

MAO-8 and -12

8-Channel, 8-Bit and 12-Bit Analog Output Boards For the METRABUS

Functional Description

The MAO-8 and MAO-12 are 8-channel analog output boards for the METRABUS system. Both boards provide switch selectable output voltage ranges or a 4–20 mA current output. The MAO-8 has 8-bit resolution (1 part in 256), while the MAO-12 has 12-bit (1 part in 4096). The MAO-8 and MAO-12 use 8 consecutive addresses in the 64-bit address space of the METRABUS which allows for control of up to 64 analog output channels from a single computer expansion slot.

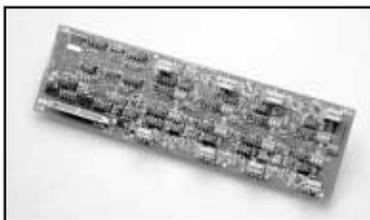
The MAO-8 and MAO-12 interface directly to any of the METRABUS driver boards via a 50-conductor ribbon cable. The cable carries all control signals, data signals and power required by the analog output boards. Screw terminals on these boards accept 12 to 22 AWG wire.

The METRABUS system was designed to allow METRABUS cable lengths of up to 100 feet. Remote control of the METRABUS system is possible via the REM-64 serial driver board at distances up to 1.2 kilometers. Stand-alone control is also possible via the INTMD64 controller.

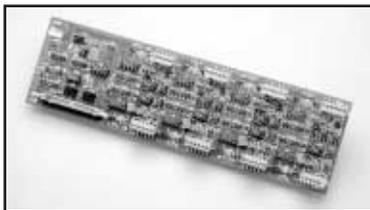
4–20mA Current Loop Output

The 4–20mA current loop output consists of a precision current sink formed by a VMOS power FET and reverse protection diode.

A minimum voltage of 8 volts must be maintained across this output circuit to insure correct operation. The maximum voltage should not exceed 36V for power dissipation reasons. A 24V or 36V loop supply is ideal. There are 2 ways of connecting the process loop, grounded load with floating supply or floating load with grounded supply.



MAO-12, 8-channel, 12-bit analog output board



MAO-8, 8-channel, 8-bit analog output board

FEATURES

- 8 analog output channels
- 8-bit resolution (MAO-8)
- 12-bit resolution (MAO-12)
- 4–20mA current loop capability
- Simple to program
- Detachable screw terminals

APPLICATIONS

- Process control
- 4–20mA current loop control
- Servomotor control
- Variable voltage source
- Function generator

SPECIFICATIONS

METRABUS ADDRESS SPACE

8 consecutive addresses

OUTPUTS

OUTPUT RANGES: 0 to +5V, 0 to +10V, ±5V, ±10V and
4–20mA current loop

RESOLUTION: 8-bits (MAO-8), 12-bits (MAO-12)

RELATIVE ACCURACY: 0.5% (MAO-8), 0.01% (MAO-12)

DIFFERENTIAL LINEARITY: ¼ LSB max (MAO-8), ½ LSB max (MAO-12)

GAIN DRIFT: ±80ppm/°C

ZERO DRIFT: ±10ppm/°C

VOLTAGE OUTPUT IMPEDANCE: 0.1Ω max

VOLTAGE OUTPUT DRIVE CURRENT: ±5mA max

4–20mA COMPLIANCE: 8 to 36V

SETTLING TIME: 150μs to 0.01% typ (for full scale step)

POWER REQUIREMENTS

+5V: 535mA max (MAO-8), 590mA max (MAO-12)

+15V: 88mA max (MAO-8), 28mA max (MAO-12)

–15V: 105mA max (MAO-8), 75mA max (MAO-12)

TOTAL POWER DISSIPATION: 4.5 watts typ (MAO-12)

ENVIRONMENTAL

OPERATING TEMP: 0 to +70°C

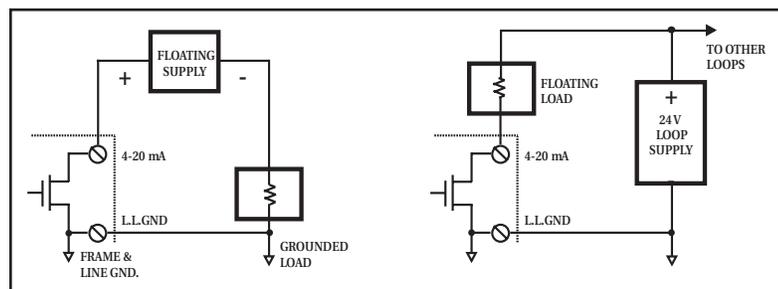
STORAGE TEMP: –55 to +125°C

HUMIDITY: 0 to 95% non-condensing

PHYSICAL

DIMENSIONS: 16in × 4.74in (40.63cm × 12.06cm)

WEIGHT: 14oz (392g)



ORDER DESCRIPTION

ORDER	DESCRIPTION
MAO-8	METRABUS 8-Channel, 8-Bit Analog Output Board
MAO-12	METRABUS 8-Channel, 12-Bit Analog Output Board

QUESTIONS?

1-800-552-1115 (U.S. only)

Call toll free for technical assistance, product support or ordering information, or visit our website at www.keithley.com.