

Analog Profile Series



EZ-track LDT's profile style probes use magnetostrictive technology by applying a mechanical strain pulse to a magnetostrictive waveguide that runs the length of the sensor. When the strain pulse encounters a magnetic field produced by the slide or floating magnet assembly, a current pulse is produced that is picked up by the electronic circuitry. A high

speed timer measures the time difference between the applied strain pulse and the return of the induced current pulse. This time, proportional to position is compared to the "zero" and "span" positions established during the calibration process to scale the output. Once the position has been scaled accordingly, it is converted to a signal in the form of an analog (voltage or current) output, quadrature pulse output, or digital (PWM or start/stop) outputs.

Enhanced Resolution Analog Profile Series (Q21R/Q35R) Specifications:

Output:	<u>Current:</u> 20 to 4 mA 4 to 20 mA	<u>Voltage:</u> 0 to 10 V 10 to 0 V	<u>Differential:</u> 0 to 10 V 4 to 20 mA
Load impedance:	$\leq (\text{voltage in} - 4) \div 0.02 \text{ A}$ (example: 10 VDC \leq 300 Ω)		$\geq 1000 \Omega$
Q21R span:	40 to 180 in		
Q35R span:	5 to 36 in		
Repeatability:	+/-0.006% of full span or +/-0.002 in, whichever is greater		
Resolution:	0.001 in internal (For span lengths < 65 in); 16 bit (For lengths > 65 in)		
Non-linearity:	+/-0.05% of stroke		
Operating temperature:	-4 to +158 °F (-20 to +70 °C)		
Null zone:	3.00 in		
Dead zone:	2.00 in		
Operating voltage:	13.5-30 VDC		
Current consumption:	120 mA at 15 VDC, 2.5 watts maximum		
Response time:	≤ 50 in	1 ms	
	51 to 100 in	2 ms	
	101 to 150 in	3 ms	
	151 to 180 in	4 ms	
LED:	Green = Power is applied and magnet is present in the programmed range Red = Fault, magnet is in the Null Zone, Dead Zone or lost Yellow = Magnet is out of the active programmed range, but still within the active stroke area		
Protection rating:	Electronics: IP67, IP68 optional Rod housing: IP65		
Agency approval:	CE		

Standard Resolution Analog Profile Series (Q21/Q35) Specifications:

Output:	<u>Current:</u> 20 to 4 mA 4 to 20 mA	<u>Voltage:</u> +5 to -5 V 0 to +10 V -5 to +5 V +10 to 0 V 0 to +5 V -10 to +10 V +5 to 0 V +10 to -10 V
Load impedance:	$\leq (\text{voltage in} - 4) \div 0.02 \text{ A}$ (example: 10 VDC \leq 300 Ω)	
Q21 span:	40 to 180 in	
Q35 span:	5 to 36 in	
Repeatability:	+/-0.01% of full span or +/-0.014 in, whichever is greater	
Resolution:	0.014 in for stroke lengths less than 60 in; For lengths over 60 in: 12 bits	
Non-linearity:	+/-0.05% of stroke or +/-0.028 whichever is greater	
Accuracy:	+/-0.1% of stroke or +/-0.050 whichever is greater	
Operating temperature:	-40 to +158 °F (-40 to +70 °C)	
Null zone:	3.00 in	
Dead zone:	1.50 in	
Operating voltage:	10-30 VDC	
Current consumption:	100 mA (maximum)	
Response time:	50 in or less: 1 ms updates with 5 ms settling time 50 in or greater: 2 ms updates with 4 ms settling time	
LED:	Green = power is applied and magnet is present in the programmed range Red = fault, magnet is in the null zone, dead zone or lost Yellow = magnet is out of the active programmed range, but still within the active stroke area	
Protection rating:	Electronics: IP67, IP68 optional Rod housing: IP65	
Agency approval:	CE, FM Class I, Div 2	

Low Profile Extrusion Housing:

The Q21 series is housed in low profile, environmentally sealed, anodized aluminum housings. The electronics and the sensing element are incorporated into a housing that is less than 1 inch tall without the need for a can or head on the sensor to house the electronics

Diagnostic LED:

The EZ-track Series utilizes a diagnostic LED that enables the operator to understand the state of the sensor dependent upon the position of the target magnet.

The LED flashes to indicate it is in AGC mode (Q21 and Q35 series). This feature simplifies programming and troubleshooting, effectively reducing setup and maintenance time.

Various Analog Outputs

Available Profile Style:

The Q21 and Q35 series may be ordered in a variety of outputs.

Although sensors may be ordered with any of the above outputs, the units may easily be changed in the field to reverse the analog signal. Thus, one model can be used for two applications by programming the "zero" and "span" appropriately.

Automatic Gain Control:

The Automatic Gain Control (AGC) feature allows the EZ-track to sense a magnet other than the standard slide magnet and adjust to the magnetic field strength accordingly. With the ability to sense a standard floating magnet up to 3/8 inch away, the user has greater mounting flexibility for various applications.

FM Approved Installation

(Class I, Division 2):

The EZ-track Q21 unit can be ordered for use in a Class I, Division 2 environment. The unit utilizes a Lock-Euro-G.

Analog Profile Series

Part Number Key: Analog Profile Series

A	B	C		D	E		F	G	H		I		J
LT	40	E	-	Q21	R	-	LI	0	X3	-	H1151	/	S1661

A	Type
LT	Linear Transducer

B	Measuring Span
*	Length of Measuring Span

C	Housing
E	Inches

D	Housing Height
Q21	21 mm
Q35	35 mm

E	Resolution
(Blank)	Standard Resolution
R	Enhanced Resolution

F	Output Configuration
LI	Current
LU	Voltage
LD	Differential ¹⁾

¹⁾ Analog differential output is the difference between two magnets. Minimum distance = 2.5 inches

G	Output Type		
	Current	Voltage	Differential
0	4-20 mA	0 to 10 V	0 to 10 V ³⁾
1	20-4 mA	10 to 0 V	4 - 20 mA ³⁾
2		-10 to 10 V ²⁾	
3		10 to -10 V ²⁾	
4		0 to 5 V ²⁾	
5		5 to 0 V ²⁾	
6		-5 to 5 V ²⁾	
7		5 to -5 V ²⁾	

²⁾ Only available with 'Q21'/'Q35';
³⁾ Only available with 'Q21R'/'Q35R'.

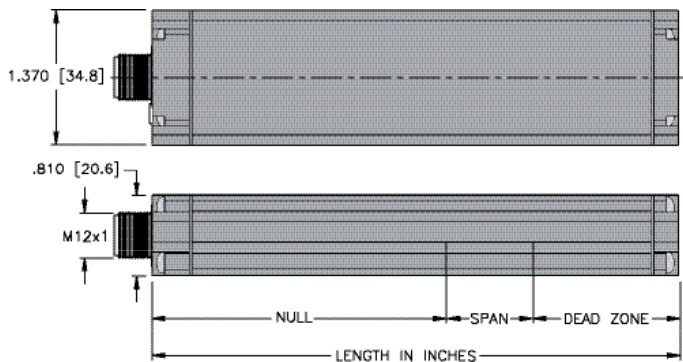
H	Number of LEDs
X3	3 Diagnostic LEDs

I	Type of Connection
H1141	4-pin M12 Eurofast Connector ²⁾
H1151	5-pin M12 Eurofast Connector ³⁾

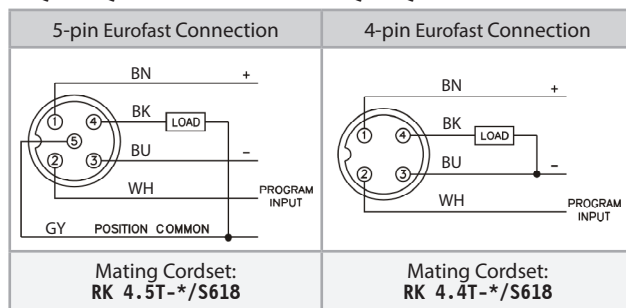
J	Specials
(Blank)	IP67
S1661	IP68

Note: In addition to the LDT, a typical system includes a magnet, mounting feet and cable (all sold separately).

Dimensions: Q21 Analog Profile Series

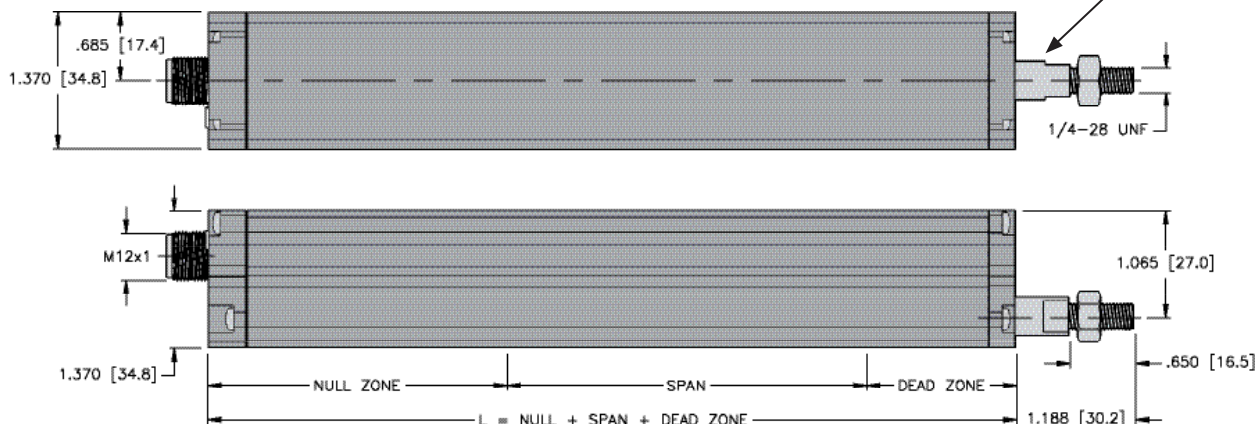


Wiring Diagrams: Q21R/Q35R



* Length in meters.

Dimensions: Q35 Analog Profile Series



Note: Self contained piston with magnet permanently attached