



M-CONTROLLER

M-CONTROLLER SERIES DIGITAL-ANALOG CONTROLLER

The M-Controller is a multi-channel controller and alarm unit that utilizes both digital and analog communications to interface with a maximum of 32 remote digital QEL transmitter/sensors, and 8 analog transmitter/sensors. These are used to measure a wide variety of toxic gases such as CO, NO₂, NH₃, H₂S, SO₂, Refrigerants, Combustibles, and CO₂. The RS-485 communication is connected via a 4-wire multidrop configuration to reduce the overall installation costs of the system. Range and alarm setpoints are set through the front keypad or through QEL supplied software that is downloaded to the controller from a PC or laptop computer. With three standard on-board relays the controller can direct up to 12 remote relay modules, each of which may have up to eight relays for a total count of 99 relays, without compromising the sensor count. Common relay configurations include voting, averaging, delay on actuation and deactuation, normally/not-normally energized and latching. The audible alarm has three buzzer settings, continuous, intermittent and double-tap intermittent. An additional feature includes 24 VDC transistor outputs for a horn and strobe. An RS-422 responds as a RTU Slave using MODBUS protocol which allows the controller to provide read status information only. The RS-232 interface uses a RJ-11 telephone jack primarily used for uploading and downloading a large configuration database. Available is an analog output card that includes eight 4-20 milliamp analog outputs. Each analog output can be defined in complex fashions allowing the averaging of several input signals and the assignment of different values to both the 4 and 20 milliamp outputs. The M-Controller automatically linearizes the values between these two points. Each controller comes standard with a 2 x 16 character back-lit display with an adjustable scroll rate.

MODEL NUMBER ORDERING CODE

M - C O N T R O L L E R X -

Revision (Factory Provided) — X

Option (Enter 0 for no selection)

Analog Output Card — T
(8 channels)

M - R E L A Y - 5 X -

Revision (Factory Provided) — X

Option

Number of Relays: — 2, 4, 6, 8



TRANSMITTER/SENSOR WIRING

The M-Controller provides four serial ports for digital communication with QEL transmitter/sensors and relay modules. A maximum of 32 inputs can be arranged in any configuration to these ports including all 32 on any one port. From any serial connection, four wires are connected to the farthest transmitter/sensor with multidrop installation to the remaining transmitter/sensors. Two of the wires provide 24 VDC power from the controller, the other two are used for the serial communication. This arrangement reduces the amount of wire, conduit and conduit size, providing for a significant installation cost reduction. Equally the M-Controller provides additional 8 channel analog inputs for any gas transmitter/sensor or other 4-20 milliamp input signals from any other type of transmitter/sensors. QEL Engineering can review a proposed system layout and provide recommendations to optimize cost reduction efforts.

SPECIFICATIONS

Input Power: 24V +/- 4V AC or DC

Fuse: 2 amp

Enclosure: NEMA 1 Type General Purpose

Enclosure Material: Steel, epoxy painted black

Dimensions: 8" X 10" X 2" (203 X 254 X 51 mm)

Temperature: Industrial - 20° to +50° C (-4° to +122° F)

Humidity: Continuous 15 to 90% RH, non-condensing
Intermittent 0 to 99% RH, non-condensing

Input Types: 4 parallel RS-485 digital ports for up to 32 QEL transmitter/sensors, 99 Relays, 8 analog 4-20 mA inputs from any transmitter/sensors.
RS232 programming port using RJ-11 connector

Output Ports: RS-422 to host computer/PLC using Modbus Plus
RS-232 programming port using RJ-11 connector
Optional 8 analog 4-20 mA signals scalable

LED Status Lights: 5 Red,
Relay 1
Relay 2
Relay 3
Hush
Fault

Recommended Cable: Power - Twisted shielded pair
Communication (RS-485) - Belden 9841 or equivalent twisted shielded pair, 120 ohm

Panel Controls: 4 x 4 tactile and audible keypad

Audio Indicator: 90 db at 30 cm, 2700 Hz
Buzzer 1: Continuous
Buzzer 2: Double-tap Intermittent
Buzzer 3: Intermittent 50% Duty Cycle

Relay Outputs: 3 DPDT rated 5 Amps resistive 3.7 Amps inductive at 240 VAC / 30 VDC
Optional 96 DPDT 5 Amps relays 8 per card

Relay Assignment: Independent, individually set to one or all transmitter/sensors.
Fail common to all transmitter inputs

Time Delays: Individually set, make, break, average, and voting, 0 to 60 minutes

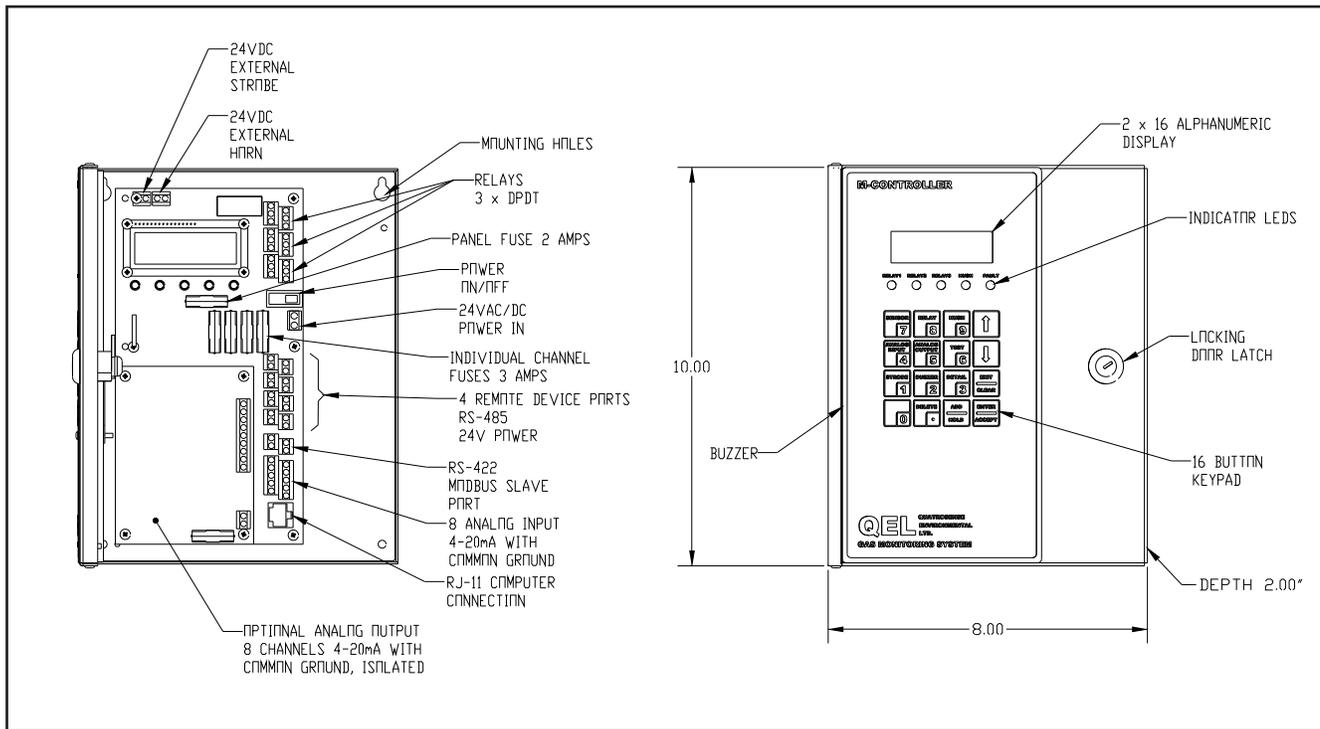
LCD Digital Display: Two line 16 character back-lit LCD displaying transmitter address, gas type, concentration and alarm status

Display Scroll Rate: Adjustable 1 - 9 seconds

Power Supply Output: 24V supplied externally through controller

System Test: Through front keypad

Approvals: CSA NRTL/C C22-205



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This brochure includes general specifications which are subject to change without notice. Ensure a complete understanding of all applicable Federal, State, Provincial and Local Health and Safety laws and regulations before using these products.

Read and understand fully all instructions before using these products

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