# 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.

## **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



# **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 displayBacklight 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
- FLS hall effect flow Sensor power:
- 5 VDC @ < 20 mA
- Optically isolated from current loop
- Short circuit protected
- 1 x Current output:
- 4-20 mA, isolated, fully adjustable and reversible
- Max loop impedance: 800 Ω @ 24 VDC 250 Ω @
- 12 VDC
- 2 x 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

## WIRING CONNECTIONS

**Rear Terminal View** 



- User selectable as MIN alarm, MAX alarm, Pulse
- Out, Window alarm, Off Mechanical SPDT contact
- Expected mechanical life (min. operations): 107
- Expected electrical life (min. operations): 105 N.O./ N.C.switching capacity 5A/240VAC
- Max pulse/min: 60
- Hysteresis: User selectable

#### **Environmental**

- Operating temperature: -20 to +70°C (-4 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
- GOST R

+VDC

+LOOP

-LOOP

-VDC

V+ FREQ IN

GND

DIR

NO

COM

NC

COM

NO

NO

COM

Power Supply

Flow Sensor

SSR1

RELAY

SSR2





## **ORDERING DATA**

M9.02 Flow Monitors											
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 Monitors 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)	LO	PVCC/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)	LO	PVCC/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	PVCC/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	PVCC/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)	LO	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)	LO	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)	LO	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)	LO	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			