

Your Global Automation Partner

TURCK

EZ-track[®]
LT Q21R Series
Enhanced Analog Output

Manual

The **Q21R Series** is an accurate, programmable, auto-tuning, non-contact, linear displacement transducer in an economical, low profile package. The transducer utilizes field proven magnetostrictive technology to give absolute position, repeatable to .006% of the programmable sensing distance. The streamlined anodized aluminum extrusion houses the sensing element and electronics. The magnet moves over the sensing element that determines the position and converts it to an analog output. It can be ordered with a 0 to 10 VDC or 4 to 20 mA output.

The **Q21R Series** has a few truly unique features such as an auto-tuning capability, which allows the LDT to sense a magnet other than the standard slide magnet and adjust its signal strength accordingly. The analog output is also programmable over the entire active stroke length. The active stroke area of the LDT lies between the Null and Dead zones.

There is a diagnostic LED located at the connector end of the LDT that remains green while a good magnet signal is present within the programmed stroke area. The LED turns yellow when the magnet is out of the programmed active range, but still within the active stroke area. The LED turns red and the output goes to 0 volts on voltage output units, or 4 mA on current output units when there is no magnet present or when the magnet is out of the sensing area. The unit can easily be changed in the field from a 0-10 VDC to a 10-0 VDC, 4-20 mA to a 20-4 mA.

Accessories

Input Voltage	13.5-30 VDC	Operating Temperature	-20° to 70° C
Current Draw	2.5 Watts Maximum, 120 mA @ 15 VDC Typical	Span Length	5" to 180"
Output	0 to 10 VDC 10 to 0 VDC 4 to 20 VDC 20 to 4 VDC	Null Zone	3.00"
Resolution Internal Analog Output	0.001" 16 Bit (1 part in 65,535)	Dead Zone	2.00"
Non-Linearity	+/- 0.05% of Stroke	LED	Green = Power is applied and magnet is present. Red = Fault, magnet is in the Dead Zone or lost Yellow = Out of the active programmed range
Repeatibility	+/- 0.006% of Full Stroke	Connector	Standard 5 Pin Micro, 12mm euromast ® Connector
Update		Approvals	CE
40" or less	1mS (Stroke Lengths 40" - 50")	Enclosure	IP67, Optional IP68
41" to 100"	2mS (Stroke Lengths 41" - 100")		
101" to 150"	3mS (Stroke Lengths 101" - 150")		
151" to 180"	4mS (Stroke Lengths 151" - 180")		
Specifications are subject to change without notice. Specifications are based on a typical 36" LDT.			

Item	Part Number	Item	Part Number
Slide Magnet	SM-Q21	2 Meter Cable; Straight Cordset	RK 4.5T-2/S618
Float Magnet	FM-Q21	4 Meter Cable; Straight Cordset	RK 4.5T-4/S618
Mounting Foot	MB-Q21	2 Meter Cable; Right Angle Cordset	WK 4.5T-2/S618
		4 Meter Cable; Right Angle Cordset	WK 4.5T-4/S618

Functional Overview

Mounting Instructions

The transducer can be mounted vertically or horizontally using **MB-Q21** Mounting Brackets. The mounting brackets slide in the grooves on the lower part of the extrusion and clamp down when tightened. It is recommended to use one mounting bracket on each end and every three feet between. Ferro-magnetic material, (material readily magnetized) should be placed no closer than .25 inches from the sensing surface of the LDT.

Floating Magnet Assembly

When using the Floating Magnet assembly, **FM-Q21**, the magnet should be installed within 3/8" of the sensing surface. The magnet assembly should also be installed in such a manner that it remains an even distance from the aluminum extrusion throughout the entire stroke. Improperly installed magnets can result in output signal non-linearity.

ZERO and SPAN Position

The **Q21R Series** is programmable over the entire active stroke length of the LDT. Keep in mind, there is a 3 inch Null area at the connector end of the LDT, and a 2.0 inch Dead area at the other end of the LDT that the magnet must stay out of at all times. The diagnostic LED can aid you in the setup of the **ZERO** and **SPAN**. A green or yellow LED means that the LDT can be programmed in this area, a red LED means that the LDT cannot be programmed in this area.

To set the ZERO and SPAN position for the probe, follow these steps:

1. Power up the probe in normal operating mode (i.e. program pin floating).
2. Place magnet assembly where **ZERO (0 VDC or 4 mA)** is to be located, within the active region of the probe.
3. Momentarily short program pin (pin 2, White wire) to supply common (pin 3, Blue wire).
4. Place magnet assembly where **SPAN (10 VDC or 20 mA)** is to be located, within the active region of the probe.
5. Momentarily short program pin (pin 2, White wire) to V+ (pin 1, Brown wire).

Note:
ZERO or SPAN can be adjusted individually without setting the other.

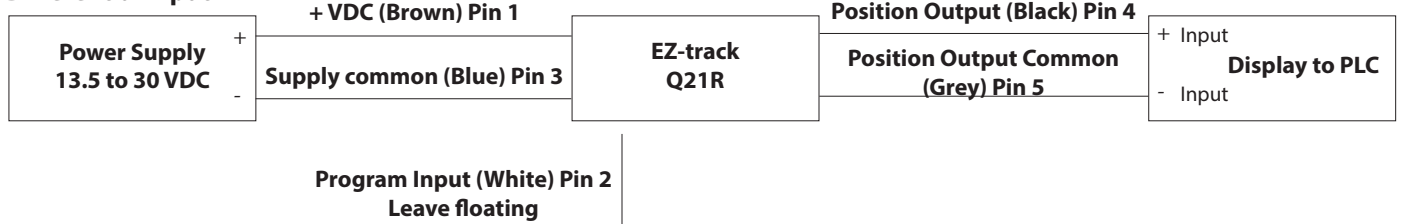
LED Colors

Green: Magnet is present and within the active programmed range.

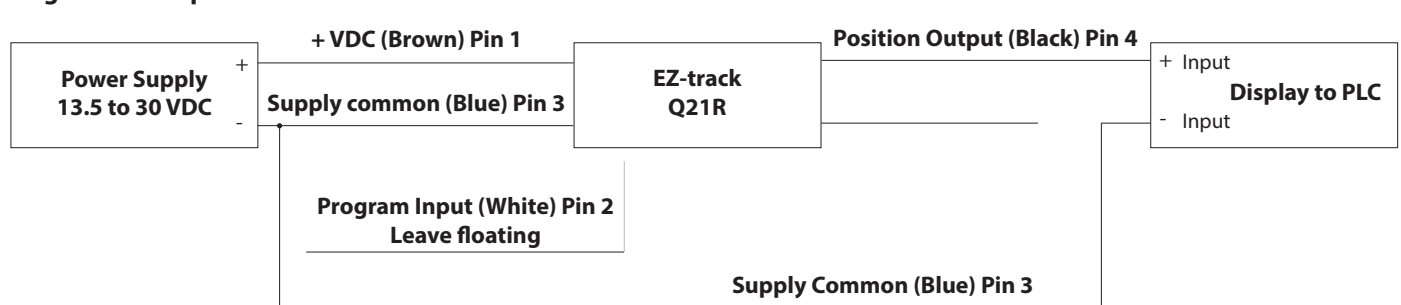
Red: Fault; The LDT has lost its signal from the magnet or the magnet has moved into the Null or Dead zone.

Yellow: The magnet is out of the programmed **ZERO** to **SPAN** range, but still within the active stroke area.

Differential Input



Single Ended Input

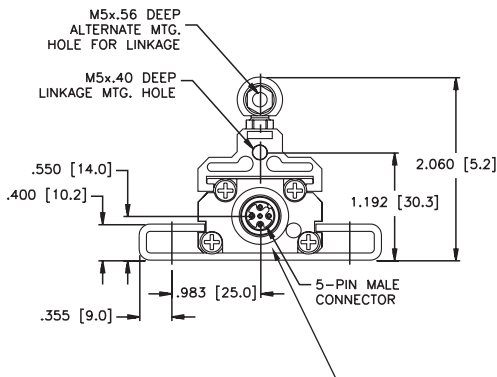
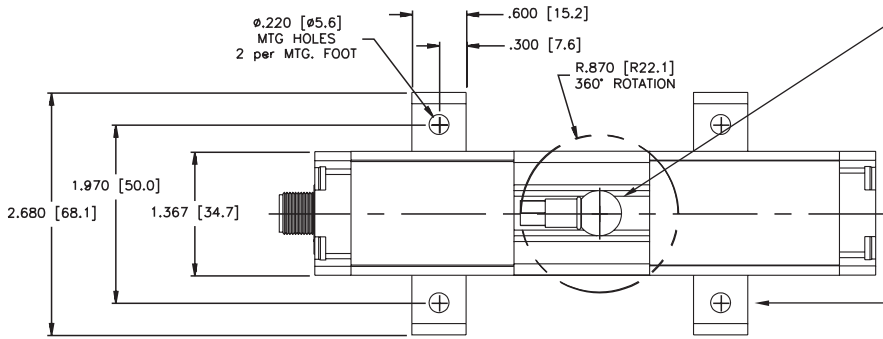


Note:
Tie shield to common and earth ground on controller or panel

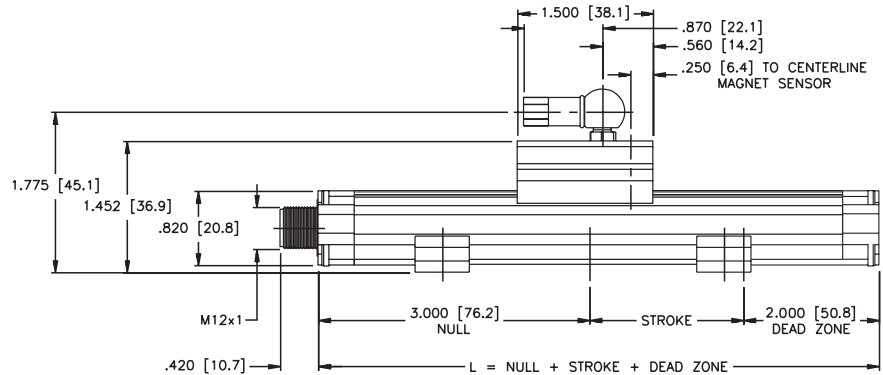
Dimensions and Wiring Diagrams

A standard female swivel mounting arm is provided with the Slide Magnet (**SM-Q21**) assembly.

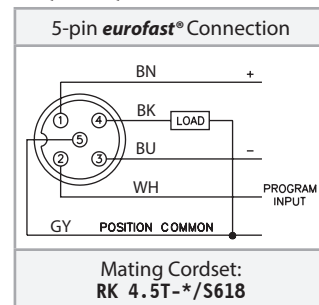
Mounting Brackets (**MB-Q21**) slide in the grooves on the side of the extruded housing. When tightened down with fastening hardware the mounting brackets clamp the unit into place. It is recommended to use one mounting bracket on each end and every three feet between.



A standard, shielded 5-pin, M12x1 eurofast® connector is used. Straight mating cables can be ordered in a 2 meter length (RK 4.5T-2/S618), or 4 meter length (RK 4.5T-4/S618). If space is a consideration a right angle connector is also available, (WK 4.5T-2/S618 or WK 4.5T-4/S618).



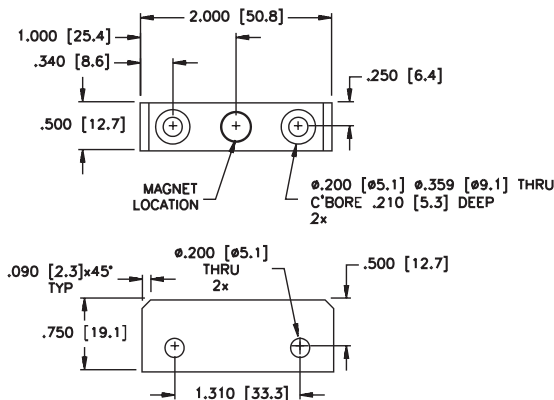
Wiring Diagrams: Q21R/Q35R



* Length in meters.


Warning:
Do Not Use Cordsets with LED's

Floating Magnet: FM-Q21



Notes:

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