



## CTS 420 Series Position Transmitter System

- 4-20mA 2-wire current loop operation
- Linear stroke ranges from 0.25 to 10 inches
- Rotary version 0 to 90°
- Wide operating temperature range
- Compact size
- Remote sensor operation up to 35 feet
- MS style hermetic connector on the sensors
- Rugged splash-proof electronics housing (*optional*)



The **CTS 420 Series** is a 2-wire current loop position transmitter system especially suited to measurements in process industries. Each system consists of either an HCI Series LVDT linear position sensor or an R36AS RVDT rotary position sensor, along with an electronics module which provides a 4-20mA current loop output.

The CTS 420 operates on an unregulated 10 to 36VDC supply voltage. The electronics module provides the position sensor with the required AC voltage excitation voltage and converts the AC voltage output into a smooth 4-20mA signal. The zero and span adjustment potentiometers, as well as the sensor and loop supply connection terminals, are all conveniently located on the front panel for easy installation and calibration.

The LVDT sensor is constructed of stainless steel and is hermetically sealed. Both the LVDT and the RVDT sensors feature an integral welded-on electrical hermetic connector.

The CTS 420 is ideal for applications where the sensor must be remotely located from the electronics (up to 35 feet away) due to environmental or space considerations. In addition, inductance and capacitance levels are well below the levels set for intrinsic safety requirements.

Also see our other 4-20mA position transmitter models; **PTS 420** (rugged housing, IP-65), **HCT-IS** (Intrinsically safe, FM Approved) and **GCT** (heavy-duty gage head).

### Features

- 4-20mA 2-wire current loop operation
- Linear or rotary position sensing
- Zero and span adjustable
- Hermetically sealed (LVDT only)
- Imperial or metric threaded core (LVDT)
- Cable assembly up to 35ft. (*optional*)

### Applications

- Process industry
- Remote, oil field valve position monitoring
- Ship-board turbine throttle position control
- Paper mill head box position
- Rolling mill roller gap feedback
- Damper control on fossil fuel power plants

## ■ Performance specifications

ELECTRICAL SPECIFICATIONS							
Parameter	CTS 420-250	CTS 420-500	CTS 420-1000	CTS 420-2000	CTS 420-4000	CTS 420-10000	CTS 420 0-90
Measurement range	0.250 [6.35]	0.500 [12.7]	1.0 [25.4]	2.0 [50.8]	4.0 [101.6]	10.0 [254]	0 to 90°
Linearity, maximum	±0.5% of FS			±1.5% of FS			
Loop supply voltage	10 to 36VDC						
Max loop resistance	595 ohms @ 24VDC (see chart)						
Output	4 to 20mA						
Frequency response	100Hz @ -3db						
Stability	0.05% of FS after 30 minutes warm up						
Thermal-coefficient of sensitivity	±0.02%/°F [±0.036%/°C]						
Controls	Zero and span potentiometers, 10 turns						

ENVIRONMENTAL AND MATERIAL SPECIFICATIONS	
Operating temperature range (LVDT/RVDT)	-67°F to +300°F [-55°C to +150°C]
Operating temperature (Electronics module)	-40°F to +200°F [-40°C to +95°C]
Housing material (LVDT/RVDT)	AISI 400 Series stainless steel
Electrical connections (LVDT/RVDT)	6-pin MS type connector (MIL-C-5015)
NEMA IEC 60529 rating (LVDT)	IP68 to 1,000 PSI [70 bars] with use of proper mating connector plug

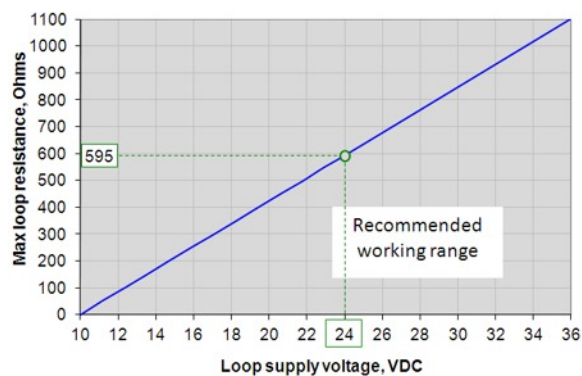
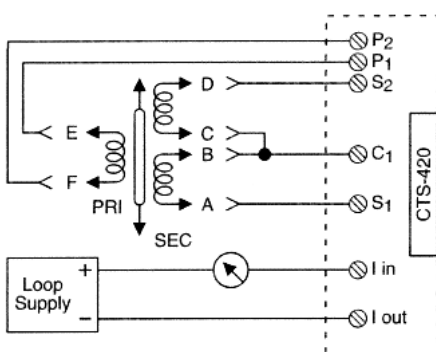
### Notes:

All values are nominal unless otherwise noted

Dimensions are in inch [mm] unless otherwise noted

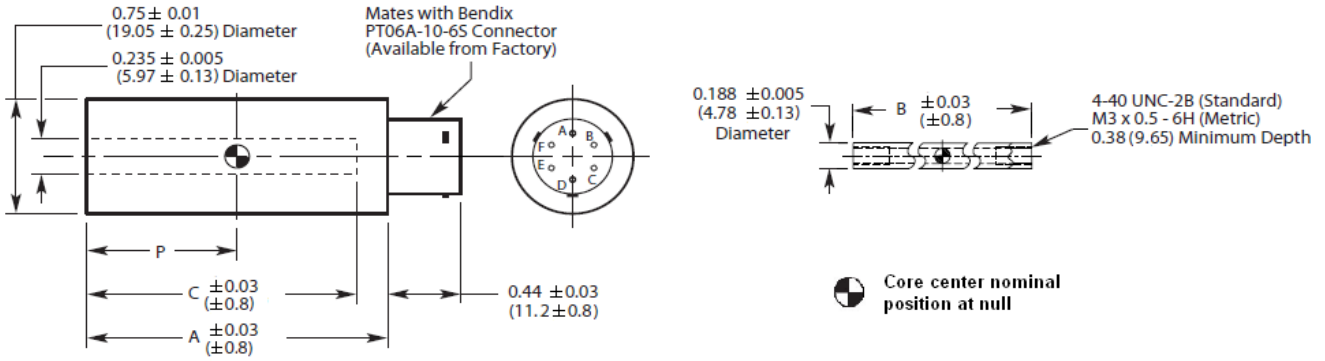
FS: Full Scale is the difference in outputs between the stroke ends

## ■ Wiring schematic and Loop resistance

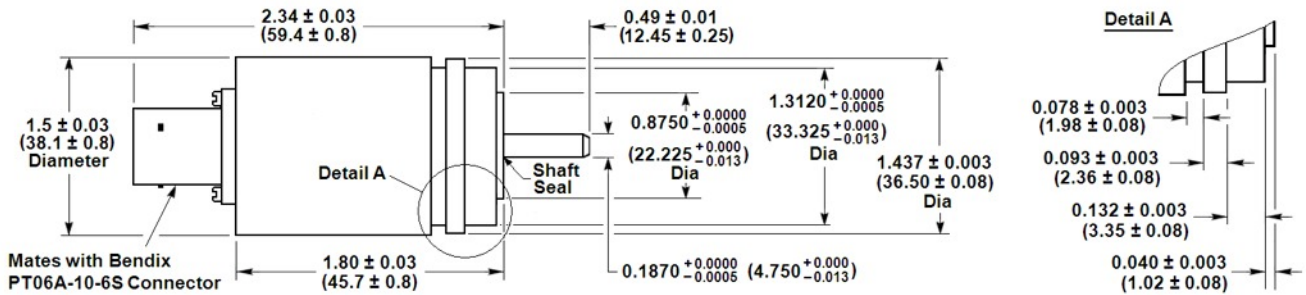


■ Mechanical specifications - LVDT, HCI Series

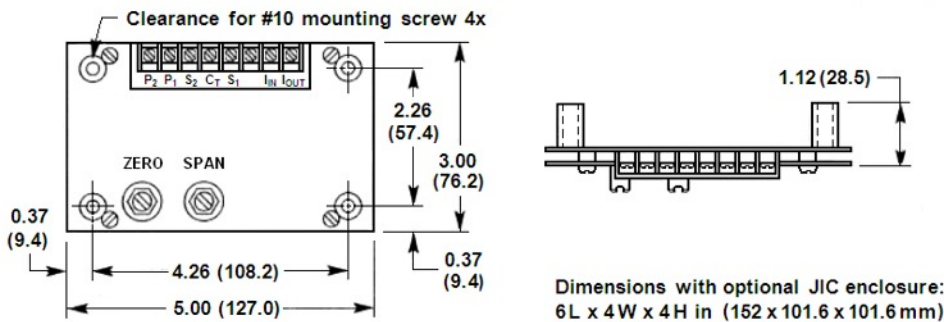
Parameter	CTS 420-250	CTS 420-500	CTS 420-1000	CTS 420-2000	CTS 420-4000	CTS 420-10000
Main body length "A"	2.50 [63.5]	3.84 [97.5]	5.03 [127.8]	7.29 [185.2]	10.68 [271.3]	19.7 [500.4]
Core length "B"	1.10 [27.9]	1.80 [45.7]	3.00 [76.2]	3.80 [96.5]	5.00 [127.0]	6.2[157.5]
Center of core at null "P"	0.96 [24.4]	1.52 [38.6]	2.23 [56.6]	3.32 [84.3]	5.05 [128.3]	9.53 [242.1]
Bore depth "C"	1.91 [48.5]	3.25 [82.5]	4.46 [113.3]	6.72 [170.7]	10.2 [259.1]	19.12 [485.6]
Body weight, oz [g]	1.73 [49]	2.58 [73]	2.93 [83]	5.22 [148]	5.64 [160]	10.30 [292]
Core weight, oz [g]	0.11 [3]	0.14 [4]	0.28 [8]	0.39 [11]	0.46 [13]	0.49 [14]



■ Mechanical specifications - RVDT, model R36AS



■ Mechanical specifications - Electronics module



## ■ Ordering information

Description	Model	Part Number
Transmitter system with 0.25 inch stroke LVDT	CTS 420-250	02291277-000
Transmitter system with 0.50 inch stroke LVDT	CTS 420-500	02291278-000
Transmitter system with 1 inch stroke LVDT	CTS 420-1000	02291279-000
Transmitter system with 2 inch stroke LVDT	CTS 420-2000	02291280-000
Transmitter system with 4 inch stroke LVDT	CTS 420-4000	02291281-000
Transmitter system with 10 inch stroke LVDT	CTS 420-10000	02291282-000
Transmitter system with 0 to 90° range RVDT	CTS 420 0-90	02291283-000
OPTIONS		
Metric threaded core (M3 x 0.5 – 6H) for LVDTs	CTS 420-XXXXX-MC	xxxxxxxx-006
Guided core for LVDTs	CTS 420-XXXXX	xxxxxxxx-010

### Note:

Add multiple option numbers together to obtain proper ordering number

Example: CTS 420-500 with a metric and guided core, Part Number 02291278-016

ACCESSORIES		
Mounting block for LVDTs		04560950-000
R-Flex Multipurpose Coupling Kit for RVDT		66530072-000
Mating connector kit for LVDT or RVDT	PT06A-10-6S(SR)	62101011-000
LVDT/RVDT to CTS 420 cable assembly, 10foot <i>(Consult us for longer)</i>		04290417-000
JIC electronics enclosure		61403006-000
CTS Electronics module only (without LVDT or RVDT)		04290398-000

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### ALTHERIS bv

Scheveningseweg 15  
2517 KS DEN HAAG  
The Netherlands

+31 (0)70 3924421

+31 (0)70 3644249

Offices in : Benelux | Germany | France | UK | Italy | USA

www.altheris.com

sales@altheris.nl

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