

Micro Motion 7950 Signal Converter

- Density and Viscosity measurement
- 3 Serial communication ports
- High resolution 20 bit A/D converter for analog inputs



Introduction

The Micro Motion 7950 Signal Converter has been specifically designed to operate with the Micro Motion gas density, liquid density and viscosity transducers. It offers the user a powerful tool to process the live input values from the transducers in a simple to use wall mounted package.

The 7950 Signal Converter is offered with two software options, namely:-

- 1020 software for gas applications. This software is configured to accept up to two inputs from either Micro Motion gas density or gas specific gravity transducers.
- 2010 software for liquid applications. This software is configured to accept single inputs from Micro Motion liquid density and viscosity transducers.

Inputs

Density/Base density/Viscosity

No. of inputs	4 (exact quantity depends on software fitted)
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

Analog

Number of inputs	4 as standard, 8 optional
Type	4 to 20 mA, 0 to 20 mA
Span selection	Unlimited (keyboard selectable)
Uncertainty	< ± 0.008% full scale
Resolution	20 bit (1 part per million)
Sampling time	50 ms per channel

Technical specification sheet

IP7950, Rev. D

April 2008

Signal converters

Temperature - PRT / RTD

Number 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 100Ω PRT	
Limits of error and resolution (100Ω PRT calibrated in region of operation)	Maximum error ± 0.05°C	Resolution ± 0.02°C
Sampling cycle time	50ms per channel	

Status

Number of inputs	8 Opto - coupled/fully floating
Input voltage required	5 - 24V per channel
Update rate	250ms max.

Power

Voltage	+21V to + 30V dc or 90 to 265V ac 45 to 65 Hz
Power consumption	Unloaded: 20 watts (max.) Loaded: 35 watts (max.) Max start up current 2A
Transducer energisation: General instrumentation Flowmeter	One independent 24V output, @ 800mA One independent voltage switchable to 8 or 16V. @ 120mA

Outputs

Analog

Number of output channels	4 as standard, 8 optional
Type of output	Current (Powered by FC)
Power	One 24V supply with capacity for 8 outputs @25mA each
Max. loop impedance	1K Ω
Type	4 to 20 mA or 0 to 20 mA (selectable)
Zero offset	20% or 0% (Keyboard selectable)
Span selection	Unlimited (Keyboard selectable)
Accuracy	12 bit (±0.075% of full scale)
Resolution	1 part in 3500
Output impedance	1MΩ minimum
Output representation	Any measured or computed value (Keyboard selectable)
Update rate	0.1 seconds minimum
Isolation	All analog outputs are galvanically isolated from ground (but not from each other)

Status/Alarms

Number of outputs	8
Type	FET open drain and relay (0.5 Amp DC)
Rating	250mA @ 24V
Switching voltage	24V

Signal converters

Communications – Serial

Number serial ports	3
Type:	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

Displays

Number of characters per line:	20 Alpha numeric
Number of lines:	4
Colour of display:	Black/yellow (back lit) Type: LCD, continuously powered

Microprocessor

Processor:	Motorola
Clock speed:	16 MHz
Computation resolution:	64 Bit (IEEE 754), fully floating point maths package Embedded OSE Real time operating system
Program storage:	1.0 MByte Flash as standard
Data storage:	768K Byte RAM as standard
Computation accuracy:	< 1 part in 10 ¹¹
Process data retention:	Internal lithium cell, 24 months when 7950 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:	0°C to + 50°C (+32°F to + 122°F)
Humidity:	Up to 90% non-condensing

Physical

Enclosure:	NEMA 4X, IP65 from front panel when mounted
Dimensions:	Height 320 mm (12.6") Width 300 mm (11.8") Depth 130 mm (5.1")
Weight:	4.5 Kg (9.9lb)
Vibration:	Tested to IEC 60068-2-6, Part II, frequency range 10 - 150Hz, max acceleration 20m/s ²
Safety:	To EN61010 standards
EMC Emissions & Immunity:	EN 61326-1997 Industrial locations

