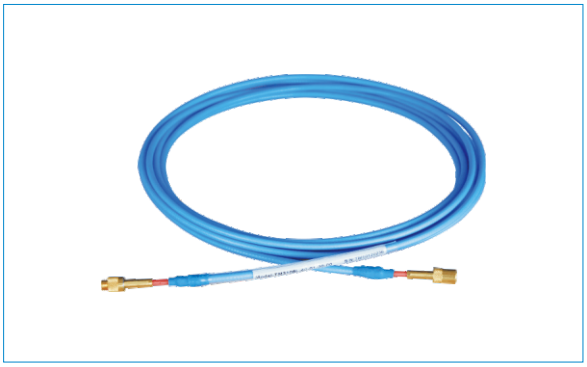
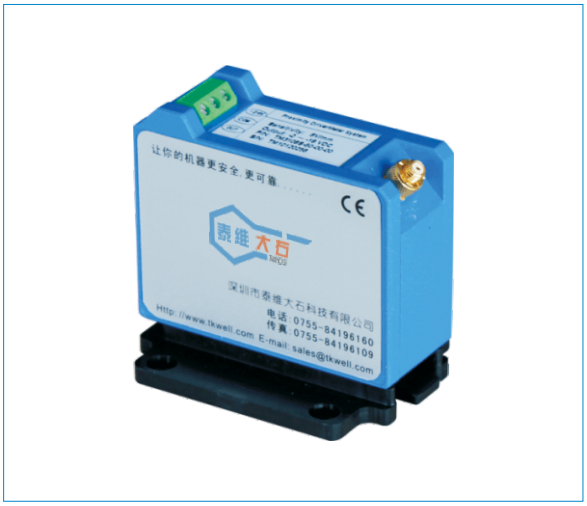
HUNAN TAIWEIDASHI TECHNOLOGY Co., LTD. A-207, R&D Plant A, Phase 2.1, Xinma Power Innovation Park, Tianyuan District, Zhuzhou City, Hunan Province
TIANJIN TTEKWIZE TECHNOLOGY Co., LTD. Room 601, Building F1, Saida Emerging Industrial Park, Xiqing Economic and Technological Development Zone, Tianjin http://tekwize.com







TWDS's TM31R Proximity Transducer is composed of probe (shell), proximitor, locknut and coaxial signal cable. During the manufacturing process, the probe end adopts high-temperature resistant PPS engineering plastic (or ceramic material) to seal the coil through "secondary injection molding", so that the probe can work reliably in harsh environment. As the diameter of the end coil determines the linear range of the sensor, we usually use the diameter of the end coil to classify and characterize various types of probes. Generally, the linear range of the sensor is approximately 1/2~1/4 of the diameter of the probe end.

The sensor outputs a voltage signal proportional to the distance between the probe end and the measured conductor surface, which can perform both static (displacement) and dynamic (vibration) measurement, mainly used to measure the relative vibration, displacement, key-phase and rotating speed of the sliding bearing machinery; And the throw of the turbine unit, suitable for industrial sites at higher temperatures. All eddy current sensors of the negative voltage output type comply with the American Petroleum Institute (API) Standard 670 for these sensors.

Proximity Probe and Extension Cable

The advanced mould technology ensures the secure connection between the probe end and the main body. The specially designed probe cable encapsulation allows the cable to be securely attached to the probe end and can withstand 330 N (75 lb) of tension. The extension cable itself has certain corrosion resistance, oil resistance and waterproof functions, which can prevent oil or other liquids from leaking to the outside of the machine along the inside of the cable.

Proximitor

The proximitor can be installed with compact guide rail or traditional screw panel. Both types of mounting base plates have electrical insulation and no separate insulation plate is needed. The front-end processor has strong radio interference resistance, meeting European electromagnetic compatibility standards.

Connectors

Probe, extension cable and proximitor are provided with corrosion resistant gold-plated copper connectors. The joint needs only to be fastened with fingers, and the specially designed mechanical locking device can prevent the connection from loosening; No special tools are required for installation or removal of connectors. Probe and extension cable can be equipped with joint protector when ordering; It is recommended that optional joint protectors be installed in wet environments to provide the necessary environmental protection.

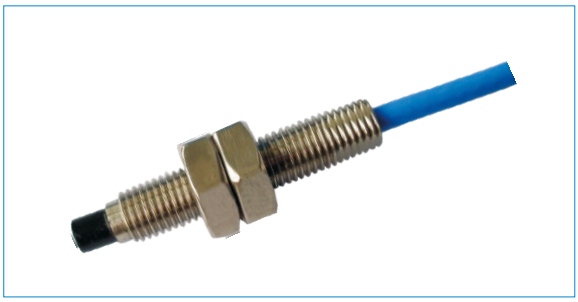
Based on different industrial field monitoring requirements, Proximity Transducer be connected with secondary instrument (monitor) or signal conditioner (transmitter) and test instrument input to form a complete equipment status monitoring system.

CE CNEX

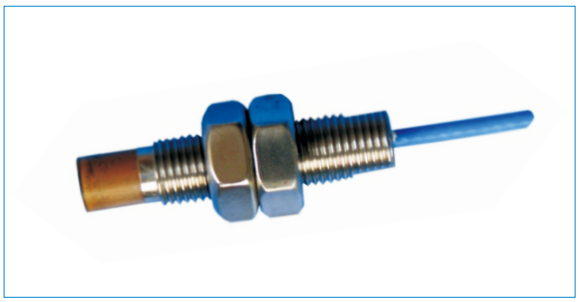
TM31R05, TM31R08, TM31R11 Specifications

All of the following parameters are determined at a load of 10KΩ at 25℃±5℃.
Note: Operation outside the specification will result in data error or loss of monitoring function.

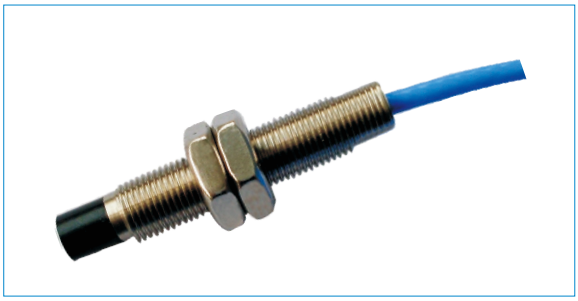
TM31R05 Electrical characteristics (negative voltage output type)



TM31R11 Electrical characteristics (negative voltage output type)



TM31R08 Electrical characteristics (negative voltage output type)



Supply Electricity:	-24VDC
Target Matl:	45 # steel or 42CrMO steel (AISI 4140)
Interchangeability Deviation :	the sensitivity generated by exchanging calibrated probes, extension cables and proximitors of the same model within 5m or 9m system.
Ripple:	≤ 20mV
Drift:	≤ 0.05%/℃
Output Resistance :	50 Ω
Field wiring	300m allowable
Electromagnetic Compatibility:	CE compliant
Isolation:	Installation of insulation to ground

Environmental limitations

Operating and storage temperature:	probe - 40 ℃ ~+150℃ Extension cable - 40 ℃ ~+150 ℃ Proximitor - 40 ℃ ~+85 ℃
Relative humidity:	no water immersion, 100% condensation when joint protection is provided

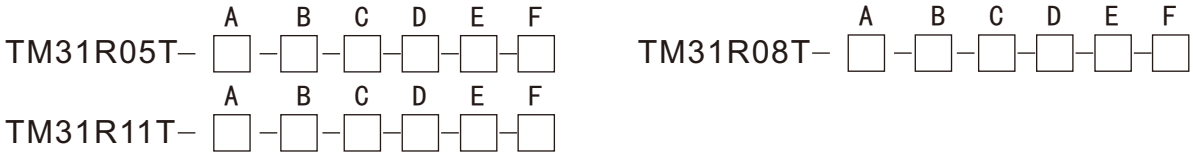
Mechanical

Probe end material:	PPS
Probe housing material:	304 stainless steel
Probe cable and extension cable:	75 Ω 3D axial insulation
Cable armour material:	304 stainless steel
Proximitor housing material:	Aluminum Die Cast
Coaxial joint material:	Gold-plated brass or beryllium copper
weight:	Probes：Varies based on probe length and size Extension cable: 31g/m Proximitor: 220g
Safety approval:	intrinsically safe Exia Ⅱ C T4, intrinsically safe barrier installed when used in hazardous areas.

	Sensitivity	Linear Range	Linear measuring range	Frequency Response
TM31R05	8.00 V/mm	0.5mm～1.5mm	1000um	0～10KHz (-3dB)
TM31R08	8.00 V/mm	0.70mm～2.70mm	2000um	0～10KHz (-3dB)
TM31R11	4V/mm	1.2mm～5.2mm	4000um	0～8KHz (-3dB)

	Nonlinear error	Minimum plane diameter (axial displacement)	Minimum shaft diameter (radial vibration)	Error of interchangeability
TM31R05	＜0.75%	Φ15mm	Φ31mm	Error±2%
TM31R08	＜0.5%	Φ20mm	Φ60mm	Error±2%
TM31R11	＜0.5%	Φ30mm	Φ150mm	Error±2%

TM31R05, TM31R08, TM31R11 Ordering Information for Probes



Ordering Information

A: TM31R05T Installation form Option

01	British system Front mount 1/4"-28
02	Metric Front mount M8×1
03	British system Reverse mount 3/8"-24
04	Metric Reverse mount M10×1
05	British system Front mount 3/8"-24
06	Metric Front mount M10×1

A: TM31R08T Installation form Option

01	British system Front mount 3/8"-24
02	Metric Front mount M10×1
03	British system Reverse mount 3/8"-24
04	Metric Reverse mount M10×1
05	Outgoing shell diameter: 9.6 mm

A: TM31R11T Installation form Option

01	British system Front mount 1/2"-20 UNF
02	Metric Front mount M16×1.5
03	British system Reverse mount 3/8"-24 UNF
04	Metric Reverse mount M10×1
05	British system Front mount 5/8"-18 UNF
06	Metric Front mount M16×1.5
07	Metric Front mount M16×1

B: Unthreaded Length Option

Metric Front mount probe In increments of 2mm or 5mm	
002	Minimum 2mm
250	Maximum 250mm
British system Front mount probe In increments of 0.1 inch	
010	Minimum 0.1 in
960	Maximum 9.6 in
Metric Reverse mount probe	
008	Fixed standard specification 8mm
British system Reverse mount probe	
020	Fixed standard specification 0.2in

C: Shell length Option

Metric Front mount probe In 2mm or 5mm increments	
020	Minimum 20mm TM3111T minimum 25mm
250	Maximum 250mm
British system Front mount probe In increments of 0.1 inch	
080	Minimum 0.8in TM3111T minimum 1.00in
960	Maximum 9.6 in
Metric Reverse mount probe	
030	Fixed standard specification 30mm
British system Reverse mount probe	
020	Fixed standard specification 1.2in

D: Total probe length Option Increase In 0.5m

05	0.5m
10	1.0m
50	5.0m
90	9.0m

E: JOINTS AND CABLES Option

00	No connector / standard cable
01	Coaxial lock connector with connector protector / standard cable
02	Coaxial self-locking connector standard cable
03	Other joints and cables

F: Armor Option

00	No armour
01	Stainless steel flexible armor

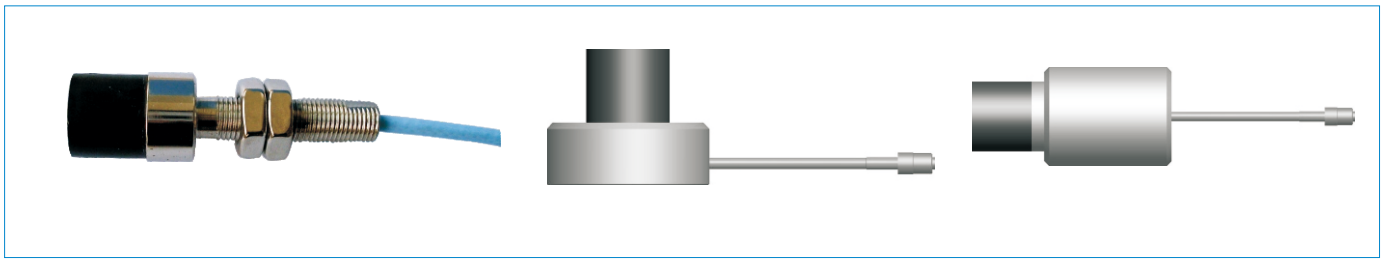
G: Agency Approval Option

00	Not have
CN	Intrinsic Safety Specification

TM31R25 Specification&Ordering Information for Probes

All of the following parameters are determined at a load of 10KΩ at 25℃±5℃.
Note: Operation outside the specification will result in data error or loss of monitoring function.

TM31R25 Electrical characteristics (negative voltage output type)



Supply Electricity:	-24VDC
Frequency response:	0~2KHz(-3dB)
Sensitivity:	0.8V/mm, -2-18V output
Target Matl:	45 # steel or 42CrMO steel (AISI 4140)
Linear range:	1.5mm~14mm
Linear range:	12.5mm
Nonlinear error:	<1%
Minimum plane diameter	ϕ 60mm
Interchangeability error:	the sensitivity generated by exchanging calibrated probes, extension cables and proximitors of the same model within 5m or 9m system. The sensitivity error is ± 2%.
Ripple:	≤ 20mV
Temperature drift:	≤ 0.05%/℃
Output Resistance :	50 Ω
Field wiring:	300m allowable
Electromagnetic Compatibility:	CE compliant
Isolation:	Installation of insulation to ground

Environmental limitations

Operating and storage temperature:	probe - 40 ℃ ~+150℃ Extension cable - 40 ℃ ~+150 ℃ Proximitor - 40 ℃ ~ +85 ℃
Relative humidity:	no water immersion, 100% condensation when joint protection is provided

Mechanical

Probe end material:	PPS
Probe housing material:	304 stainless steel
Probe cable and extension cable:	75 Ω 3D axial insulation
Cable armour material:	304 stainless steel
Proximitor housing material:	Aluminum Die Cast
Coaxial joint material:	Gold-plated brass or beryllium copper
weight:	Probes：Varies based on probe length and size Extension cable: 31g/m Proximitor: 220g
Safety approval:	intrinsically safe Exia Ⅱ C T4, intrinsically safe barrier installed when used in hazardous areas.

Ordering Information for Probes

TM31R25T– A – B – C – D – E – F

A：TM31R25T Installation form Option

01	$1\frac{1}{4}$ "-12
02	M30x2
03	$1\frac{1}{2}$ "-12
04	M39x1.5
05	Unthreaded side outlet
06	Unthreaded 1.06in dia clamp outlet
07	Unthreaded 1.5in dia clamp outlet
08	Reverse mount M16x1.5

B：Unthreaded Lengt Optionh

Metric Front mount probe In increments of 2mm or 5mm	
005	Minimum 5mm
250	Maximum 250mm
British system Front mount probe In increments of 0.1 inch	
020	Minimum 0.2 in
880	Maximum 8.8 in
For unthreaded shells Unthreaded length equal to shell length	

C：Shell length Option

Metric Front mount probe In increments of 2mm or 5mm	
045	Minimum 45mm
250	Maximum 250mm
British system Front mount probe In increments of 0.1 inch	
160	Minimum 1.6 in
960	Maximum 9.6 in
For screwless shell side outgoing Shell length<45mm	

D: Total probe length Option Increase In 0.5m

05	0.5m
10	1.0m
50	5.0m
90	9.0m

E: JOINTS AND CABLES Option

00	No connector / standard cable
01	Coaxial lock connector with connector protector / standard cable
02	Coaxial self-locking connector standard cable
03	Other joints and cables

F: Armor Option

00	No armour
01	Stainless steel flexible armor

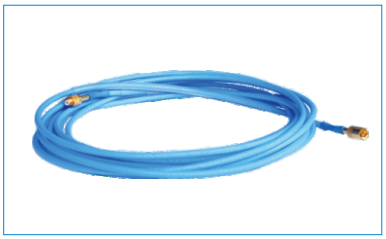
G: Agency Approval Option

00	Not have
CN	Intrinsic Safety Specification

Extension Cable&Proximitor Ordering Information

Extension Cable

TM31R05L– A B C D
TM31R08L– A B C D
TM31R11L– A B C D
TM31R25L– A B C D



A Total probe length

40	4.0m
45	4.5m
80	8.0m
85	8.0m

B: Connector and Cable

00	Without connectors standard cables
01	Micro coaxial connector With connector protector standard cable
02	Miniature coaxial ClickLoc connector, standard cable
03	Other connectors and cables

Refer to page 11 (Figure 7, Figure 8)

C: Armor

00	Unarmored
01	Stainless steel flexible armor

Ordering Information for Extension Cables

TM31R05S– A B C
TM31R08S– A B C
TM31R11S– A B C
TM31R25S– A B C



A: Total cable length (probe + cable) and installation Option

50	Panel Mount 5m
51	Rail installation 5 meters
90	Panel Mount 9m
91	Rail installation 9 meters

B: Agency Approval Option

00	Not have
CN	Intrinsic Safety Specification

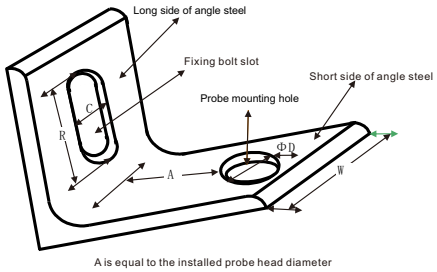
C: output mode Option

00	-2~-18V output，-24V power supply
01	-4~-20V output，-24V power supply
02	4~20mA output，18~30V power supply
03	1~5V output，18~30V power supply
04	0~10V output，±15~±18V power supply
05	0~5V output，±15~±18V power supply
06	±5V output，±10V power supply

Accessories Ordering Information

The accessories can be installed with the sensor more conveniently for different industrial sites; when selecting the accessories, the order number and quantity of the accessories need to be listed separately.

TM7401A Probe Mounting Bracket, made of angle steel, is used to install the probe inside the machine. The probe is fixed on the bracket by two probe nuts; the bracket must match the size of the probe.



A is equal to the installed probe head diameter

TM7401B shaft displacement monitoring carriage mounting bracket is used for probe installation inside the machine. The probe is fixed on the bracket by thread and probe lock nut. This bracket structure is convenient for adjusting the gap of probe installation; the thread of the bracket must match the size of the probe.



TM7701 Probe Socket Mounting Bracket

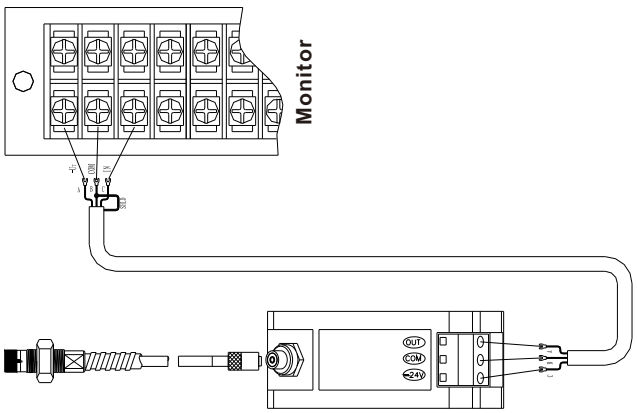


Electrical connections

Precautions

The probe cable and extension cable are calibrated special coaxial cables, which constitute the overall 5-meter or 9-meter sensor system, and the length cannot be increased or decreased, otherwise the sensor will not work normally. It is recommended to use 18-22AWG twisted braided shielded cable for the connection cable from the front-end device to the monitor. The connection of the shielding layer is shown in the wiring diagram. The end of the front-end device is not connected, and the signal ground is connected to the monitor end.Avoid parallel wiring of signal cables, power supply, control cables and connection cables with large interference. The input/output terminals of the front end are marked, and the terminals with corresponding marks should be connected with the cables.

Sensor Wiring Schematic



Installation and verification

Note: The installation, use and calibration of the sensor must strictly abide by the relevant content of the product manual.

Sensor installation and use

The installation of the probe needs to fully consider the installation environment and installation requirements. The probe should be installed at the linear position of the sensor that meets the measurement requirements. Sensor output characteristic diagram (Figure 1) and product manual. The front-end device needs to be insulated from the ground and installed in a safe environment.

Except for the commissioning of the sensor permitted by the content of the product manual, it is strictly forbidden to disassemble and connect the sensor under power; the wiring terminal must be Press firmly and cannot be loosened; after the wiring is completed, check that the cables and terminals are in good contact and there is no short circuit before powering on. Confirm that the working power of the pre-processor should be 24VDC (for negative voltage output type).

The front-end device should not be damaged and kept clean; the extension cable connector and coaxial cable should be protected according to the site environment (such as preventing oil pollution and water infiltration, heat shrinkable sleeve can be used for sealing);degreasing agent can be used to clean the coaxial joint.

check

Before the sensor is installed and used or after a service cycle, the displacement calibration device (TZ1, TZ2) and the vibration calibration table (TZ 5) can be used to check the sensor The linearity of the sensor is checked statically and dynamically.

The company also provides product calibration and calibration services.

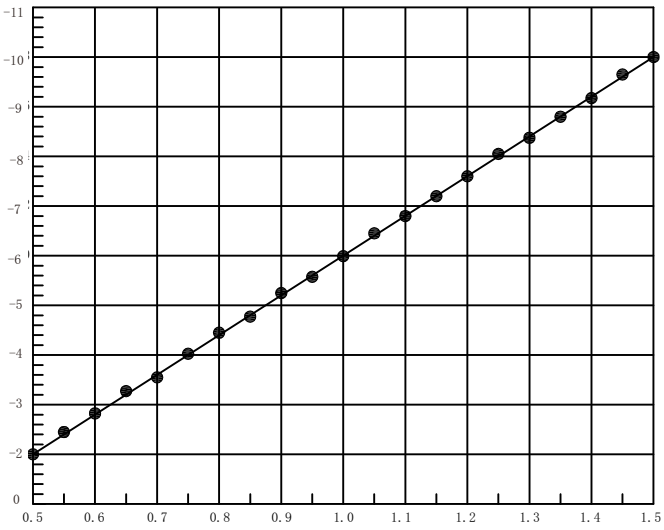


Figure 1 TM31R05 sensor output characteristic diagram

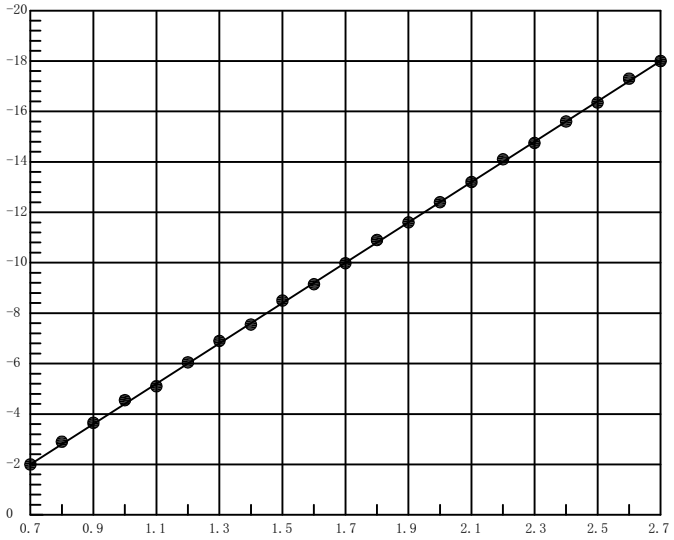


Figure 1 TM31R08 sensor output characteristic diagram

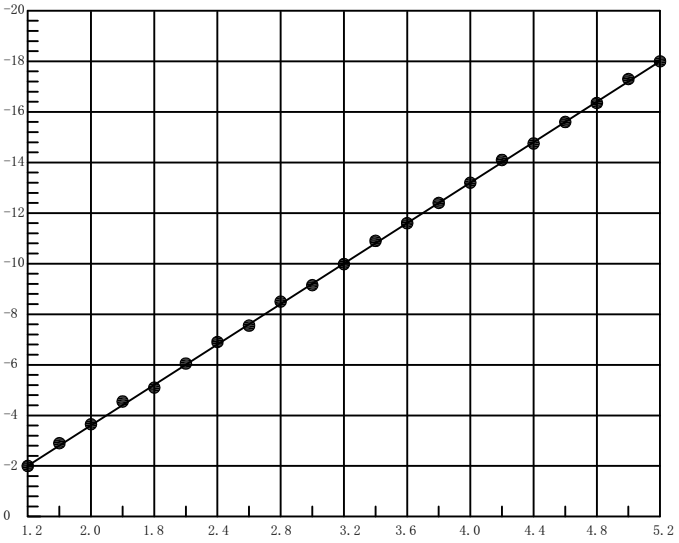


Figure 1 TM31R11 sensor output characteristic diagram

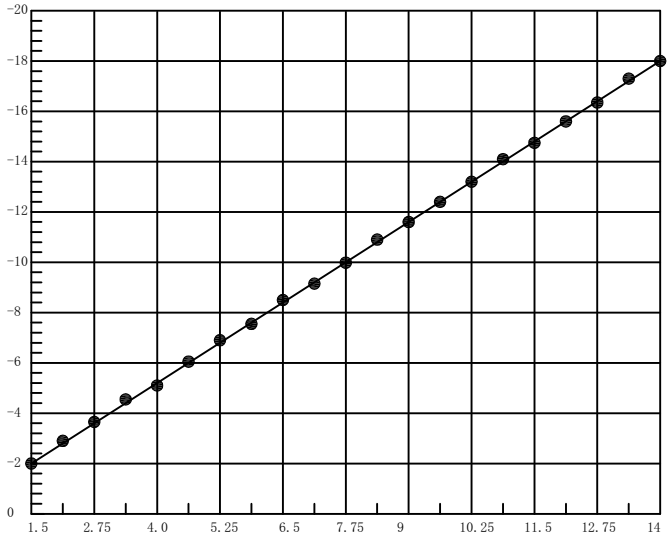


Figure 1 TM31R25 sensor output characteristic diagram

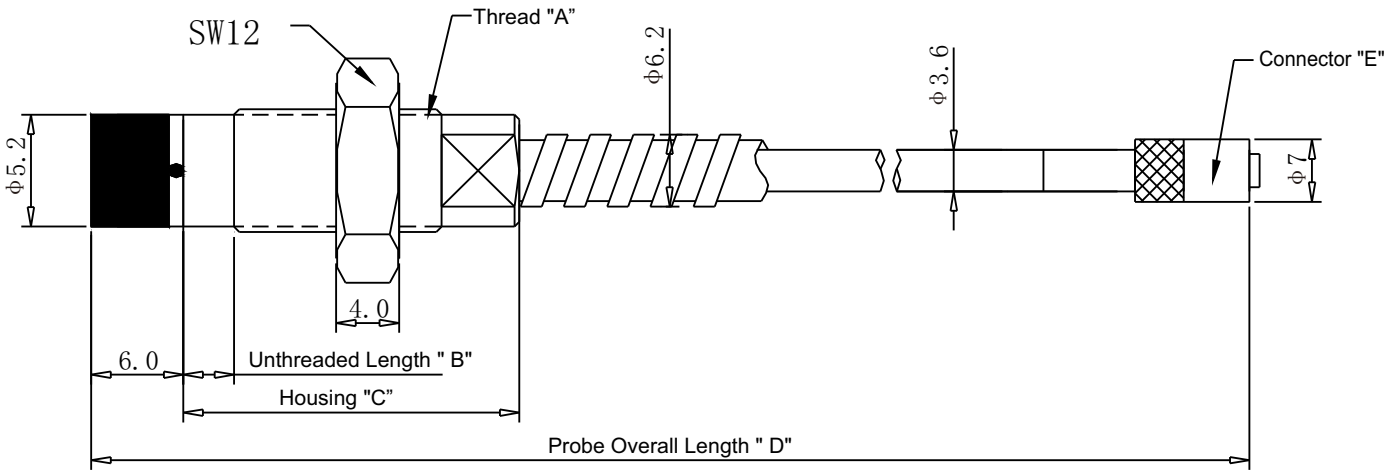


Figure 2 TM31R05T formal probe

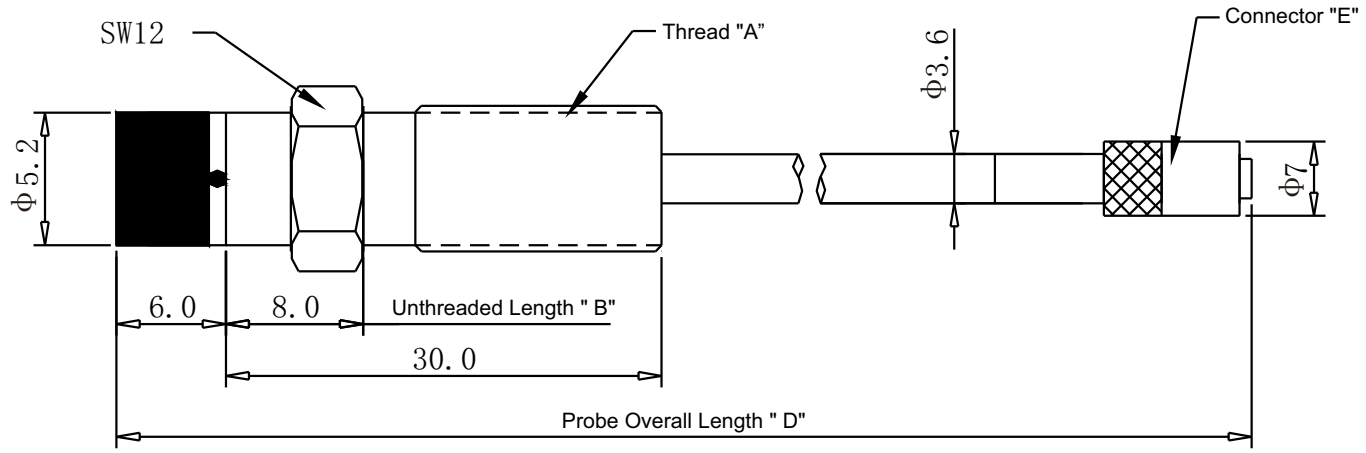


Figure 2 TM31R05T reverse mount probe, no armo

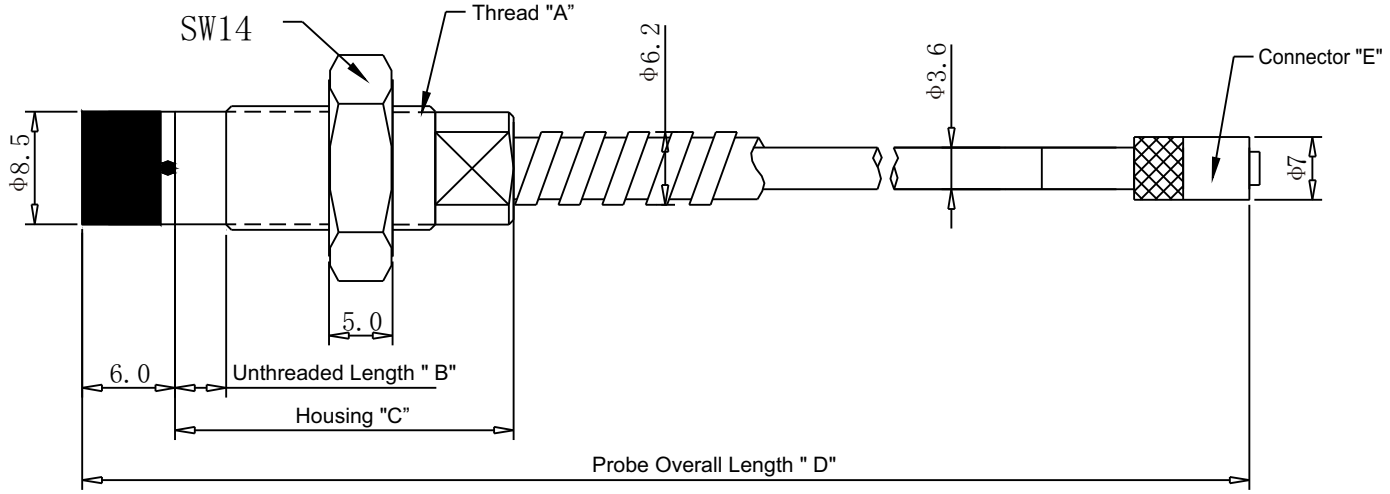


Figure 3 TM31R08T Probe Probe

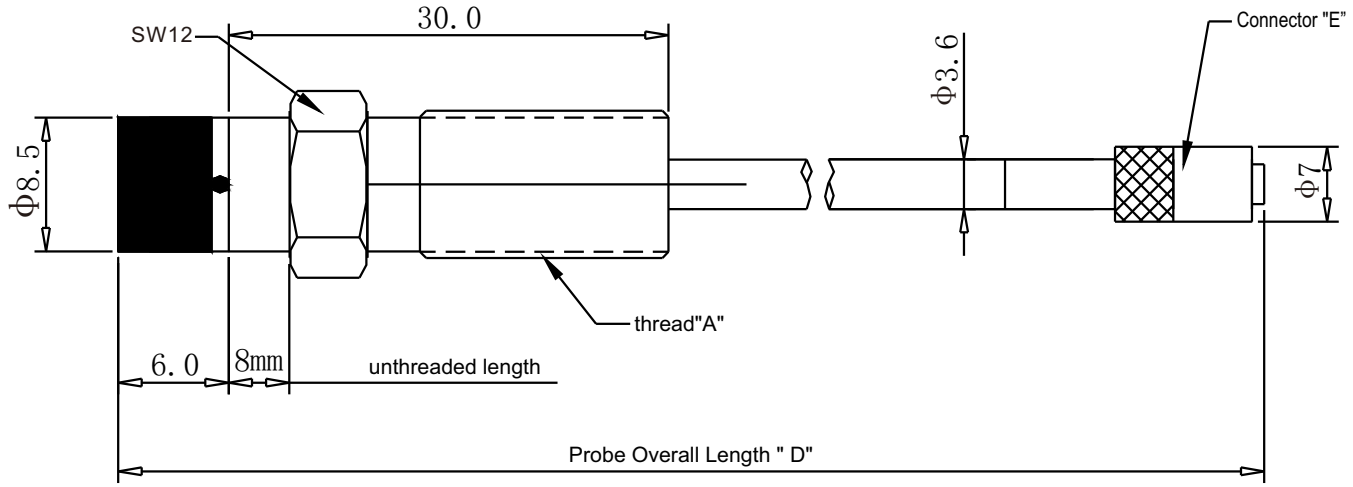


Figure 3 TM31R08T reverse mount probe, no armor

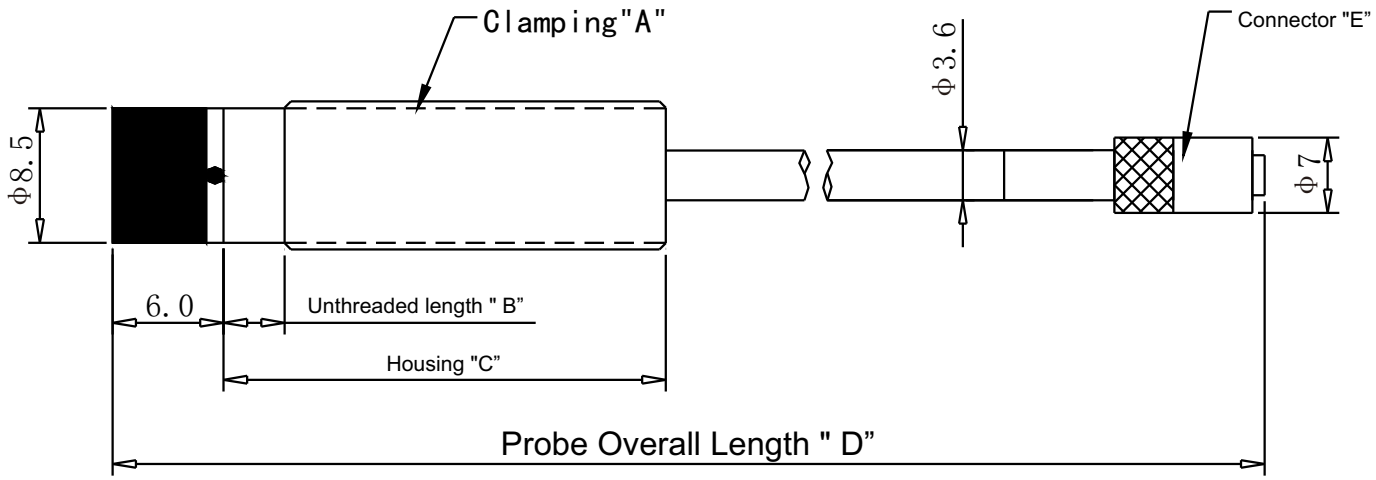


Figure 3 TM31R08T clip-on probe

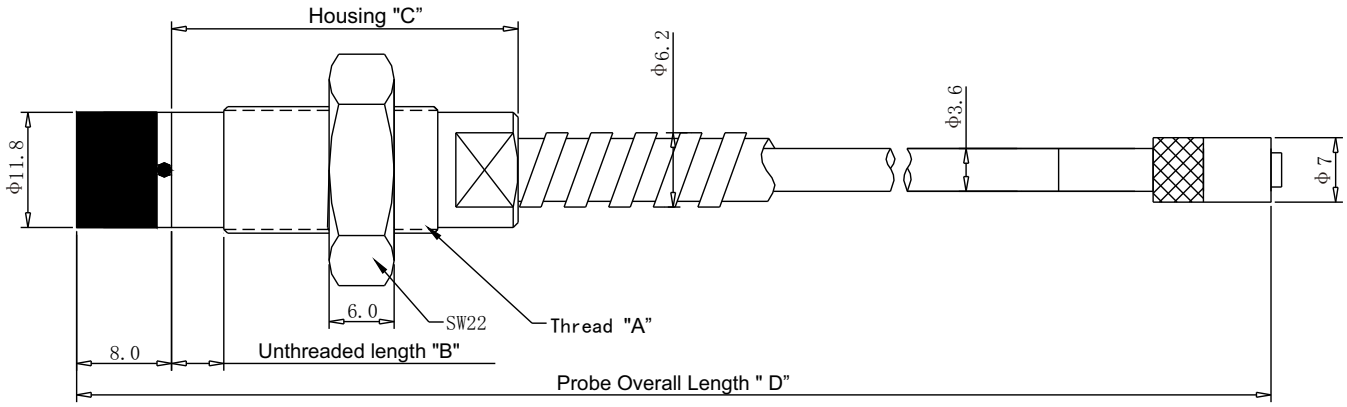


Figure 4 TM31R11T Probe Probe

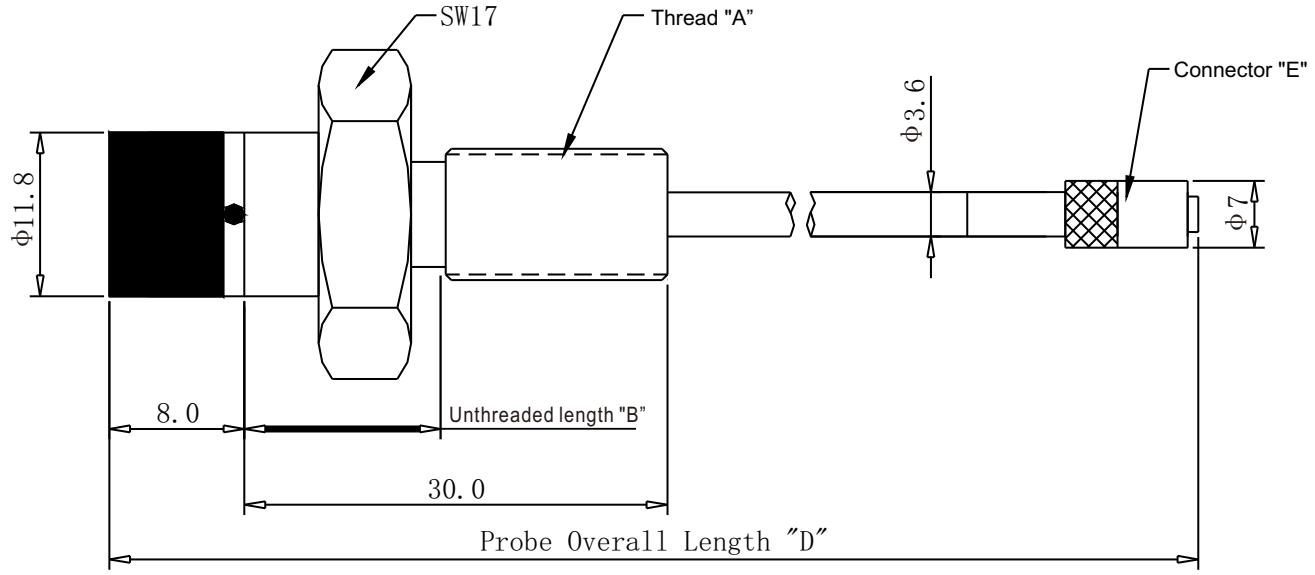


Figure 4 TM31R11T reverse mount probe, no armor

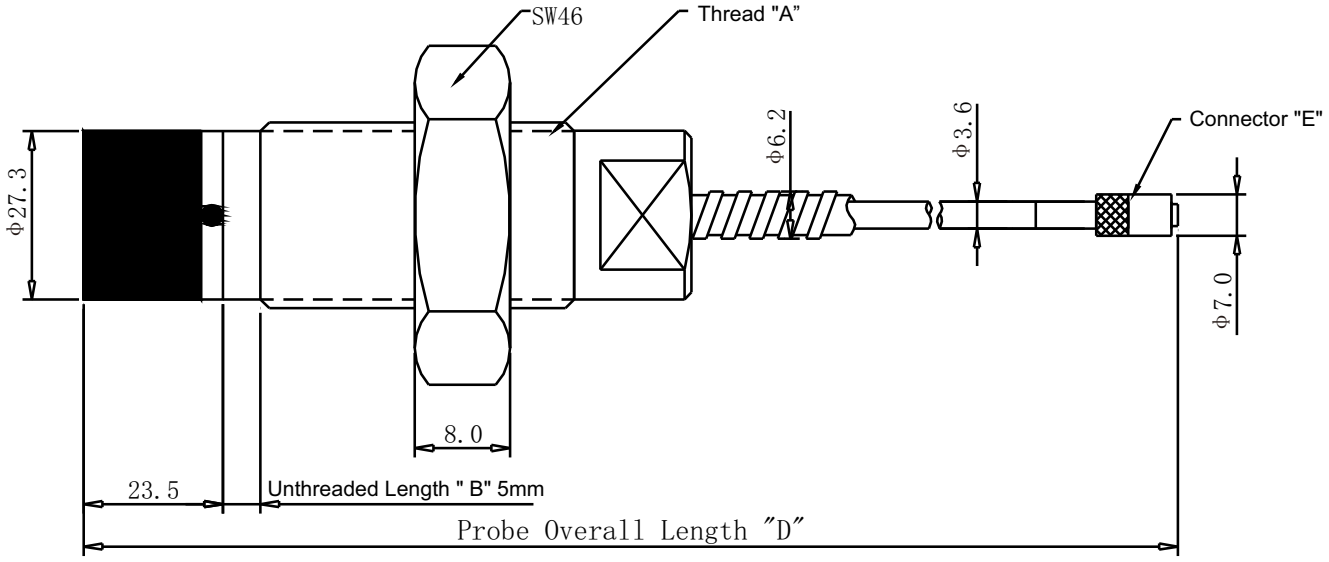


Figure 5 TM31R25T Probe Probe

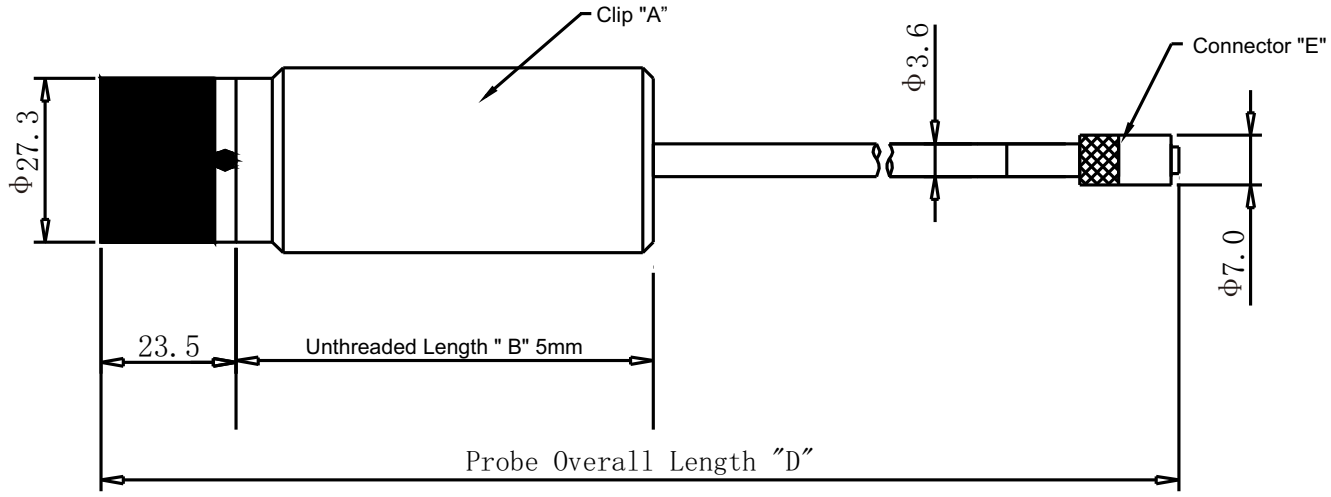


Figure 5 TM31R25T clamp-on probe without thread

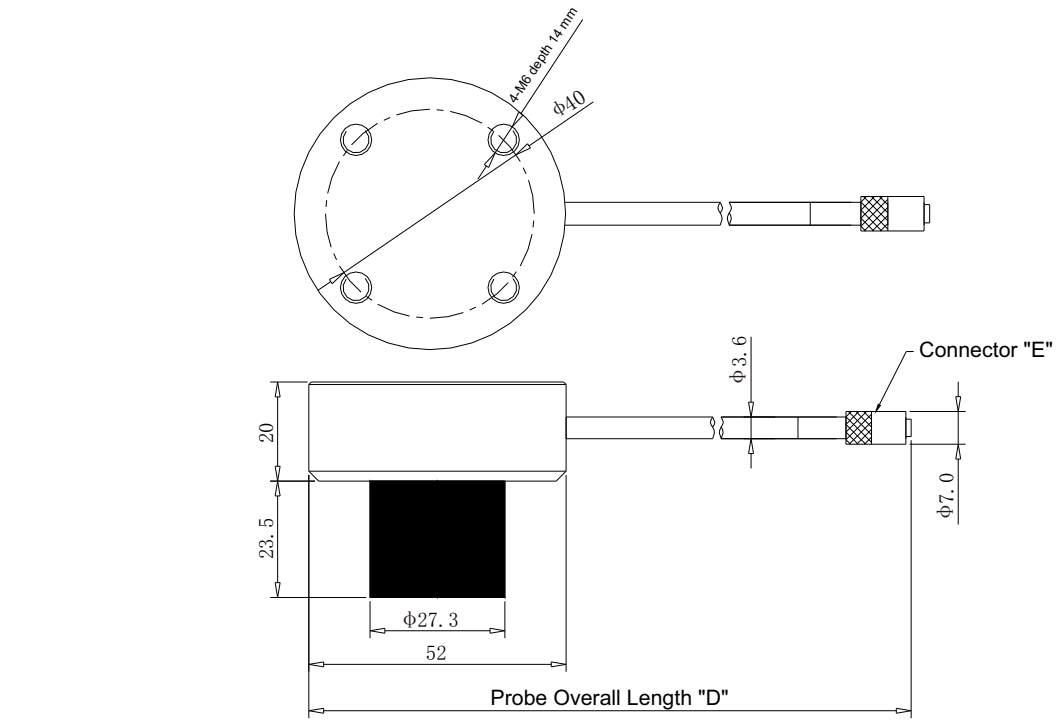


Figure 5 TM31R25T threadless side outlet probe

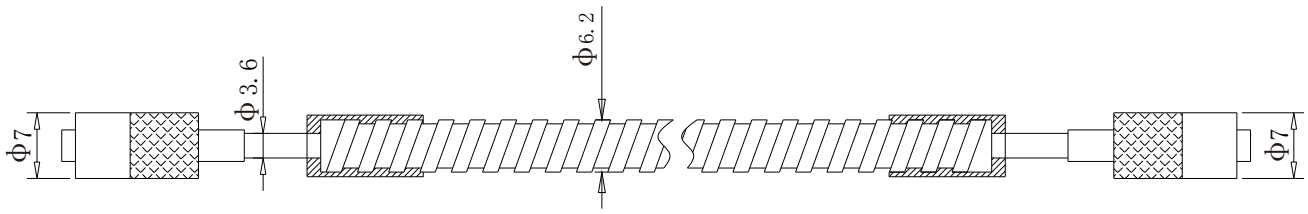


Figure 8 Extension cable with connector protecto

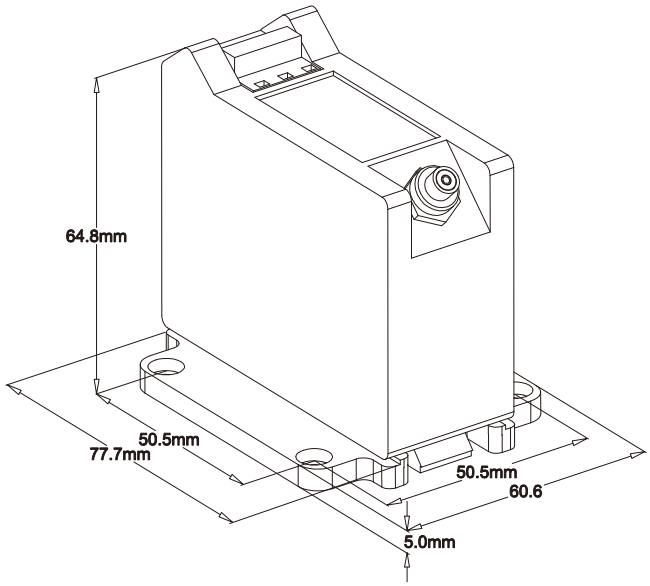


Figure 9 Structure Dimensions of Screw Panel Mounting of Front Controller

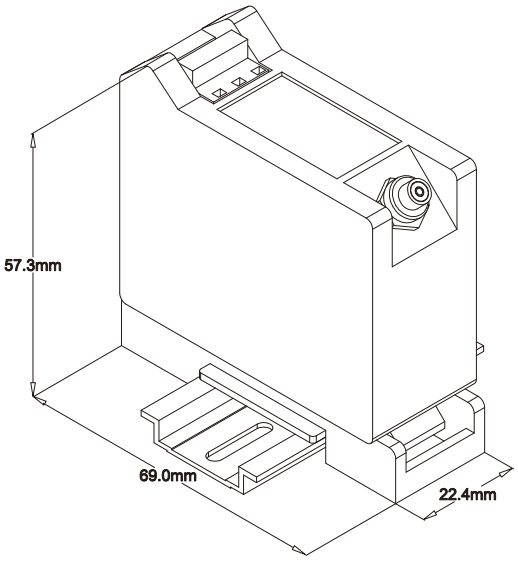


Figure 9 The structural dimensions of the guide rail installation of the front controller