Flow computers

7951 flow computer specification

- Expanded data logging facility
- Pulse integrity to IP 252/76, API Ch 5.5 Level A
- 3 Serial communications ports
- High resolution 20 bit A/D converter for analog inputs
- Gas applications 1 or 2 meter runs (streams)
- Liquid applications 1 meter run (stream) and proving

The 7951 flow computer can be utilised for single

stream liquid or gas applications, dual stream gas

For applications with up to 4 streams please ask

for details of the 7955 Multistream Flow Computer.

· Reduced cycle time

Introduction



Connectors

The 7951 is available with 2 types of connector for termination of field signals :-

Klippon connectors with screw terminals are generally used for single stream applications and some dual stream applications.

'D'- type connectors are generally used for applications with 1 or 2 streams and where proving is required on liquid.

Inputs

Density/Base density/Viscosity

applications and liquid proving.

No. of inputs	4
Periodic time	100µs to 5000µs
Periodic time uncertainty	± 6ppm typical
Input trigger level	0.5V Max. input level: 30V
Resolution	1ns at 1.5kHz for 1 second sampling
Input impedance	10kΩ nominal

Pulsed flow meter inputs: typically turbine, PD meter, ultrasonic or Coriolis

Number of inputs	2 (software configurable as either single or dual pulse)			
	[1 off with Klippon connectors]			
Pulse integrity checking	IP 252/76, API Ch 5.5 Level A			
Pulse interpolation/dual pulse chronometry	API MPMS Ch 4.6			
Туре	Pulse count, maximum rise time 80ms			
Input trigger level	0.5V			
Max. voltage level	30V			
Frequency range	Dual pulse (A & B) 0 to 5kHz , minimum pulse with 100µS			
	Single pulse 0 to 10KHz, minimum pulse width 50µS			



Remote Automation Solutions

Technical specification sheet D301463X412 June 2008

Flow computers

Number of inputs 4 as standard, option of 10 (D-type connectors) 8 (Klippon connectors) Type 4 to 20 mA, 0 to 20 mA Span selection Unlimited (keyboard selectable) Uncertainty < ± 0.00% full scale Resolution 20 bit (1 part per million) Sampling time 50 ms per channel Temperature - PRT / RTD Number of inputs Mumber of inputs 4 (using the first four analog channels) Configuration 4 wire: Power return line connected to analog input ground Temperature range -220°C to + 220°C for 1000.PRT Limits of error and resolution Maximum error Number of inputs 'D' type connector 10 standard, option of 18, Klippon Connector 6. Sampling cycle time 50ms per channel Status Number of inputs Number of inputs 'D' type connector 10 standard, option of 18, Klippon Connector 6. Input voltage required 5 - 24V per channel Update rate 0.5ms for prove detect, others 250ms max. HART Number of inputs Number of inputs 8 variables Up to 20 expected to 20 expected to 20 expected to 20 expect 20 expect 20 expected to 20 expected to 20 expect 20 expected to	Analog			
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Output rating200mA @ 24V with programmable on-timeSwitch voltage24V maximum	•			
Switch voltage 24V maximum				
Maximum frequency 10 Hz				
	Maximum frequency	10 HZ		

Technical specification sheet D301463X412

June 2008

Flow computers

Number of outputs	'D'-Type connectors, 9 standard, option of 17, Kippon connectors 7					
Туре	FET open drain and 1 off relay (0.5 Amp DC)					
Rating	250mA @ 24V					
Switching voltage	24V					
Communications – Serial						
Number serial ports	3					
Туре:	RS 232 or RS 485 (selectable) Port 1 is RS 232					
Software protocols:	Modbus ASCII, RTU (Master, Slave & Peer) Data type IEEE 32 & 64 Bit commands 03 and 16					
Baud rates:	300, 600, 1200, 2400, 4800, 9600, 19200 baud					
Stop bits:	Selectable 1 or 2					
Parity bits:	Even, odd or none					
Number of data bits:	Selectable 7 or 8					
Diamlawa						
Displays Number of characters per line:	20 Alpha numeric					
Number of lines:	4					
Colour of display:	Black/yellow (back lit) Type: LCD, continuously powered					
· ·	Black yellow (back lit) Type. LCD, continuously powered					
Microprocessor						
Processor:	Motorola					
Clock speed:						
Computation resolution:	64 Bit (IEEE 754), fully floating point maths package					
	Embedded OSE Real time operating system					
Program storage:	2.0 MByte Flash					
Data storage:	2.0 MByte RAM < 1 part in 10 ¹¹					
Computation accuracy: Process data retention:	Internal lithium cell, 24 months when 7951 is unpowered					
	Internal litrium cell, 24 months when 7951 is unpowered					
Real time clock						
Accuracy:	1 part in 90000					
Power:	Internal lithium button cell					
Environment						
Storage temperature:	-20°C to + 70°C (-4°F to + 158°F)					
Working temperature:						
Humidity:	Up to 90% non-condensing					
Physical						
Enclosure:	IP50 from front panel when mounted					
Dimensions:	Height 101 mm (3.98")					
	Width 197 mm (7.76")					
	Depth 257 mm (10.1")					
Weight:	2.5 Kg (5.5lb)					
Vibration:	Tested to IEC 60068-2-6, Part II, frequency range 10 - 150Hz,					
	max acceleration 20m/s ²					
EMC Emissions & Immunity:	EN 61326-1997 Industrial locations					
	Emissions EN 55022 & Immunity EN 61000-4					

Flow computers

Ordering codes

7951 EA	Flow	Comput	er							
	A	Klippo	n conn	ector ⁿ	ote 1,2	4 ana	log i/p's as standard (8 analog inputs if option 8 below)			
	В		ype connectors note 1,2				4 analog i/p's as standard (10 analog inputs if option 8 below)			
		Code	Softw	are ap	olicatio	n note 4				
		1	Gas a	pplicat	ions	- 1510	- 1510 Single stream Flow Computer software			
		2		pplicat			Dual stream Flow Computer software			
		6	Liquid	l applic	ations	- 2510) Single stream Flow Computer software			
		Z	Non s	tandar	d	- plea	se specify full version and issue number with order			
			Code	Comr	nunicat	tions po	orts			
			3			comms	•			
				Code			s and outputs ^{note 2}			
				4		• •	uts and 4 analog outputs			
				8			DR 10 ('D'-Type) analog inputs and 8 analog outputs			
							n boards			
					N	None				
					Н		nnel HART board			
						Code	, , ,			
						N	No connector kits required			
						5	5 connector kits for use with 7951 EA B			
							Code Configuration tool			
							N Not required			
							B PC Config and Serial Communications cable			
▼	▼	▼	♥	•	♥	♥	▼			
7951 EA	Α	1	3	4	Ν	Ν	В			

Note

- 1 Option 7951 EA **A** has 1 dual pulsed flowmeter input, for dual stream applications with pulsed flowmeter inputs use option **B**
- 2 For liquid proving 'D' -Type connectors and extra Analog I/O (option 8) must be specified
- 3 Connector kits are not needed with Klippon connectors (option A), they are recommended with D-type connectors (option B), each kit includes a 1.8m cable and a Din rail mounted connector block with screw terminals.
- 4 Software supplied will be latest issue of software, unless otherwise specified on order

For further details about the 7951 flow computer capability and functionality please see D351484X412 for liquid hydrocarbon applications D351485X412 for gas applications

For Multistream Flow Computer applications please ask for details of the 7955 Flow Computers data sheet D301462X412.

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