

M9.10



Dual parameter analog signal monitor and transmitter



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The FLS M9.10 monitor and transmitter is a powerful instrument designed to handle an analogue and a frequency signal (or two analogue signals) emitted by any type of device with a 4-20 mA or frequency output. The M9.10 monitor is equipped with a large 4" graphic display which shows measured values clearly and a lot of other useful information. Moreover, due to a multicolour display plus a powerful backlight, measurement status can be determined easily from afar too. A tutorial software guarantees a mistake-proof and fast set up of every parameter. Calibrations of the 4-20 mA input can be carried out by correcting 2 points and 1 point or by using a reference value with the new "in-line calibration". Frequency input calibration can be performed by fine tuning the installation features or using a reference value through the new "in-line calibration". Two independent 4-20 mA outputs are available to communicate measurements to an external remote device. Appropriate combination of digital outputs (2 solid state relays and 2 relays) allows customised setups for any process to be controlled. The USB port on the back allows you to update the software with a wide range of customisation services as standard and on-demand.

DUAL PARAMETER ANALOG SIGNAL MONITOR AND TRANSMITTER

APPLICATIONS

- Industrial wastewater treatment and recovery
- Civil wastewater treatment
- Water treatment processes
- Processing and manufacturing industry
- Transformation of chemicals
- Industrial environment with electromagnetic interference

MAIN CHARACTERISTICS

- Large graphic display
- Colour backlighting
- On-line help
- Simultaneous display of two parameters
- Free setting of the unit of measurement
- User-friendly calibration procedure
- In-line adjustment on actual sample
- Ability to manage active and passive analogue signals
- USB port for software upgrade
- Mechanical relay and solid state relay for external alarms and for the control of external devices

TECHNICAL DATA

General information

Compatible sensors: H Hall-effect flow sensors with frequency output, F6.60 electromagnetic flow sensors and all devices that generate a passive or active 4-20 mA signal

Materials:

- Case: ABS
- Display: PC
- Panel and wall gasket: silicone rubber
- 5-button keyboard: silicone rubber

Display:

- LCD full graphic
- Backlight version: 3 - colours
- Backlighting activation: user adjustable with 5 levels of timing
- Update rate: 1 second
- Protection class: IP65 front

Frequency input range (frequency): 0÷100Hz

Frequency accuracy (frequency): 0,5%

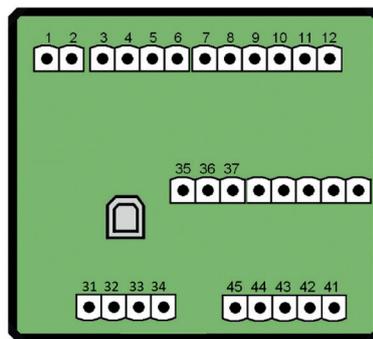
Analogue input range (current): 3.8÷21.0 mA

Analogue input accuracy (current): 0.01 mA

Electrical data	Supply voltage: from 12 to 24 VDC $\pm 10\%$ regulated
	Max electrical consumption: < 300 mA
	FLS Hall effect flow sensor power supply: – 5 VDC at < 20 mA – Optically isolated from current loop – Short circuit protected
	Power supply 2 current inputs: – 18 VDC at ≤ 20 mA
	2 current outputs: – 4–20 mA, isolated, fully adjustable and reversible – Max loop impedance: 800 Ω @ 24 VDC – 250 Ω @ 12 VDC
	2 solid state relay outputs: – User selectable as MIN alarm, MAX alarm, pulse output (frequency input only), window alarm, off – Optically isolated, 50 mA max sink, 24 VDC max pull-up voltage – Max pulse/min: 300 – Hysteresis: user selectable
	2 relay outputs: – User selectable as MIN alarm, MAX alarm, pulse output (frequency input only), window alarm, off – Mechanical Single Pole Double Throw (SPDT) contact – Expected mechanical life (min. operations): 10^7 – Expected electrical life (min. operations): 10^5 switching N.A./N.C. capacity 5 A/240 VAC – Max pulse/min: 60 – Hysteresis: user selectable
Environmental data	Operating temperature: from -10°C to 70°C (from 14°F to 158°F)
	Storage temperature: from -30°C to $+80^{\circ}\text{C}$ (from -22°F to $+176^{\circ}\text{F}$)
	Relative humidity: from 0 to 95% not condensing
Standards & Approvals	Manufactured under ISO 9001 Manufactured under ISO 14001 CE RoHS Compliance EAC

ELECTRICAL CONNECTIONS

Rear view of electrical connections



1	-VDC	Power Supply
2	+VDC	
3	NO	SSR1
4	COM	
5	NO	SSR2
6	COM	
7	NO	RELAY1
8	COM	
9	NC	
10	NO	RELAY2
11	COM	
12	NC	
31	-LOOP2	Analog Output
32	+LOOP2	
33	-LOOP1	
34	+LOOP1	
35	+ V	FREQ. Input
36	FREQ.	
37	GND	
41	+ V IN 1	Current Input
42	IN 1	
43	+ V IN 2	
44	IN 2	
45	GND	

PRODUCT CODES



M9.10.P1 - M9.10.WX

Dual Parameter Analog signal Monitor and Transmitter

Code	Mounting	Power supply	wires power Technology	Sensor Input	Output	Weight (gr.)
M9.10.P1	Panel	12 - 24 VDC	3/4 wires	2* (4-20mA)	2*(4-20mA) 2*(S.S.R.) 2* (mech. relay)	550
M9.10.W1	Wall	12 - 24 VDC	3/4 wires	2* (4-20mA)	2*(4-20mA) 2*(S.S.R.) 2* (mech. relay)	650
M9.10.W2	Wall	110 - 230 VAC	3/4 wires	2* (4-20mA)	2*(4-20mA) 2*(S.S.R.) 2* (mech. relay)	750

S.S.R: solid state relay / mech relay.: mechanical relay