

CTA Series

Heavy Duty Hydraulic System Flow Monitor

Rugged, resilient hydraulic oil flow and temperature monitors designed for permanent installation in mobile or industrial machinery.

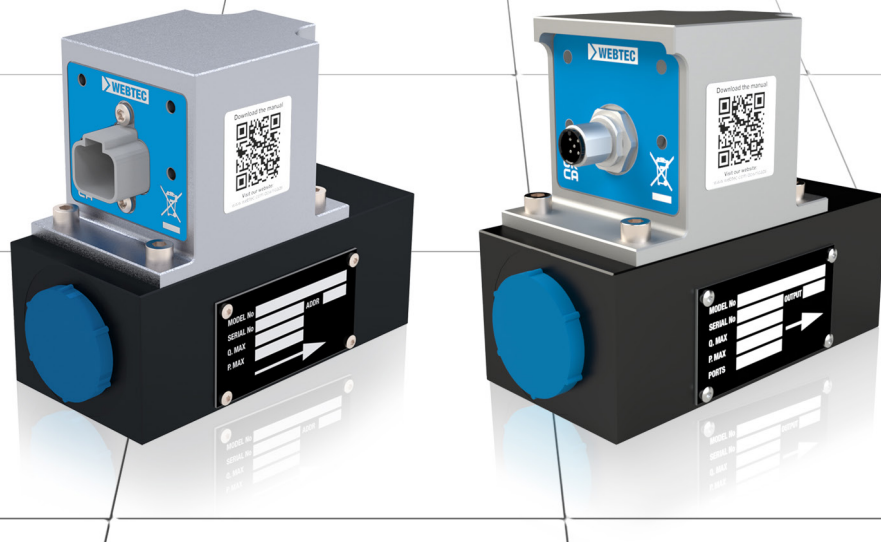
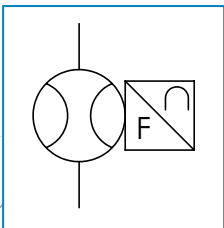
Ideal for industrial, on and off-highway machinery to monitor hydraulic system performance. Suitable for closed loop control, real-time diagnostics, safety interlocks and inclusion in predictive maintenance / IoT systems to reduce down-time or enable autonomous vehicle operation.

Designed to meet the standards for components fitted to heavy duty machinery applications, the meters have a J1939 CAN-bus interface or 4-20 mA output for easy integration.

Specifications

Maximum Rated Pressure:	420 bar, 6,000 psi
Maximum Flow:	300 L/min, 80 US gpm
Fluid Temperature Range:	-40 to 90 °C, -40 to 194 °F
Compatible Fluids:	Mineral oils to ISO 11158. Other fluids consult sales office.
Porting:	BSPP, SAE
Material:	Aluminium
Body Materials:	Aluminium, Steel, Stainless Steel
Internal Materials:	FKM (EPDM seals consult sales office)
Seals:	Designed to meet IP6K9K (with cable connected)
IP Rating:	M12 connector
Output: 4-20 mA (3-wire):	SAE J1939 Compatible: Deutsch connector

Symbol: e.g 4-20 mA Version



Make it **BLUE**

Features

- Output: J1939 reporting flow and temperature or 4-20 mA reporting flow.
- Calibration: 21cSt as standard, other viscosities possible
- Deutsch automotive connector (J1939 Version). M12 connector (4-20mA Version).
- Ingress protection: IP6K9K
- Tested to SAE J1455, ISO 11451, CISPR 25 and SAE J1113-13

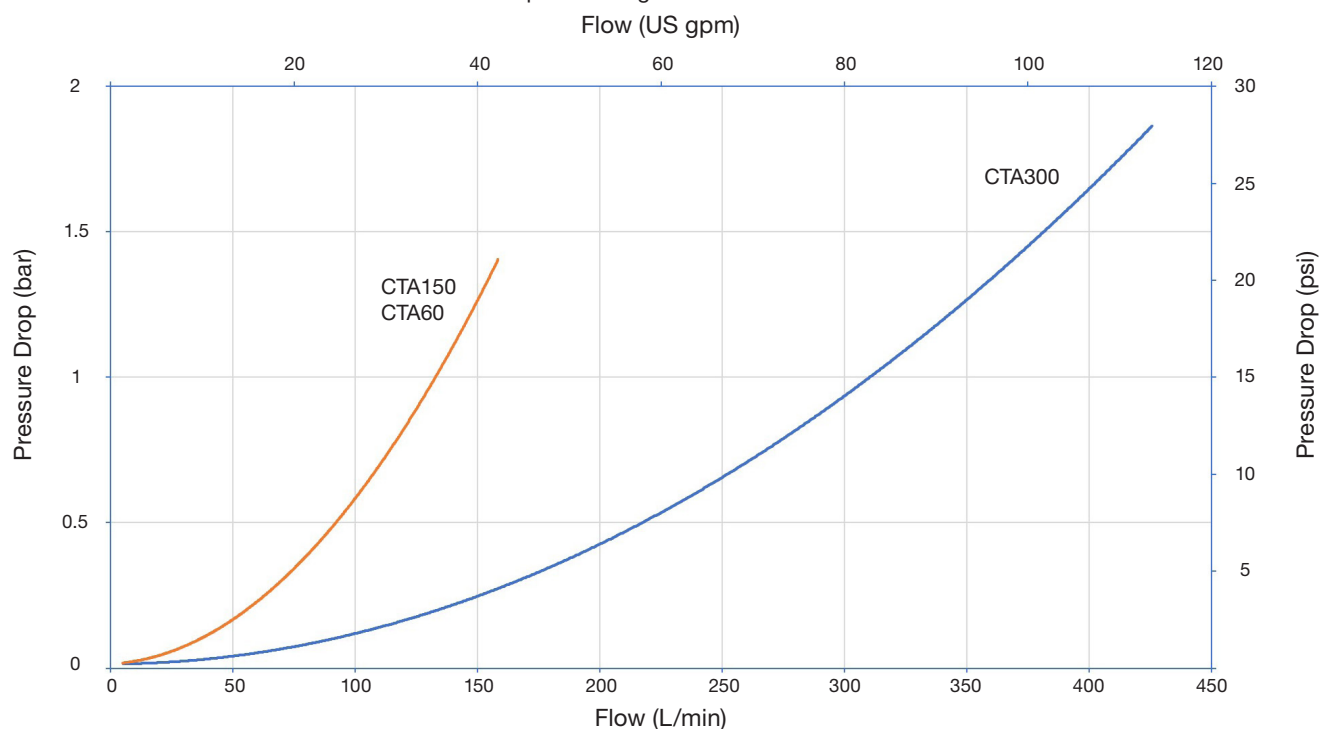
Sales Order Code

Please contact our technical sales team to discuss any special order requirements.

MODEL NO.	OUTPUT SIGNAL	PORTS	CALIBRATED FLOW RANGE	MAX RATED PRESSURE	TEMPERATURE RANGE
CTA060-J19-B-6	J1939	3/4" BSPP	3-60 L/min	420 bar	0 - 120 °C
CTA060-J19-S-6	J1939	1-1/16"-12UN #12 SAE ORB	0.8-16 US gpm	6000 psi	32 - 248 °F
CTA150-J19-B-6	J1939	3/4" BSPP	5-150 L/min	420 bar	0 - 120 °C
CTA150-J19-S-6	J1939	1-1/16"-12UN #12 SAE ORB	1.3-40 US gpm	6000 psi	32 - 248 °F
CTA300-J19-B-6	J1939	1" BSPP	8-300 L/min	420 bar	0 - 120 °C
CTA300-J19-S-6	J1939	1-5/16"-12UN #16SAE ORB	2-80 US gpm	6000 psi	32 - 248 °F
CTA060-MA-B-6	4-20 mA	3/4" BSPP	3-60 L/min	420 bar	N/A
CTA060-MA-S-6	4-20 mA	1-1/16"-12UN #12 SAE ORB	0.8-16 US gpm	6000 psi	N/A
CTA150-MA-B-6	4-20 mA	3/4" BSPP	5-150 L/min	420 bar	N/A
CTA150-MA-S-6	4-20 mA	1-1/16"-12UN #12 SAE ORB	1.3-40 US gpm	6000 psi	N/A
CTA300-MA-B-6	4-20 mA	1" BSPP	8-300 L/min	420 bar	N/A
CTA300-MA-S-6	4-20 mA	1-5/16"-12UN #16SAE ORB	2-80 US gpm	6000 psi	N/A

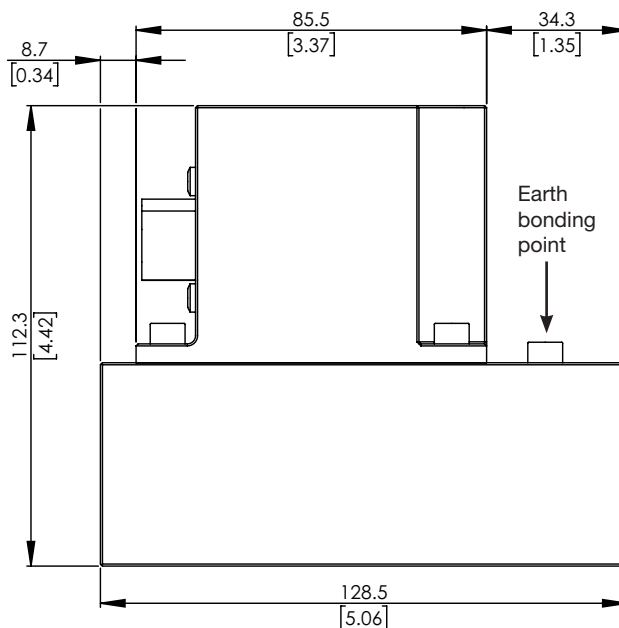
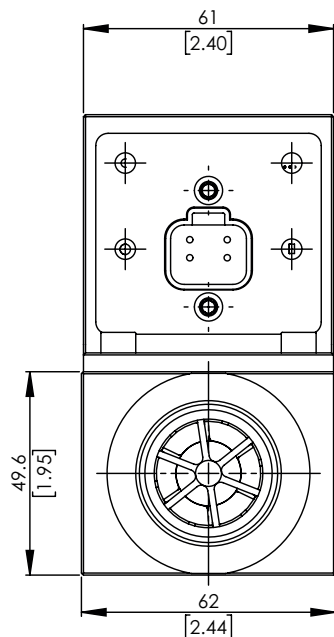
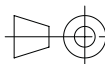
Typical Pressure Drop Curve

All tests completed using ISO32 Mineral oil at 21 cSt



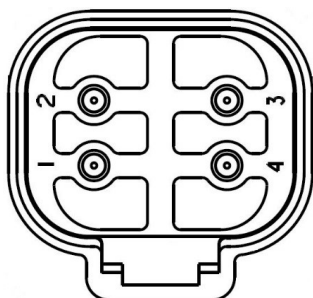
Installation Details

Dimensions in mm [Inches]



Connecting Details

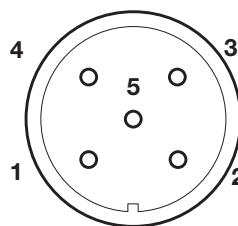
J1939



- Pins**
- 1 = 9 to 28 V d.c
 - 2 = GND
 - 3 = CANH
 - 4 = CANL

Four pole automotive Deutsch compatible, type DT15 Male

4 - 20 mA



- Pins**
- 1 = 9 to 28 V d.c
 - 2 = 4 - 20 mA out
 - 3 = GND
 - 4 = N/C
 - 5 = N/C

NB. N/C - Do not connect

Functional Specification

Ambient temperature range:	-40 to 85 °C, -40 to 185 °F
Flow Accuracy:	Better than 1% FS
Temperature accuracy:	±1 °C (±2 °F) – J1939 output only
Repeatability:	Better than ± 0.2%
Degree of protection:	Designed to meet IP6K9K (BS ISO 20653: 2013)

Electrical Specification

Supply voltage:	9 - 28 V d.c.
Analogue output:	4 - 20 mA 3 wire loop, max loop resistance = (VS x 50) -200 ohms
Response time:	50ms + 1 period (of turbine frequency)
Current consumption:	19 mA @zero flow, 37 mA @FSD
Zero & FSD:	4 mA = zero flow 20 mA = FSD
Over-range:	+5% FSD (20.8 mA)
Interface:	SAE J1939 compatible
CAN-bus baud rate:	250 kHz, 500 kHz
Current consumption:	14 mA @12 V d.c, 8 mA @24 V d.c
EMC/ESD protection:	SAE J1113-21 (ISO 11451-2) ISO 11452-10 CISPR 25-6 ISO 11452-8 SAE J1113-11 (ISO7637-2) SAE 1113-12 (ISO 7637-3) SAE J1113-13 (ISO 10605) Designed for all criteria under SAE J1455

CTA300-J19-S-6 Communication Parameters

PARAMETER GROUP	VALUE	DESCRIPTION
Transmission rate:	50 ms	
Data length	8 bytes	
Data page	0	
PDU format	0 x FF	Broadcast
PDU specific	0 x 13*	
Default priority	6	
Parameter Group Number (PGN)	0 x FF13*	
Suspect Parameter Number (SPN)	1 = flow, 2 = temperature	
Source Address	Default: 0x85	Customer specified

DATA FIELD (EXAMPLE FOR CTA300-J19-S-6)		
Byte D0 Bits 8-1	LSB flow. Bit position 1	Unsigned integer – little Endian. Scale multiplier 0.1*
Byte D1 Bits 8-1	MSB flow.	
Byte D2 Bits 8-1	Temperature. Bit position 1	0 to 248°F, 0 to 120°C
Byte D3 Bits 8-1	0 = Normal, 2 = Overflow	Flow status
Byte D4 Bits 8-1	0 x 04 (CTA300)	Flow meter family*
Byte D5 Bits 8-1	0 x 01 (US gpm & °F)	Engineering units*
Byte D6 Bits 8-1	0 x 00	
Byte D7 Bits 8-1	0 x 32	50

Note: other PGNs, addresses, flow ranges and engineering units are available.

* These values vary by model - contact sales for full data sheet.

Construction Materials

Flow meter body: Anodised high tensile aluminium 2014A
 Internal Parts: Aluminium, Steel, Stainless Steel
 Electronics housing: Painted aluminium

Operation

Fluid passes between the connection ports and rotates a turbine. The turbine frequency is used to calculate flow while temperature is recorded from the tip of the transducer.

Reverse Flow

The flow block is capable of measuring flow in either direction.

Calibration

All CTA turbine flow meters are calibrated at a mean viscosity of 21cSt using ISO32 hydraulic mineral oil to ISO11158 category HM. Calibration certificates are available on request - this is a chargeable option. Other calibration on request - please consult the sales office.

Installation

The flow monitor can be mounted in any orientation. It is recommended to connect the flow block with flexible hoses 1-2 metres (3-6ft) long. Inlet and outlet connections should always be of a similar bore size to that of the flow block to prevent venturi or constriction effects. If the flow monitor is close to a sharp bend, particularly at the input, unexpected flow readings may occur.

Where repetitive pulsation causes lateral pipe movement against the ports, we recommend the hoses are firmly clamped.

Refrain from locating the flow monitor close to the source of pulsating flows such as certain piston pumps.

For EMC the flow monitor should be bonded to the vehicle chassis either through metal pipe-work or a bonding strap.

There are other factors to consider when locating a flow monitor for optimum performance and you are invited to discuss your specific application with the experienced Webtec Engineers.

Filtration

Must be better than DIN ISO 4406: 19/16/13 or NAS 1638: 7. This is typically achieved with 10-micron system filtration.