Specifications

Outputs	
Quantity	8
Output range	4mA to 20mA dc (factory set) or 0mA to 20mA dc
Load*	1000Ω (maximum) at 26,4 V dc external field supply
*Maximum load resistance formula	R_{load} (kΩ)=[(Vfield supply-6,4Vdc)/20mA]
Wire gauge	2,0mm² (maximum) #
# For manageable cabling to the modules, a conductor size of up to 0.5mm², with a maximum overall outside diameter of 2mm, is recommended.	
Performance	
Accuracy	0,25% of FSR (maximum)
Linearity	0,1% of FSR (typical)
Resolution	12 bits
Drift	100 ppm/ºC (typical)
Response time	10% to 90%
Output step change	80 ms (maximum) for all 8 channels
Isolation	
Output to system logic	1500 Vrms
Insulation Resistance	
Output to logic	20 MΩ at 500 Vdc
Power Supply	
Internal	(from base PSU)
Voltage	+5 Vdc ± 5%
Current	50mA (maximum)
External	(from field supply)
Voltage	+24 Vdc ±10%
Current	195mA (maximum) at +24 Vdc with all outputs at 20mA
Environmental	
Operating Temperature	-25ºC to + 60ºC (-13ºF to +140ºF)
Storage Temperature	-40ºC to + 70ºC (-40ºF to +158ºF)
Operating Humidity	5% to 95% (non-condensing)
Identification Codes	
Scan code	17
Module ID	34
Mass	
Including Packaging	450g (15,9 oz)
Excluding Packaging	360g (12,7 oz)
Ordering Information	
Order Code	M1412A

GENERAL INSTRUCTIONS

Maxiflex 1000 Series

8 Analog Output (8 AO) Module

M1412A

General Description

The M1412A module provides eight 4mA to 20mA (or 0mA to 20mA) output channels. The outputs are powered from an external field supply of +24V dc ±10% and each output can drive a maximum load of 1000Ω at 26,4 V dc. The module can be inserted or removed while the system is live.

The module is controlled by the Maxiflex CPU module which writes eight 2x8-bit digital values to the M1412A module. These values are converted to a voltage by a 12-bit digital to analog converter, and then written to the output stages. The output stage converts the voltage to a 4mA to 20mA (or 0mA to 20mA) output.

Isolation of 1500 Vrms from output to system logic is provided. All outputs share a common ground connection.

Scan and module identity ID codes are used by the CPU for addressing and diagnostics. If the module is removed or becomes faulty, this status will be detected by the CPU immediately and can be read via the network. A green LED indicates the functional state of the module as follows:

Table 1:LED indicator

Status	
"HEALTHY" LED	**Module**
On	Operating correctly
Flashing	Failure or calibration mode*
Off	No power, or failure

**Factory calibration only.*

The module can be configured to eight 0mA to 20mA outputs by means of a link located on the module bus interface board.

Output Range Set-up

Connect the three-way link (J4) located on the module bus interface board as follows:

Table 2: Output range settings

Range	J4
4mA to 20mA (factory set)	1-2
0mA to 20mA	2-3

Module Positioning

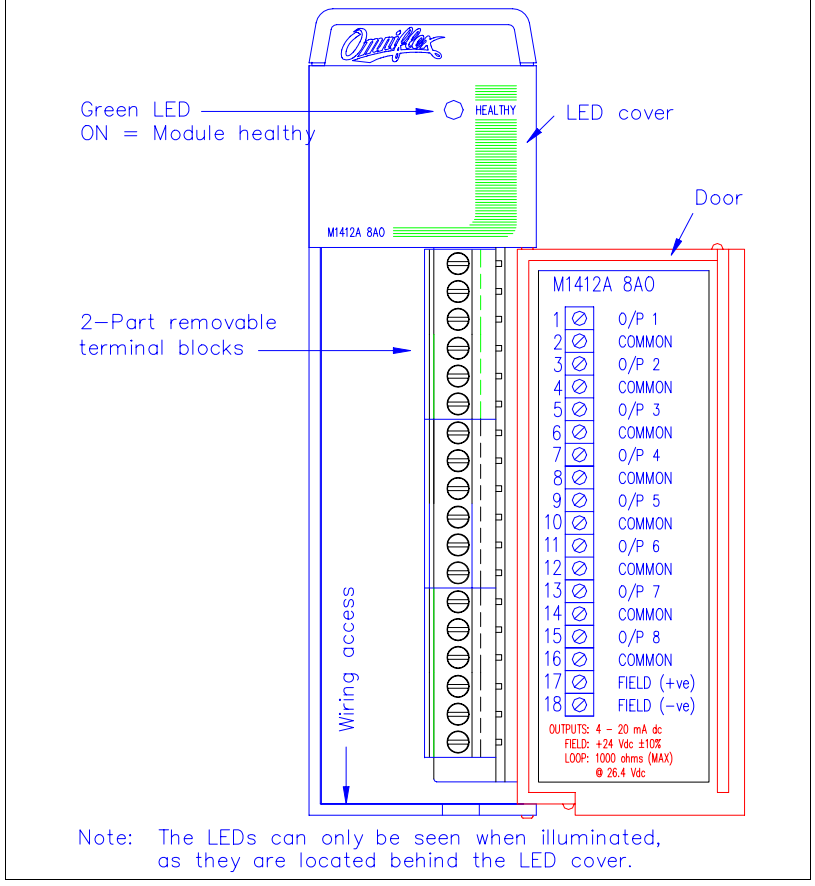
The M1304A must be inserted in one of the I/O positions of the Maxiflex base.

Refer to the Maxiflex bases General Instructions (P/N 98-8952-930-00X) for more detail on base layout, module insertion and module removal.

To change the links, remove the printed circuit boards (PCBs) as follows :-

1. Remove the module from the base. Remove the top screw and lift off vent cover.
2. Gently ease the LED cover and the door away from the module.
3. Slide out the PCB.
4. Reverse order to replace the PCB. Remove lowest terminal block for easier assembly.

Figure 1 : Layout of the M1412A Module



Note: The LEDs can only be seen when illuminated, as they are located behind the LED cover.

Figure 2 : Layout of the 7 I/O Master Base

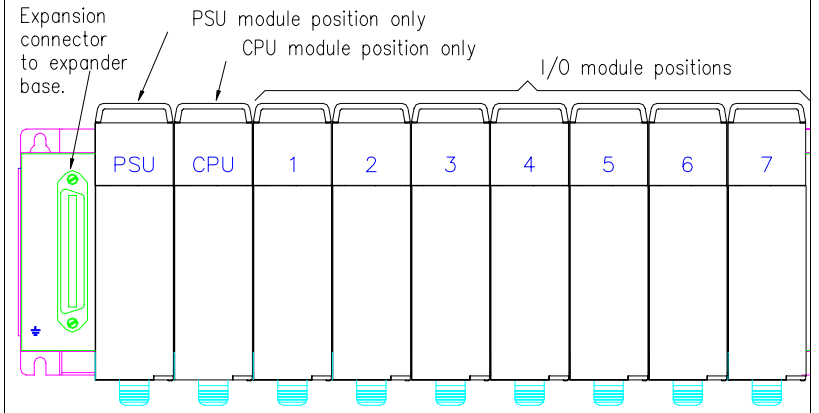
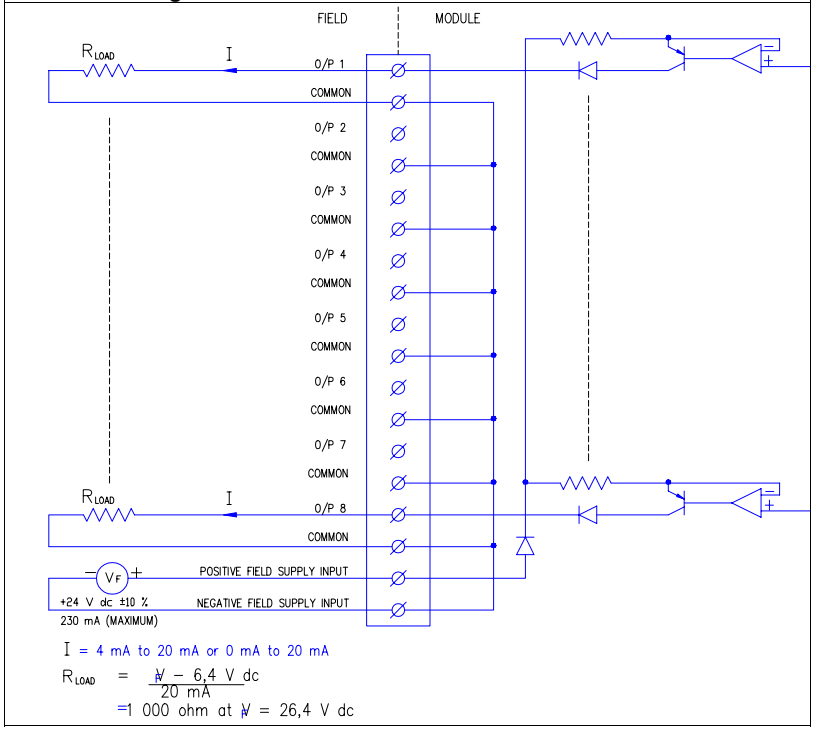


Figure 3 : Electrical Connections M1412A Module



I = 4 mA to 20 mA or 0 mA to 20 mA

$R_{LOAD} = \frac{V - 6{,}4\ V\ dc}{20\ mA}$

=1 000 ohm at V = 26,4 V dc