

FLS M9.02 FLOW MONITOR



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 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 \pm 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, Freq Out, Off
 - Optically isolated, 50 mA MAX sink, 24 VDC MAX pull-up voltage
 - Max pulse/min: 300
 - Hysteresis: User selectable

1 x Relay output:

- 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

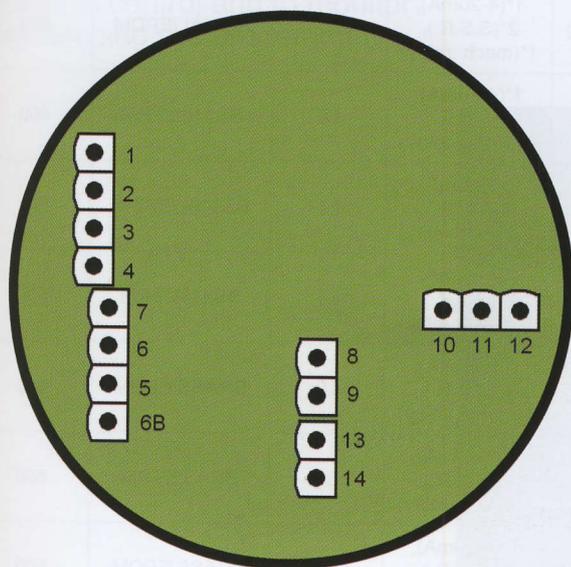
- Operating temperature: -20 to +70°C (-4 to 158°F)
- Storage temperature: -30 to +80°C (-22 to 176°F)
- Relative humidity: 0 to 95% not condensing

Standards & Approvals

- Manufactured under ISO 9001
- Manufactured under ISO 14001
- CE
- RoHS Compliant
- GOST R

WIRING CONNECTIONS

Rear Terminal View



1	+VDC
2	+LOOP
3	-LOOP
4	-VDC

Power Supply

5	GND
6	FREQ IN
7	V+
6B	DIR

Flow Sensor

8	NO
9	COM

SSR1

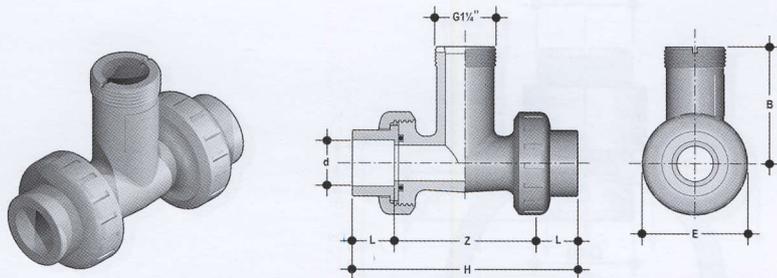
10	NC
11	COM
12	NO

RELAY

13	NO
14	COM

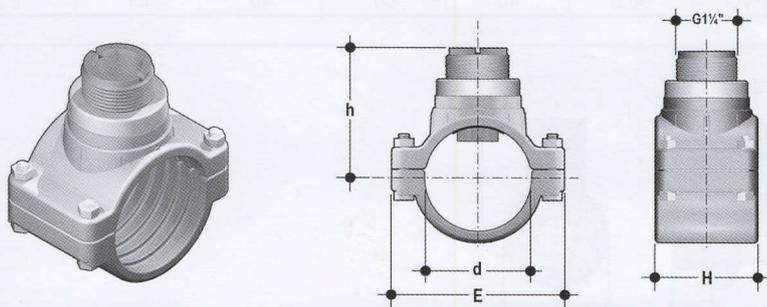
SSR2

INSTALLATION ON PVC PIPES



ISO Metric PVC Tee Fittings for ISO SDR 21 pipes (female ends for solvent welding)

Part No.	DN/Size	d/R	O-ring	Body	H	Z	L	B	E	Flow Sensor Length	Suitable for (*)
TFIV20B	15	20	EPDM	UPVC	113	81	16	73	53	L0	F & A
TFIV25B	20	25	EPDM	UPVC	126	88	19	8	62	L0	F & A
TFIV32B	25	32	EPDM	UPVC	139.5	95.5	22	81	71	L0	F & A
TFIV40B	32	40	EPDM	UPVC	170	118	26	84	84	L0	F & A
TFIV50B	40	50	EPDM	UPVC	199	137	31	82.5	98	L0	F & A
TFIV20D	15	20	FPM	UPVC	113	81	16	73	53	L0	F & A
TFIV25D	20	25	FPM	UPVC	126	88	19	8	62	L0	F & A
TFIV32D	25	32	FPM	UPVC	139.5	95.5	22	81	71	L0	F & A
TFIV40D	32	40	FPM	UPVC	170	118	26	84	84	L0	F & A
TFIV50D	40	50	FPM	UPVC	199	137	31	82.5	98	L0	F & A



ISO Metric Clamp Saddles for ISO SDR 21 pipes (PN10 up to d 90mm, PN12,5 from d 110mm)

Part No.	DN/Size	d/R	O-ring	Body	Insert	H	E	h	Drilling Hole	Flow Sensor Length	Suitable for (*)
SVIC063BVC	50	63	EPDM	UPVC	CPVC	105	116	86.7	35	L0	F & A
SVIC075BVC	65	75	EPDM	UPVC	CPVC	105	134	90.8	35	L0	F & A
SVIC090BVC	80	90	EPDM	UPVC	CPVC	105	152	95.9	40	L0	F & A
SVIC110BVC	100	110	EPDM	UPVC	CPVC	105	176	102.8	40	L0	F & A
SVIC125BVC	110	125	EPDM	UPVC	CPVC	112	190	137.9	40	L1	F
SVIC140BVC	125	140	EPDM	UPVC	CPVC	114	214	143.1	40	L1	F
SVIC160BVC	150	160	EPDM	UPVC	CPVC	120	238	149.9	40	L1	F
SVIC200BVC	180	200	EPDM	UPVC	CPVC	133	300	163.7	40	L1	F
SVIC225BVC	200	225	EPDM	UPVC	CPVC	125	333	172.3	40	L1	F
SVIC063DVC	50	63	FPM	UPVC	CPVC	105	116	86.7	35	L0	F & A
SVIC075DVC	65	75	FPM	UPVC	CPVC	105	134	90.8	35	L0	F & A
SVIC090DVC	80	90	FPM	UPVC	CPVC	105	152	95.9	40	L0	F & A
SVIC110DVC	100	110	FPM	UPVC	CPVC	105	176	102.8	40	L0	F & A
SVIC125DVC	110	125	FPM	UPVC	CPVC	112	190	137.9	40	L1	F
SVIC140DVC	125	140	FPM	UPVC	CPVC	114	214	143.1	40	L1	F
SVIC160DVC	150	160	FPM	UPVC	CPVC	120	238	149.9	40	L1	F
SVIC200DVC	180	200	FPM	UPVC	CPVC	133	300	163.7	40	L1	F
SVIC225DVC	200	225	FPM	UPVC	CPVC	125	333	172.3	40	L1	F
SMIC250IVC*	225	250	NBR	PP	CPVC	79	324	203.5	40	L0	F
SMIC280IVC*	250	280	NBR	PP	CPVC	88	385	212.2	40	L1	F
SMIC315IVC*	280	315	NBR	PP	CPVC	88	385	220.1	40	L1	F

* For IP68 sensors or compact monitors only

INSTALLATION FITTINGS

(*) Suitable for: F= Flow sensors; A= Analytical electrodes