

# FLS M9.02

## FLOW MONITOR & TRANSMITTER



The new FLS M9.02 is a powerful flow monitor designed to convert the frequency signal of FLS flow sensors into a flow rate. M9.02 is equipped with a wide full graphic display 4" which shows measured values clearly and a lot of other useful information. Moreover, due to a multicolor display plus a powerful backlight, measurement status can be determined easily from afar also. A tutorial software guarantees a mistake-proof and fast set up of every parameters. Calibration can be performed just fixing installation features or using a reference value through a new "in-line calibration". A 4-20mA output is available to remote flow rate to a external device. A proper combination of digital outputs allows customized setups for any process to be controlled. The USB port on the rear part allows the upgrade of software offering a wide range of customization services both standard and on request.

### APPLICATIONS

- Water treatment systems
- Industrial waste water treatment and recovery
- Water distribution
- Filtration systems
- Swimming pools & SPA
- Irrigation & Fertigation
- Leak detection
- Cooling water monitoring
- Processing and manufacturing industry
- Chemical production

### MAIN FEATURES

- Wide full graphic display
- Multicolor backlight
- Help on board
- Installation flexibility
- Fast, intuitive and mistake-proof calibration software
- Mechanical relay for external device control
- Solid State Relays for programmable alarms
- Multilanguage menu
- USB port for software upgrading



## TECHNICAL DATA

### General

- Associated sensors: FLS hall effect flow sensors with frequency output or FLS F6.60 Flow sensor magmeters
- Materials:
  - Case: ABS
  - Display window: PC
  - Panel & Wall gasket: silicone rubber
  - Keypad: 5-button silicone rubber
- Display:
  - LC full graphic display
  - Backlight version: 3-colours
  - Backlight activation: User adjustable with 5 levels of timing
  - Update rate: 1 second
- Enclosure: IP65 front
- Flow input range (frequency): 0÷1500Hz
- Flow input accuracy (frequency): 0,5%

### Electrical

- Supply Voltage: 12 to 24 VDC ± 10% regulated
- Max Power Consumption: < 200 mA
- FLS hall effect flow Sensor power:
  - 5 VDC @ < 20 mA
  - Optically isolated from current loop
  - Short circuit protected
- 1\*Current output:
  - 4-20 mA, isolated, fully adjustable and reversible
  - Max loop impedance: 800 Ω @ 24 VDC - 250 Ω @ 12 VDC
- 2\*Solid State Relay output:
  - User selectable as MIN alarm, MAX alarm, Pulse Out, Window alarm, Off
  - Optically isolated, 50 mA MAX sink, 24 VDC MAX pull-up voltage
  - Max pulse/min: 300

- Hysteresis: User selectable
- 1\*Relay output:
  - User selectable as MIN alarm, MAX alarm, Pulse Out, Window alarm, Off
  - Mechanical SPDT contact
  - Expected mechanical life (min. operations): 10<sup>7</sup>
  - Expected electrical life (min. operations): 10<sup>5</sup> N.O./N.C.switching capacity 5A/240VAC
  - Max pulse/min: 60
  - Hysteresis: User selectable

### Environmental

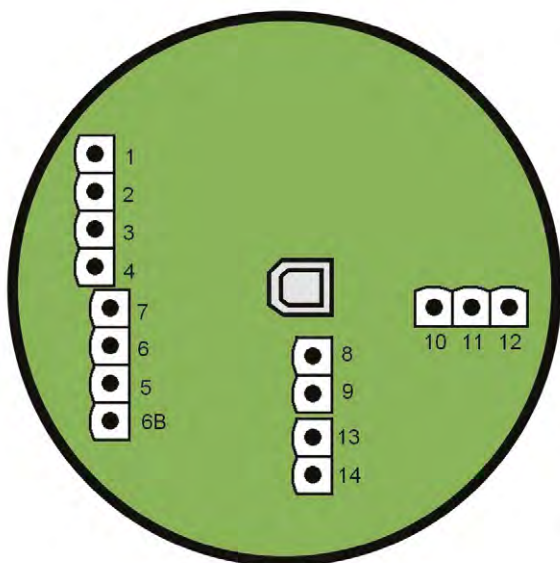
- Operating temperature: -10 to +70°C (+14 to +158 °F)
- Storage temperature: -30 to +80°C (-22 to +176 °F)
- Relative humidity: 0 to 95% not condensing

### Standards & Approvals

- Manufactured under ISO 9001
- Manufactured under ISO 14001
- CE
- RoHS Compliant
- EAC
- FDA on request for paddlewheel in C-PVC/EPDM, PVDF/EPDM, SS316L/EPDM.

## WIRING CONNECTIONS

### Rear Terminal View



1	+VDC	Power Supply
2	+LOOP	
3	-LOOP	
4	-VDC	
7	V+	Flow Sensor
6	FREQ IN	
5	GND	
6B	DIR	
8	NO	SSR1
9	COM	
10	NC	RELAY
11	COM	
12	NO	
13	NO	SSR2
14	COM	

## ORDERING DATA

M9.02 Flow Monitor and Transmitter						
Part No.	Description /Name	Power supply	Wire power Technology	Sensor Input	Output	Weight (gr.)
M9.02.P1	Panel mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	500
M9.02.W1	Wall mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	550
M9.02.W2	Wall mount Flow monitor	110 - 230 VAC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	650

M9.02 Flow Monitor and Transmitter Field mount								
Part No.	Description /Name	Power supply	Wire power Technology	Sensor Input	Output	Lenght	Main Wetted Materials	Weight (gr.)
M9.02.01	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L0	C-PVC/EPDM	550
M9.02.02	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L0	C-PVC/FPM	550
M9.02.03	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L1	C-PVC/EPDM	550
M9.02.04	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L1	C-PVC /FPM	550
M9.02.05	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L0	PVDF/EPDM	550
M9.02.06	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L0	PVDF/FPM	550
M9.02.07	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L1	PVDF/EPDM	550
M9.02.08	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L1	PVDF/FPM	550
M9.02.09	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L0	SS316L/EPDM	600
M9.02.10	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L0	SS316L/FPM	600
M9.02.11	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L1	SS316L/EPDM	600
M9.02.12	Field mount Flow monitor	12 - 24 VDC	3/4 wire	Flow (Frequency)	1*(4-20mA), 2*(S.S.R.), 1*(mech. relay)	L1	SS316L/FPM	600