High and short to ground as a logic Low.

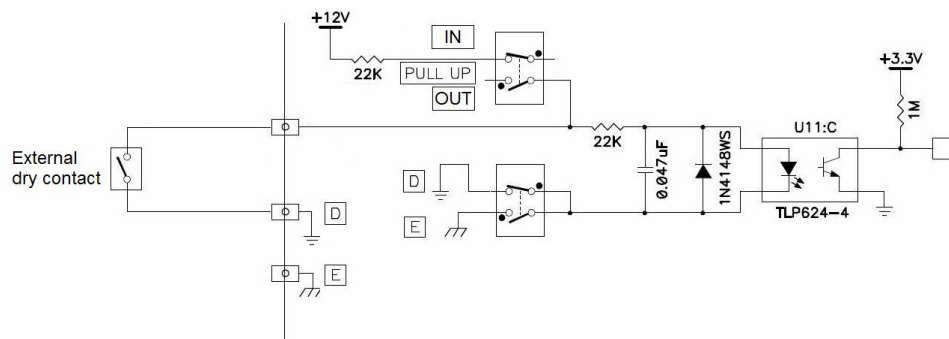


Figure 6 : Status input connected in dry-contact (pull-up) mode

3.2.2. Wet-contact (external drive signal) configuration

To isolate the MEXM status inputs from other equipment, the terminal ground connection can be set to external (EGND) using a DIP switch. When the ground is set to external, voltage $+V_{in}$ in Figure 6 must be greater than +2.4 VDC in order to activate the photodiode of the opto-coupler. In this case, an open circuit is considered as a logic Low, and a voltage over +2.4 VDC is considered as a logic High.

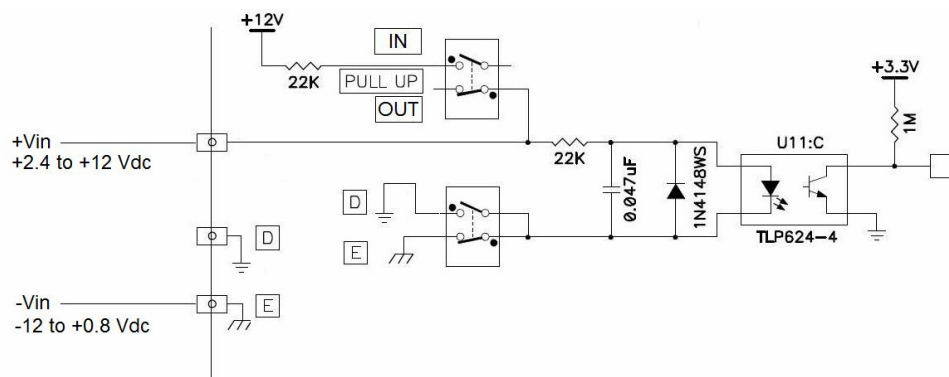


Figure 7 : Status input connected in the wet-contact (external voltage) mode

3.2.3. Status input DIP switches

At the factory, Status input DIP switches are set for the dry-contact configuration (pull-up in). To gain access to the status inputs DIP switches, loosen the two screws retaining the clear plastic cover to the left of the MEXM module as shown in Figure 8.

The configuration of each of the 24 status inputs can be set independently. The number written between the two DIP switch rows indicates to which input the settings are applied.

Status input contact mode	Pull-up	Ground
Wet-contact	OUT	E
Dry-contact	IN	D

Table 3 : Status input DIP switches settings

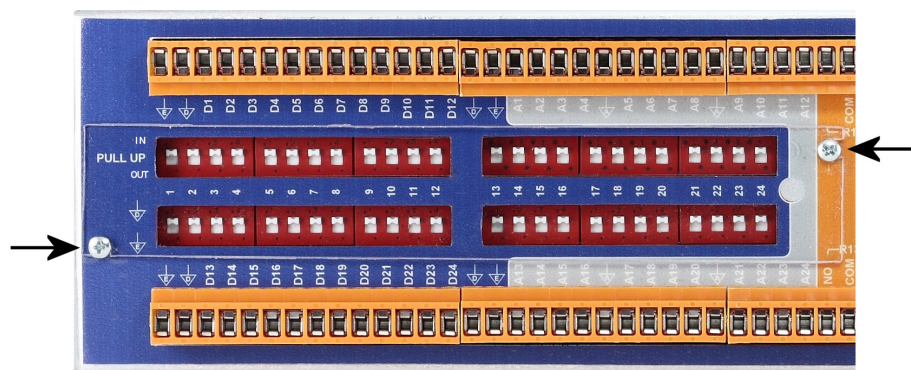


Figure 8 : Status inputs DIP switch access and screw location

3.3. Relay/Open-collector outputs

3.3.1. Relay/Open-collector output connections

The MEXM-1 module can control physical relays, or use them to route open collector contacts to the NC terminal, as shown in Figure 9.

The MEXM's physical relays provide high isolation and accept higher voltages and currents than the open collectors. Open collectors can be used to control equipment that have digital external control ports.

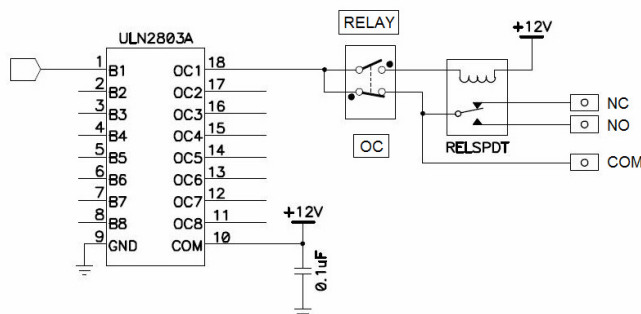


Figure 9 : Relay / Open collector output

3.3.1.1. Relay output

The physical relays can support 0.4 A @ 120 VAC, and 2 A @ 30 VDC.

Relays can be wired normally-open (NO) or normally-closed (NC). Normally-open contacts close the circuit when the relay is energized; normally-closed contacts open the circuit when the relay is de-energized.

3.3.1.2. Open-collector output

Open collector outputs can support a DC current of 100 mA at 12 V.

Warning: Exceeding the MEXM-1 power supply voltage on the open collector can damage the transistor. For higher voltages, choose relay outputs instead of open collector outputs.

3.3.2. Relay DIP switches

At the factory, Relay DIP switches are set to Relay control. To gain access to the relay DIP switches, loosen the two screws retaining the clear plastic cover to the right of the MEXM-1 module (see Figure 10).

Relay or open-collector controls are independently set for each of the 24 MEXM-1's outputs. The number between the two DIP switch rows indicates to which output the settings are applied.

Relay/Open-collector output mode	DIP switch Set to
Relay	RELAY
Open-collector	OC

Table 4 : Relay/Open-collector DIP switches settings

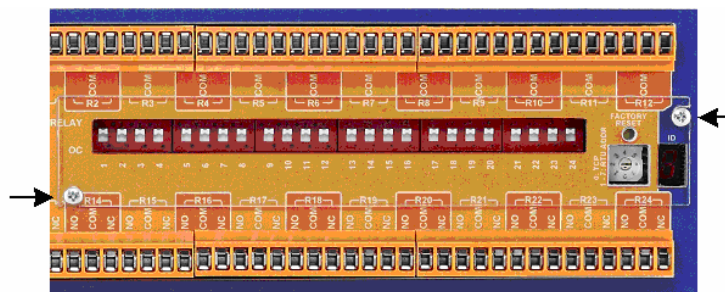


Figure 10 : Relays DIP switches access and screw location

In the Open-collector control settings, open-collector contacts are available through the relay NC and COM terminals.

4. Configuring the MAC unit to work with a MEXM-1

If you are not familiar with the MAC unit and MacComm software, please refer to MAC Reference Manual (MAN1003).

4.1. MEXM-1 autodetection by the MAC

Autodetection is possible for both RTU and TCP connection mode. Note that these two modes are exclusive: mixed communication modes (simultaneous operation in both RTU and TCP mode) are not possible.

To add a MEXM-1 to a MAC unit configuration:

RTU MODE:

- If more than one MEXM-1 is used: plug all units together in daisy-chain,
- Set the communication mode selector switch to any position between 1 and 7.
- If more than one MEXM-1 is used, make sure the communications mode selector switches are set to different positions for each unit
- Power up the units
- Connect the USB cable from the first MEXM-1 to the MAC unit
- Reboot the MAC unit.

TCP MODE:

- Set the communications mode selector switch to position 0
- Power up the MEXM-1
- Connect the ETHERNET cable to MEXM and to the MAC
- Reboot the MAC unit.

4.2. Manually adding a MEXM-1 as a Modbus slave in TCP mode

Go to MAC Configuration / Devices / ModBus Setup window and check that the settings are as shown below (Figure 11):

The Modbus Setup window is shown with the following configuration:

- Mode:** TCP
- IP Port:** 502
- Slave Problem Alarm-Call:** MAJ1

The **Slave Setup** tab is active, displaying a table with the following data:

#	Description	IP/RTU Address	Coil
1	MEXM-1	192.168.5.240	00001:24
2			
3			
4			
5			
6			
7			
8			

Below the table are buttons for **Change** and **Delete**.

The configuration details for the selected slave are as follows:

- Description:** Default: MEXM-1, Alternate: MEXM-1
- IP/RTU Address:** 192.168.5.240
- MEXM module:** ☒
- Parameters:**
 - Output Coils Address:** Start: 00001, Len: 24
 - Input Status Address:** Start: 10001, Len: 24
 - Input Registers Address:** Start: 30001, Len: 24, ☐ 32 Bits

At the bottom are **OK** and **Cancel** buttons.

Figure 11 : Manually adding manually a MEXM-1 as a Modbus slave in TCP mode

Warning: the MEXM module checkbox must be checked for the MEXM-1 to work properly.

To add another MEXM-1 in TCP mode, select a blank entry in the Slave Setup table (see Figure 11) and fill out the fields with the same parameters except the IP address which must be different for each additional unit.

4.3. Manually adding a MEXM-1 as a Modbus slave in RTU mode

Go to MAC Configuration / Devices / Modbus Setup window and fill in the information as shown in Figure 12.

The image shows a 'Modbus Setup' dialog box. At the top, it has three dropdown menus: 'Mode' set to 'RTU', 'IP Port' set to '502', and 'Slave Problem Alarm-Call' set to 'MAJ1'. Below these is a 'Slave Setup' section containing a table with 8 rows. The first row is filled with '1', 'MEXM-1', '1', and '00001:24'. Below the table are 'Change' and 'Delete' buttons. Further down are fields for 'Description' (Default: MEXM-1, Alternate: MEXM-1), 'IP/RTU Address' (1), and a checked 'MEXM module' checkbox. At the bottom are 'Parameters' for 'Output Coils Address', 'Input Status Address', and 'Input Registers Address', each with 'Start' and 'Len' fields. The 'OK' and 'Cancel' buttons are at the very bottom.

#	Description	IP/RTU Address	Coil
1	MEXM-1	1	00001:24
2			
3			
4			
5			
6			
7			
8			

Parameters:

Output Coils Address:	Start:	00001	Len:	24	<input type="checkbox"/> 32 Bits
Input Status Address:	Start:	10001	Len:	24	
Input Registers Address:	Start:	30001	Len:	24	

Figure 12 : Manually adding a MEXM-1 as a Modbus slave in RTU mode

Warning: the MEXM module checkbox must be checked for the MEXM-1 to work properly.

To add more MEXM-1 units in RTU mode, you have to select a blank entry line in the Slave Setup table and fill in the blank fields with the same parameters except the RTU Address which must be the same as the one selected on the TCP / RTU communication mode rotary switch of the MEXM-1.

5. Maintenance/Firmware upgrade

The MEXM modules are built to be extremely reliable. This section covers maintenance procedures that may need to be performed at some time during the product life cycle.

Upgrade of the MEXM-1 firmware is only possible through a MAC unit with the use of MACCOM or the MAC Web Interface. Please refer to MAC Reference Manual (MAN1003) for additional information.

For any additional information or troubleshooting help, please refer to the Davicom web site at www.davicom.com . It is continuously updated and should become your first stop for the most up-to-date information on the MAC.

6. Recycling your WEEE compliant MEXM-1 unit (EC only)

The Waste Electrical & Electronic Equipment (WEEE) 2002/96/EC Directive ensures the proper recycling of waste resulting from any electrical and/or electronic items. The directive came into effect on August 13, 2005, and is only applicable for the European Member States.

Davicom MEXM modules comply with the WEEE Directive. These products are marked with the “crossed out wheeled bin” WEEE symbol in accordance with European Standard 50419.



Figure 13 : WEEE Symbol

This symbol on the product indicates that this product must not be disposed of with other waste. Instead, it is your responsibility to dispose of your waste equipment by handing it over to the dealer where you purchased the product, or to Comlab, the manufacturer of the product. The separate collection and recycling of your waste equipment at the time of disposal will help to conserve natural resources and ensure that it is recycled in a manner that protects human health and the environment.

For MEXM modules sold in the European Union, Comlab will provide free recycling of those products once a customer has returned them to an authorized dealer of Davicom products and where a replacement MEXM module is being supplied. Where a replacement product is not being supplied, recycling services can be provided on request at additional cost.

7. Shipping your MEXM-1 unit back to the factory/dealer

Please contact your local dealer or dvsupport@davicom.com for return instructions.

APPENDIX A Technical specifications

MEXM-1 Specifications

Metering inputs	Number	24
	Voltage ranges	± 2.5 , ± 5 , ± 10 , ± 25 , ± 50 VDC
	Impedance	1M Ω
	Protection	Clamping diode
	Accuracy	1%
	A/D resolution	12 bits
	Connector type	Weidmuller pluggable screw terminal
Status inputs	Number	24
	Logic levels	High=+2.4 to +12VDC, Low=-12 to +0.8VDC. EIA compatible
	Impedance	>22k Ω
	Protection	Opto-isolated
	Ground	Internal or External, individually selectable
	Dry/wet contact	Individually selectable with pull-up resistor
	Connector type	Weidmuller pluggable screw terminal
Outputs	Number	24
	Type	Form C Relay or Open collector, individually selectable
	Rating	70VAC@0.4A, 30VDC@2A. Open collector at 100mA
	Connector type	Weidmuller pluggable screw terminal
Interface protocol	Modbus	RTU or TCP modes
RTU Mode	Connector	USB, RJ9 for daisy-chaining up to 7 units
TCP Mode	Connector	RJ45
Power supply		12VDC
Typical current requirements (mA) at 12VDC	Idle	150
	Startup	150
	Max (all relays energized)	480
Dimensions		48.3 cm x 8.7 cm x 3.6 cm 19" x 3.44" x 1.42" (including Weidmuller terminals)
Weight (unit only)		1.3 kg

Table 5 : MEXM-1 specifications

APPENDIX B Detailed Input/Output pinout

POSITION	TOP ROW	BOTTOM ROW
1	External ground for wet-contact status input	External ground for wet-contact status input
2	Digital Ground for dry-contact status input	Digital Ground for dry-contact status input
3	Status Input 1	Status Input 13
4	Status Input 2	Status Input 14
5	Status Input 3	Status Input 15
6	Status Input 4	Status Input 16
7	Status Input 5	Status Input 17
8	Status Input 6	Status Input 18
9	Status Input 7	Status Input 19
10	Status Input 8	Status Input 20
11	Status Input 9	Status Input 21
12	Status Input 10	Status Input 22
13	Status Input 11	Status Input 23
14	Status Input 12	Status Input 24
15	Digital Ground for dry-contact status input	Digital Ground for dry-contact status input
16	External ground for wet-contact status input	External ground for wet-contact status input
17	Metering Input 1	Metering Input 13
18	Metering Input 2	Metering Input 14
19	Metering Input 3	Metering Input 15
20	Metering Input 4	Metering Input 16
21	Analog Ground	Analog Ground
22	Metering Input 5	Metering Input 17
23	Metering Input 6	Metering Input 18
24	Metering Input 7	Metering Input 19
25	Metering Input 8	Metering Input 20
26	Analog Ground	Analog Ground
27	Metering Input 9	Metering Input 21
28	Metering Input 10	Metering Input 22
29	Metering Input 11	Metering Input 23
30	Metering Input 12	Metering Input 24
31	Relay 1 normally open	Relay 13 normally open
32	Relay 1 common	Relay 13 common
33	Relay 1 normally closed	Relay 13 normally closed
34	Relay 2 normally open	Relay 14 normally open
35	Relay 2 common	Relay 14 common
36	Relay 2 normally closed	Relay 14 normally closed
37	Relay 3 normally open	Relay 15 normally open
38	Relay 3 common	Relay 15 common
39	Relay 3 normally closed	Relay 15 normally closed
40	Relay 4 normally open	Relay 16 normally open
41	Relay 4 common	Relay 16 common
42	Relay 4 normally closed	Relay 16 normally closed
43	Relay 5 normally open	Relay 17 normally open
44	Relay 5 common	Relay 17 common
45	Relay 5 normally closed	Relay 17 normally closed
46	Relay 6 normally open	Relay 18 normally open
47	Relay 6 common	Relay 18 common
48	Relay 6 normally closed	Relay 18 normally closed
49	Relay 7 normally open	Relay 19 normally open
50	Relay 7 common	Relay 19 common
51	Relay 7 normally closed	Relay 19 normally closed
52	cRelay 8 normally open	Relay 20 normally open
53	Relay 8 common	Relay 20 common
54	Relay 8 normally closed	Relay 20 normally closed
55	Relay 9 normally open	Relay 21 normally open
56	Relay 9 common	Relay 21 common
57	Relay 9 normally closed	Relay 21 normally closed

58	Relay 10 normally open	Relay 22 normally open
59	Relay 10 common	Relay 22 common
60	Relay 10 normally closed	Relay 22 normally closed
61	Relay 11 normally open	Relay 23 normally open
62	Relay 11 common	Relay 23 common
63	Relay 11 normally closed	Relay 23 normally closed
64	Relay 12 normally open	Relay 24 normally open
65	Relay 12 common	Relay 24 common
66	Relay 12 normally closed	Relay 24 normally closed

Table 6 : MEXM-1 I/O pinout

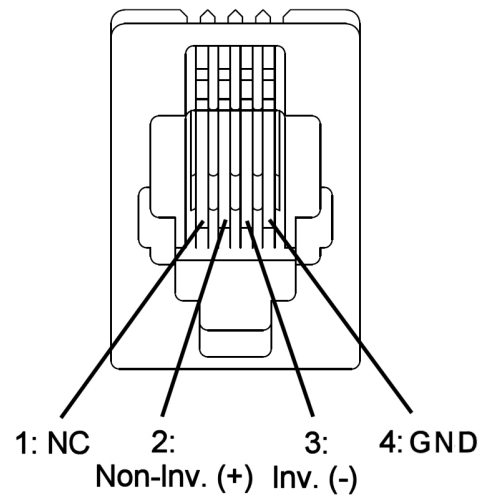


Figure 14: MEXM-1 RJ9 connectors pinout

APPENDIX C MEXM mnemonic to use with MacComm / MAC Web interface

MNEMONIC	DESCRIPTION
xMAyyy	Metering Input (Analog)
xMDyyy	Status Input (Digital)
xMRyyy	Physical Relay

Table 7 : MEXM mnemonic to use with MacComm / MAC Web interface

Where x is the MEXM ID or the line number of the MEXM in MAC Configuration / Devices / Modbus Setup and yyy is the actual input / output number.

APPENDIX D MEXM Touch-tone telephone commands

COMMAND	DESCRIPTION
1x0Zyyy#	Enable MEXM input
2x0Zyyy#	Disable input
3x0Ryyy#	Force-ON relay
4x0Ryyy#	Force-OFF relay
5x0Ryyy#	Release relay
6x0Ryyy#	Pulse relay
7x0Zyyy#	Input Reading

Table 8 : MEXM specific MAC DTMF telephone commands

Where x is the MEXM ID or the line number of the MEXM in MAC Configuration / Devices / Modbus Setup, Z is the type of input or output (A = Metering input, D = Status input, R = relay) and yyy is the actual input / output number.

APPENDIX E MEXM I/O Modbus addresses

ADDRESS	DESCRIPTION	ATTRIBUTE
00001	Relay #1	Read / Write
00002	Relay #2	Read / Write
00003	Relay #3	Read / Write
00004	Relay #4	Read / Write
00005	Relay #5	Read / Write
00006	Relay #6	Read / Write
00007	Relay #7	Read / Write
00008	Relay #8	Read / Write
00009	Relay #9	Read / Write
00010	Relay #10	Read / Write
00011	Relay #11	Read / Write
00012	Relay #12	Read / Write
00013	Relay #13	Read / Write
00014	Relay #14	Read / Write
00015	Relay #15	Read / Write
00016	Relay #16	Read / Write
00017	Relay #17	Read / Write
00018	Relay #18	Read / Write
00019	Relay #19	Read / Write
00020	Relay #20	Read / Write
00021	Relay #21	Read / Write
00022	Relay #22	Read / Write
00023	Relay #23	Read / Write
00024	Relay #24	Read / Write
10001	Status input #1	Read only
10002	Status input #2	Read only
10003	Status input #3	Read only
10004	Status input #4	Read only
10005	Status input #5	Read only
10006	Status input #6	Read only
10007	Status input #7	Read only
10008	Status input #8	Read only
10009	Status input #9	Read only
10010	Status input #10	Read only
10011	Status input #11	Read only
10012	Status input #12	Read only
10013	Status input #13	Read only
10014	Status input #14	Read only
10015	Status input #15	Read only
10016	Status input #16	Read only
10017	Status input #17	Read only
10018	Status input #18	Read only
10019	Status input #19	Read only
10020	Status input #20	Read only
10021	Status input #21	Read only
10022	Status input #22	Read only
10023	Status input #23	Read only
10024	Status input #24	Read only
30001	Metering input#1	Read only
30002	Metering input#2	Read only
30003	Metering input#3	Read only
30004	Metering input#4	Read only
30005	Metering input#5	Read only

30006	Metering input#6	Read only
30007	Metering input#7	Read only
30008	Metering input#8	Read only
30009	Metering input#9	Read only
30010	Metering input#10	Read only
30011	Metering input#11	Read only
30012	Metering input#12	Read only
30013	Metering input#13	Read only
30014	Metering input#14	Read only
30015	Metering input#15	Read only
30016	Metering input#16	Read only
30017	Metering input#17	Read only
30018	Metering input#18	Read only
30019	Metering input#19	Read only
30020	Metering input#20	Read only
30021	Metering input#21	Read only
30022	Metering input#22	Read only
30023	Metering input#23	Read only
30024	Metering input#24	Read only

Table 9 : MEXM I/O Modbus addresses