TECHNICAL INFORMATION

Analog i-captor 4120.30

The evolution of flow technology

In 1968, Günther Weber began producing the first modern day mass flow meters and switches using platinum sensors instead of a hot wire for commercial and industrial applications. Webers flow products were built specifically for the extremely harsh steel industry environment with such meticulous detail to both precision and reliability that nearly four and a half decades later they are still the gold standard in the steel industry. Over the years, many companies have copied Webers idea but none have matched Webers legendary reliability.

The new 4120.30 represents the logical evolution with modern microprocessor intelligence with over 4 decades of thermal flow expertise.

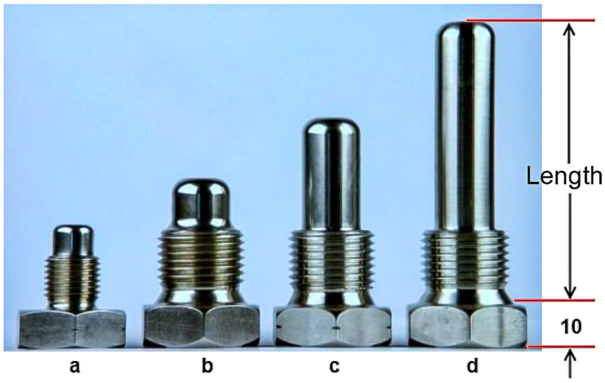
The 4120.30 includes standard features such as highly accurate temperature sensing and provides both linear 4 - 20 mA outputs for flow and temperature as well as RS-485 Modbus RTU digital signalling. A button is provided to set the flow range for the 4 - 20 mA signal and to reset the unit back to factory defaults.

- counter totalizer
- both Modbus RTU and 4 - 20 mA outputs
- encapsulated for vibration resistance
- withstands up to 1450 psi (100 bar) static pressure
- no moving parts
- **made in USA**

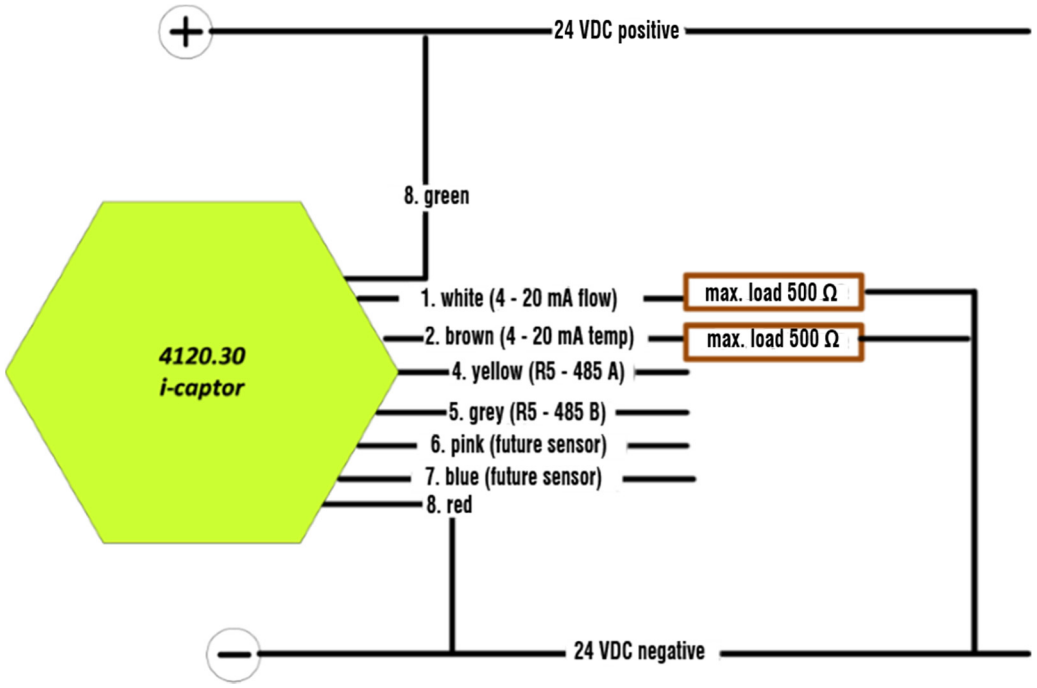
Technical data	
Type	**4120.30**
Interface	4 - 20 mA flow and temperature, RS-485 Modbus RTU for all readings
Medium	oil or water-based
Sensor data	
Measuring velocity range	0 - 300 cm/s (0 -10 ft/sec), auto-ranging
Measuring temperature range	0 °C - +100 °C / +32 °F - +212 °F
Medium temperature	-20 °C - +90 °C / -4 °F - +175 °F
Temperature drift	< 0.1 % K
Pressure	up to 100 bar (1.450 psi)
Response time	max. 5 sec. at normal flow
Accuracy	< ±2 % over range
Repeatability	< 2 %
Mechanical data	
Protection class	IP 65
Housing material	PBTP, glassfibre reinforced (Ultradur ®)
Sensor head material	stainless steel AISI 303 (other material on request)
Sensor thread	1/4" NPT or 1/2"-14 NPT (G 1/2" BSP on request)
Electrical connection	8-pin M12-plug
Electrical data	
Operating voltage	18 - 30 VDC, incl. residual ripple
Ambient temperature	-20 °C - +70 °C / -4 °F - +158 °
Initial operation	approx. 10 sec. after connection of power

weber
Sensors GmbH · Strohdeich 32 · D-25377 Kollmar · Tel.: +49 4128-591 · Fax: -593 eMail: info@captor.de

Analog i-captor 4120.30

Current consumption	max. 250 mA (pulsed)	
Power consumption	approx. 1 W	
Circuit protection	reverse polarity, short circuit and overload	
Sensor probe sizes		a) 4120.30 ¼" NPT or G ¼" BSP Length 20 mm
		b) 4120.30 ½" -14 NPT or G ½" BSP Length 30 mm
		c) 4120.30A **S110/45** ½" -14NPT or G ½" BSP Length 45 mm
		d) 4120.30A **S110/67** ½" -14NPT or G ½" BSP Length 67 mm
	extended sensor probes are generally made of AISI 316Ti (A)	

Wiring diagram



weber
Sensors GmbH · Strohdeich 32 · D-25377 Kollmar · Tel.: +49 4128-591 · Fax: -593 eMail: info@captor.de

Modbus registers

Legend		
Register		all registers are holding registers
RW	**R**	read only
	RW	read write
NV		value is stored in flash
Format	**C**	character value (1 Modbus register)
	I	integer value (1 Modbus register)
	L	32 bit integer, MSB first (2 modbus register)
	F	32-bit floating point; upper 16-bits (MSR) in lowest - numbered / first listed register (257/258 = MSR/LSR). encoding is per IEEE standard 754 single precision.
	S	string (8 chars)
	LS	long string (20 chars)

Register measurements	RW	NV	Format	Range	Description
0	R		F		volumetric flow
2	RW		F		totalized flow
4	R		F		temperature
6	R		F		flow velocity
100	R		I		cycle count
Modbus					
512	RW	NV	I	1-254	Modbus slave address [factory default 42]
514	RW	NV	L	300-115200	baud rate [factory default 38400]

Units				
1000	RW	NV	I	units of measure [factory default 1]. see table below; this sets all the registers in this group except 1256, 1136, and 1140
70	RW	NV	S	velocity description automatically set by register 1000 eg "m/s"
50	RW	NV	S	as above for volume flow units; eg "lpm"
60	RW	NV	S	as above for temperature unit; eg “C”
80	RW	NV	S	as above for totalizer units; eg “liters”
90	RW	NV	S	as above for pipe size units; eg, “mm”
1256	RW	NV	F	inner diameter of the pipe
1136	RW	NV	F	minimum readable velocity (velocities below this threshold will read as 0)
Identity				
903	R	NV	I	serial number
905	R	NV	I	hardware revision
910	RW	NV	LS	sensor location identifier (eg chilled water 2)
920	R	NV	I	temp exceeded flag
950	R	NV	S	device identity string (i-captor 4.102)
Master unit modes				refers to register 1000
0				mixed/custom
1				C, m/s, LPM, liters
2				F, ft/s, GPM, gallons
3				F, ft/s, GPH, gallons