

*dig*VIT

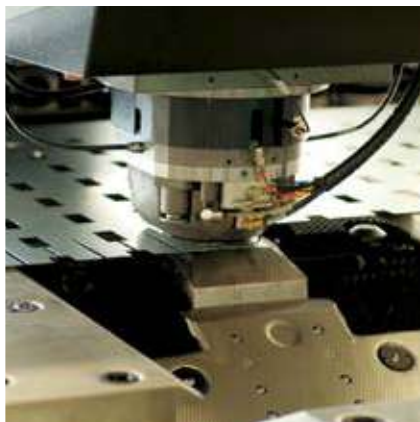


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The Most Advanced Digital Variable Impedance Transducer for Noncontact Linear Position / Displacement Sensing



Features

- ❖ Self tuning bridge, will perform with nearly any sensor, any conductive target
- ❖ Pushbutton calibration
- ❖ Pushbutton temperature compensation
- ❖ Pushbutton zeroing
- ❖ Embedded intelligence, all functions accessible without a PC
- ❖ Large easy to read digital display
- ❖ Scrolling menus for set up and calibration
- ❖ Ethernet communication
- ❖ No sensor, shorted sensor detection
- ❖ Programmable switched output

Applications

- ❖ Position, vibration, proximity sensing
- ❖ Part sorting
- ❖ Process control
- ❖ Laboratory test
- ❖ Engine dynamics testing
- ❖ Condition monitoring

Digital Circuit Design

Kaman is not new to digital circuit design. From the late 1980s we have had a digital circuit sensor in production. Kaman has continued to build on the foundations developed with the EASI-9500, KμDA, and ThreadChecker products.

What's Different This Time

Probably the biggest difference between the digiVIT and past digital inductive linear displacement sensors is that all functions can be accessed through 4 pushbuttons on the front panel. All information is displayed on an easy to read, integral digital display.

There is no requirement to connect to a PC!

What's Unique about digiVIT

Technological innovation has resulted in a self tuning bridge. There is no longer the need to connect to a PC to download a configuration file when changing sensors or doing high level calibrations.



Attaching a sensor to the digiVIT and performing a simple calibration procedure via the pushbuttons will tune the bridge. It not only tunes the bridge, its self optimization will ensure the best performance possible for any given, combination of sensor, target, cable & calibration.

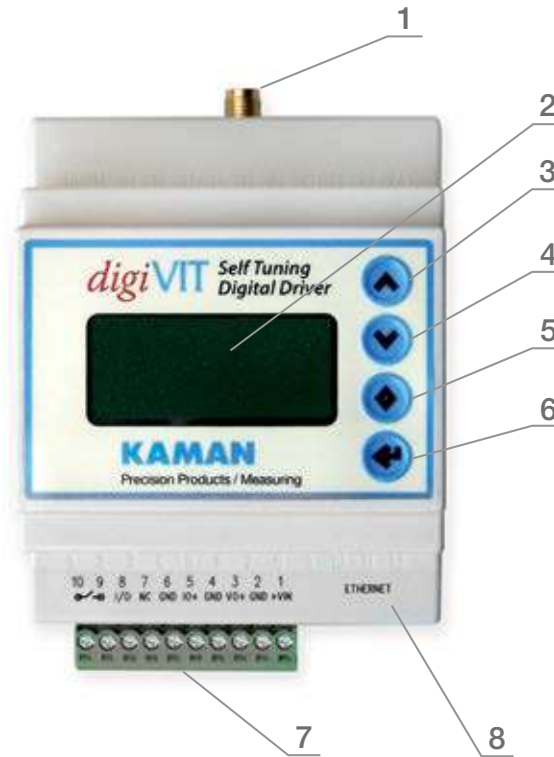
Calibrations

Linearity calibration is a simple routine via the pushbuttons. Multiple point calibrations are possible. The 2-point calibration provides a reliable, precise repeatable output, the 6-point calibration provides outstanding linearity, and the 21 point calibration the best possible linearity.

Temperature compensation calibration by the user is also possible. Simply positioning the sensor at 2 different positions within the calibrated range at 2 different temperatures and depressing a pushbutton will complete a temperature compensated calibration. The same procedure can also be done with the electronics.

Where Everything Is

1. Sensor connection
2. Digital display
3. Scroll up pushbutton
4. Scroll down pushbutton
5. Escape pushbutton
6. Enter pushbutton
7. I/O terminals
8. Ethernet connection



Digital Display Options

- Percent of full scale (default)
- Voltage output
- Current output

Analog Output Options

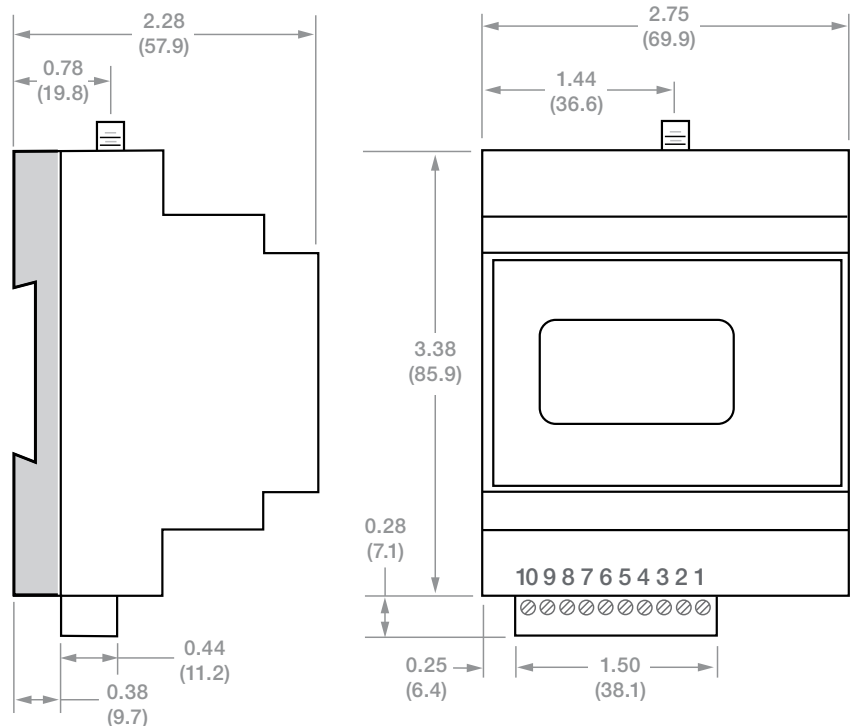
- 0-5 VDC
- 0-10 VDC (default)
- +/- 5 VDC
- +/- 10 VDC
- 4-20 mA
- 0-20 mA

Calibrations

- 2 point
- 6 point
- 21 point
- Active temperature compensation

Miscellaneous

- Zero
- Ethernet connection
- 2 point adjust
- Programmable switched output



Operating temperature range:

Sensors -55°C to 200°C
Electronics 0°C to 50°C

Storage temperature range:

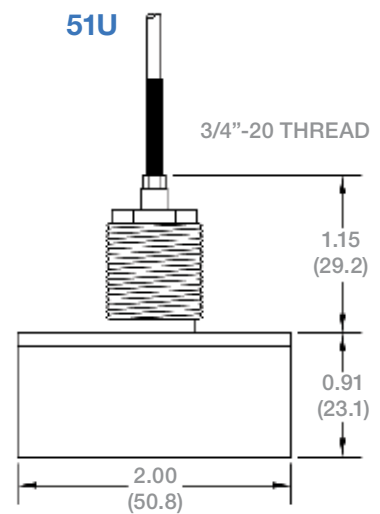
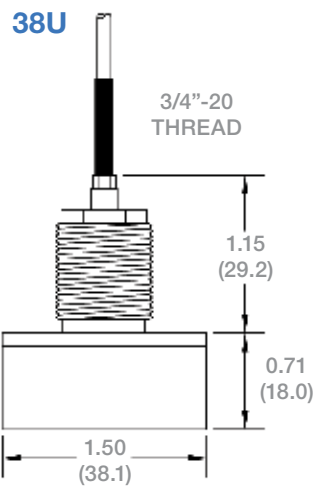
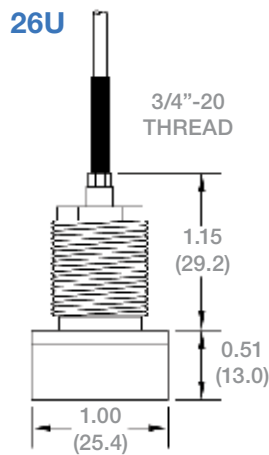
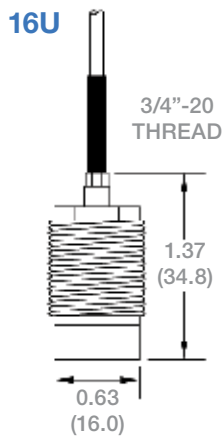
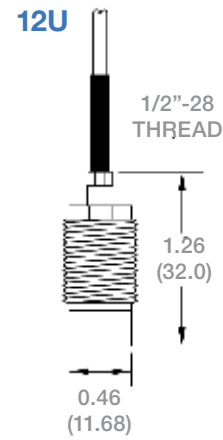
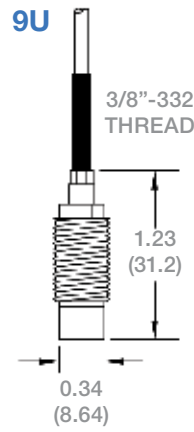
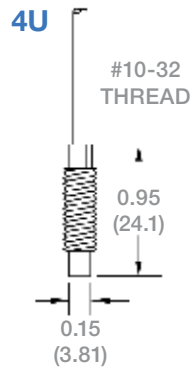
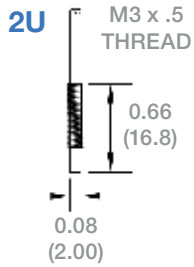
Sensors -55°C to 200°C
Electronics -20°C to 70°C

Sensor integral cable length: 2 meters

Extension cables available
Input power: 18-28VDC (130mA @24VDC)

Probe Options

Although the digiVIT will work with nearly any single coil sensor and any conductive target, the following sensors have been characterized over standard ranges with an aluminum target.



Calibration fixture 2U-16U sensors
English/Metric
855578-001



Calibration spacer set 26U-51U
(0.050, 0.100, 0.200, 0.300, 0.400, 0.500, 1.000)
850859-001

Specifications

Characterized with an aluminum target		2U	4U	9U	12U	16U	26U	38U	51U
Offset	Inch (mm)	0.002 (0.05)	0.005 (0.13)	0.010 0.25	0.016 (0.40)	0.020 (0.50)	0.032 (0.80)	0.050 (1.20)	0.100 (2.5)
Short range	Inch (mm)	0.010 (0.25)	0.025 (0.60)	0.050 (1.25)	0.080 (2.00)	0.100 (2.50)	0.160 (4.00)	0.250 (6.00)	0.300 (7.50)
Standard range	Inch (mm)	0.020 (0.50)	0.050 (1.30)	0.100 (2.50)	0.160 (4.00)	0.200 (5.00)	0.320 (8.00)	0.500 (12.00)	0.600 (15.00)
Extended range	Inch (mm)	0.030 (0.75)	0.070 (1.75)	0.150 (3.75)	0.240 (6.00)	0.320 (8.00)	0.500 (12.50)	0.800 (20.00)	1.000 (25.00)
Typical specifications for standard range, aluminum target, standard cable length:									
Nonlinearity 6 pt calibration	± %FS	<0.3%							
Nonlinearity 21 pt calibration	± %FS	<0.1%							
Static Resolution	RMS %FS	<0.001%							
Resolution @ 100Hz	RMS %FS	<0.01%							
Resolution @1000Hz	RMS %FS	<0.02%							
Thermal sensitivity (sensor only)	%FS/°F (%FS/°C)	0.05 (0.1)							
Thermal sensitivity w/temp comp cal (sensor only)	%FS/°F (%FS/°C)	0.01 (0.02)							

Performance with Magnetic Target Materials

Characterized with a 4130 steel target, 2m cable		2U	4U	9U	12U	16U	26U	38U	51U
Offset	Inch (mm)	0.002 (0.05)	0.005 (0.1)	NR	0.016 (0.40)	0.020 (0.50)	0.032 (0.80)	0.050 (1.20)	0.100 (2.5)
Short range	Inch (mm)	0.010 (0.25)	0.020 (0.50)	NR	0.060 (1.5)	0.100 (2.50)	0.160 (4.00)	0.250 (6.00)	0.300 (7.50)
Standard range	Inch (mm)	0.020 (0.50)	0.040 (1.00)	NR	0.120 (3.00)	0.200 (5.00)	0.320 (8.00)	0.500 (12.00)	0.600 (15.00)
Extended range	Inch (mm)	0.030 (0.75)	NR	NR	0.160 (4.00)	0.320 (8.00)	0.500 (12.50)	0.800 (20.00)	1.000 (25.00)
Typical specifications for standard range, 4130 target, standard cable length:									
Nonlinearity 6 pt calibration	± %FS	<0.3%	<1.5%	NR	<0.3%	<0.3%			
Nonlinearity 21 pt calibration	± %FS	<0.2%	<0.2%	NR	<0.2%	<0.1%			
Static Resolution	RMS %FS	<0.001%	<0.001%	NR	<0.001%	<0.001%			
Resolution @ 100Hz	RMS %FS	<0.01%	<0.01%	NR	<0.01%	<0.01%			
Resolution @1000Hz	RMS %FS	<0.02%	<0.02%	NR	<0.02%	<0.02%			
Thermal sensitivity (No Compensation)	%FS/°F (%FS/°C)	0.05 (0.1)	0.8 (1.6)	NR	0.8 (1.6)	0.1 (0.2)			
Thermal sensitivity w/temp comp calibration	%FS/°F (%FS/°C)	0.02 (0.04)	0.02 (0.04)	NR	0.02 (0.04)	0.01 (0.02)			

NR = Not Recommended for 4130 targets

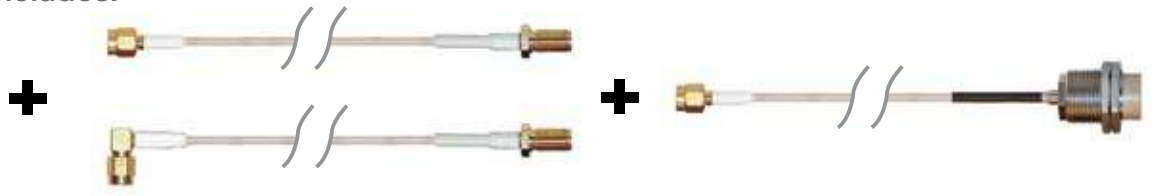
Ordering Information

The components required to complete a sensor system are sold separately. A complete system includes:



Electronics

Without calibration
855949-000
With calibration
855949-001



Extension cable (optional)

Straight x Straight 852395-XXXXX
Straight x Rt Angle 855948-XXXXX
1 meter -F03R3
2 meter -F06R6
3 meter -F09R8
4 meter -F13R1
5 meter -F16R4
6 meter -F19R6
7 meter -F23R0
8 meter -F26R2

Sensor

2U 850904-006MT
4U 854575-1F079
9U 854574-1F079
12U 854573-1F079
16U 854572-1F079
26U 854571-1F079
38U 854570-1F079
51U 854653-1F079

Optional Factory Calibration

The digiVIT is designed so the user can perform both linearity and temperature compensated calibrations. If desired, the digiVIT can be ordered with factory calibration (part number 855578-001). If ordering factory calibration the following information must be provided at the time of order.

Factory temperature compensation is performed at two displacements, 10% of the specified range and 90% of the specified range, and two temperatures, ambient and 10°C above ambient. If a temperature compensated calibration is desired under other conditions, contact Kaman to discuss the details.

Linearity calibration type: 2 point, 6 point or 21 point
Temperature compensated calibration: yes/no
Sensor model: from the available models above
Cable extension: from available models above
Target: aluminum, 4130 steel or customer supplied
Offset: in inch or mm units
Range: in inch or mm units

