MS-735

Timed Relay Control With Start and Stop Buttons

Features

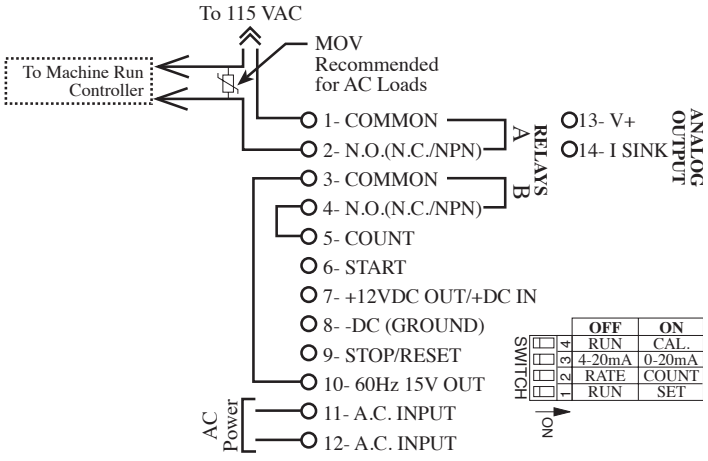
- 6 Large, LED Digits
- Timer Available From Line Frequency 60Hz (50Hz) Signal on Terminal 10
- Displays Elapsed Time or Time Remaining On Output Relay
- Pulse Input - 10 kHz Max.
- RS422/RS232 Serial Communication (optional)
- Modbus RTU RS422/RS485/RS232 (optional)
- NEMA 4X / IP65 Front Panel
- 4-20mA or 0-20mA Analog Output (optional)
- CSA Listed

Description:
The MS735 is a special version of our Minibatcher series batch counter. The standard Minibatcher is modified to bring a 60Hz (50 Hz)* signal to pin 10 (AC powered units only). The user has the option of connecting this signal through the B relay and into the A input. By entering the proper scaling factor, the user can scale the input to read the desired time base. EXAMPLE: If the unit is powered with 115VAC @ 60Hz, The scaling factor for A can be set to yield different time bases: i.e. 60 yields seconds, 360 yields minutes & 1/ 10, 3600 yields minutes, etc. With a little imagination, this special can be used in many applications involving batch timing control. To order this special, add the prefix "MS735" to the standard Minibatcher part number, i.e. MS735MB2A3

60Hz (50Hz) Output Usage (Terminal 10):
Test Signal
If a malfunction occurs, it's easy to test to see whether the sensor or MS735 is faulty. Disconnect the sensor and apply a jumper or switch from terminal 10 to terminal 5 to see if the display advances when the signal is applied.
Time Base For Timer Functions
Feed the signal from terminal 10 through the B Relay and into Terminal 5. and adjust the Factor accordingly.
60 yields seconds, 360 yields minutes & 1/ 10, 3600 yields minutes, 86400 yields Hours, 8640 yields Hours &1/10, 864 yields Hours &1/100.

Application:
This product is useful as a preset time controller with start / stop function from the front keypad or from a remote location.
The MS735 is used in applications where a process run time must be controlled and started and/or stopped at the request of the operator. The Run Time is entered into Preset A of the MS735. The start button is pressed and Relay A energizes sending power to the machine controller. The process begins and the machine runs for the set run time. When the timer reaches zero, Relay A will de-energize and turn the machine off. If for any reason the process needs to be stopped, the Stop button on the MS735 can be pressed to temporarily stop the process. The operator can press the Start button to resume the process or press reset to abort the process and prepare for a new sequence.
The unit is programmed as follows:
Factor: factor of A = 3600, (Time base for Minutes)
Count: Set Pr (Set to Preset), bA tot (Batch total = how many times the timer was ran), Hi CPS (0-10KHz input speed).
Relay: PrE W (Pre Warn)
Presets: Preset A = Desired run Time, Preset B = 0

Wiring:



* NOTE: If the unit is powered with 50 Hz line frequency, the scaling factor should be adjusted accordingly.
Examples: 50 yields seconds
300 yields minutes & 1/10
3000 yields minutes

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Specifications:
Display: 6 digit, 0.55" High LED
Input Power:
110 VAC ± 15% or 12 to 15 VDC
220 VAC ± 15% or 12 to 15 VDC
24 VAC ± 15% or 12 to 15 VDC
Current: 250 mA DC max. or 6.5 VA (6.5W) AC
Output Power: (AC powered units only)
+12 VDC @ 50 mA, unregulated -10 + 50%
Temperature:
Operating:
+32°F (0°C) to +130°F (+54°C)
Storage:
-40°F (-40°C) to +200°F (93°C)
Humidity: 0-90% Noncondensing
Memory: EEPROM stores data for 10 years if power is lost.
Listing: CSA (File No. LR91109), CE Compliant, NRTL/C pending

Inputs:
3: High Impedance DC pulse input 4-30 VDC (high), Open or 0-1 VDC (low), 10 kΩ impedance, 10 kHz max. speed.
Stop / Reset:
Front Panel:
STOP/RST button stops batch if batch is running, Resets displayed value and control output if batch is stopped.
Remote:
4-30 VDC, positive edge: stops batch if batch is running, Resets batch amount if batch is stopped.
NOTE: Hold either front or remote reset active to inhibit any start inputs.
Scaling Factor (K-Factor)**:** A user programmable K-Factor is used to convert the input pulses to engineering units. The 5 digit K-Factor divider, with decimal keyed into any position, allows easy direct entry of any K-Factor from 0.0001 to 99999.
Presets: Two control outputs are provided. A 5 digit value can be entered for both presets. The decimal point location is the same as the counter (No decimal in Batch Total counter).
PRESET A:
The preset A output is dedicated to the timed relay output. When the start button or remote start input is activated, the Relay A output will energize and remain energized for the Preset A amount of time. The Relay A output can be turned off at anytime by pressing the Stop button or activating the Stop/Reset input.
PRESET B:
The preset B output is used to feed the 60 Hz signal to into the "count" input to initiate the time count.

Control Outputs:
Relays:
2 each N.O. Relay; 5 Amps 120/240 VAC or 28 VDC. (N.C. relay contacts and NPN transistor output available with solder jumpers.
Analog Output:
An optional 4-20mA (0-20mA) output is available for the Mini-Batch series. The output can be programmed to track rate or batch amount. Connections are via a 2 terminal pluggable screw connector. Programming is accomplished by using the front panel in conjunction with rear dip switches. Accuracy: ±.25% FS worst case. Compliance Voltage: 3 to 30 VDC non inductive.
Lockout: Unauthorized front panel changes can be prevented by entering a user selected 5 digit code. The front panel can be completely locked out (except Start & Stop) or the preset can remain accessible.
Ratemeter: Accuracy: 0.01% FS (±1 display digit).
The rate display updates once per second. The rate meter can be programmed to sample from 2 to 24 seconds maximum, and auto-range up to 5 digits of significant information. The ratemeter displays in units per second, minute or hour.
Batch or Grand Totalizer: In addition to viewing the batch amount, a second counter can be viewed. This counter is programmable to count either the number of batches (Batch Total) or the grand total count (Grand Total).
RS232/RS422 with Proprietary Protocol:
If the serial interface option is supplied, up to 99 units can be linked together. (The terminal addressing the unit must be capable of driving all loads in the loop.) Unit status and new set points can be communicated by serial communication. Mode changes, however, must always be made on the front panel.
Data is received and transmitted over standard EIA RS232 or RS422 levels. Unit number, baud rate and parity are entered in the "Program Setting" set up mode and remain in memory even if power is off.
RS232/RS422/RS485 with Modbus RTU Protocol:
The serial port can be used for serial printing or also for data acquisition. The unit can address up to 247 units (The terminal addressing the unit must be capable of driving all loads in the loop.) The unit can communicate with a master device through a Modbus-RTU protocol. The data given for each parameter is in IEEE float format comprising of 2 words. The unit can be connected in a network.
Device ID: 01-247
Baud Rates: 300, 600, 1200, 2400, 4800, 9600
Parity: None, Odd, Even
Protocol: Modbus RTU (Half Duplex)

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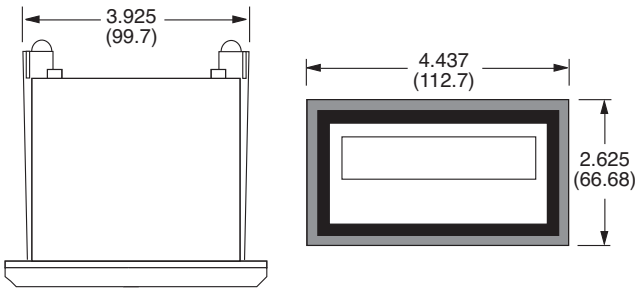
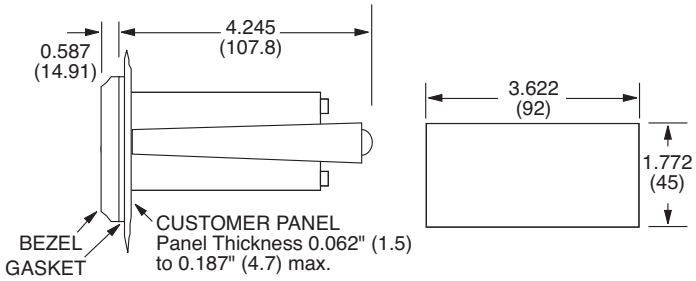
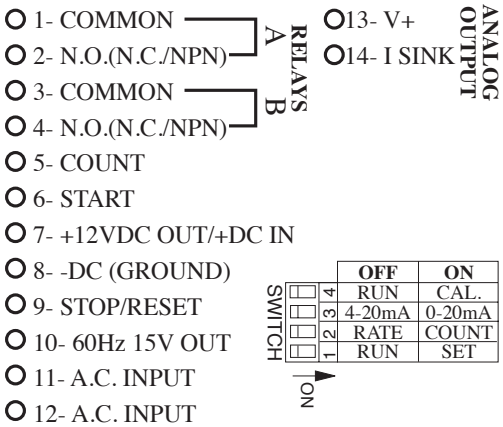
Mounting:





Termination:



Ordering Information

Example: MS735MB2 A 3 1

Special:

Operating Voltage:
- A= 110 VAC ± 15% or 12 to 15 VDC
- B= 220 VAC ± 15% or 12 to 15 VDC
- C= 24 VAC ± 15% or 12 to 15 VDC

Count Inputs:
- 3 = Standard, 4-30 VDC simultaneous inputs.

Options:
- 1= RS232 Communications
- 2= RS422 Communications
- 3= Modbus RTU RS232
- 4= Modbus RTU RS422/RS485
- A= Analog Output (4-20/0-20 mA)

NOTE: RS232/RS422/RS485 & Analog Output options can not be combined

Accessories

Separate keyboard panel - order #34569
NEMA4 wall mount enclosure available see LCN4X & MS821
Explosion proof enclosure available, see XHV
Serial printer available, see P20, P220, P295
Ethernet Port Server available, see IEPS
RS-422/485 to RS-232 Communication Adaptor available, see CA285
Modbus DDE/OPC Server available, see KEPserver

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