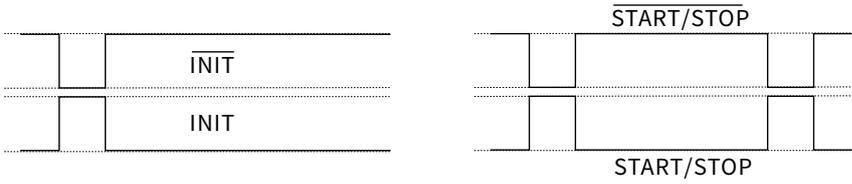




T3F - Start/Stop

T-Series III Data Sheet



- + Updated new generation: stronger performance
- + Stroke length up to 20 m
- + The highest temperature endurance of electronics housing up to 120°C , adaptable in coking industry



THE NEW III GENERATION



Double anti-interference



High performance chip



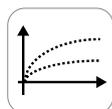
Wide operating voltage



Reverse polarity protection



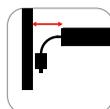
Shock/vibration resistant



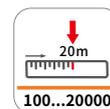
Linear/Curve measurement



Compact for transport and storage

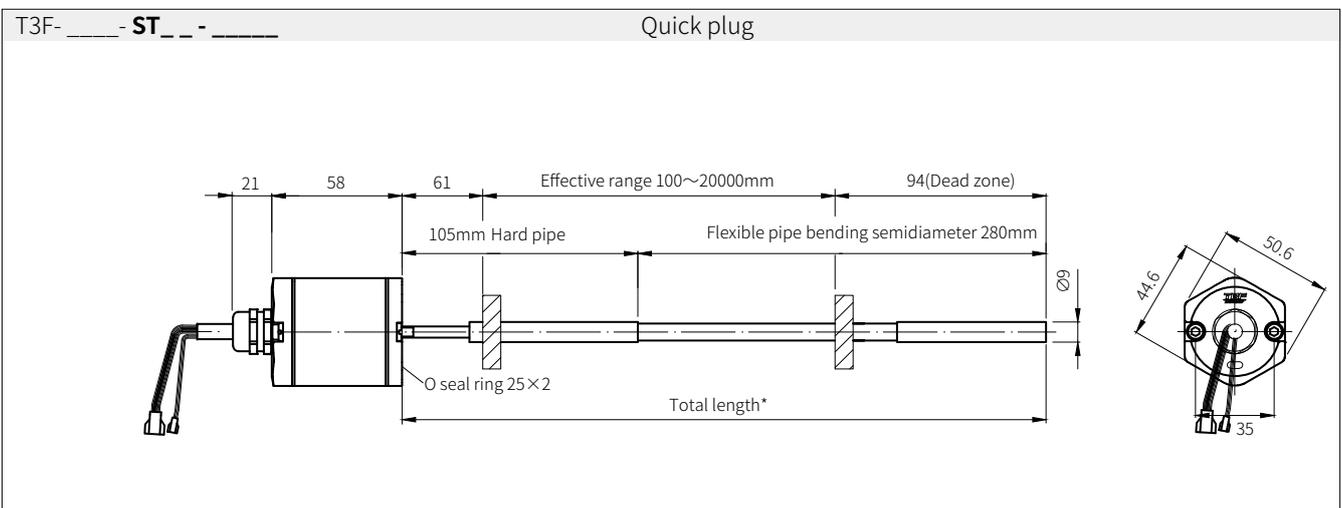
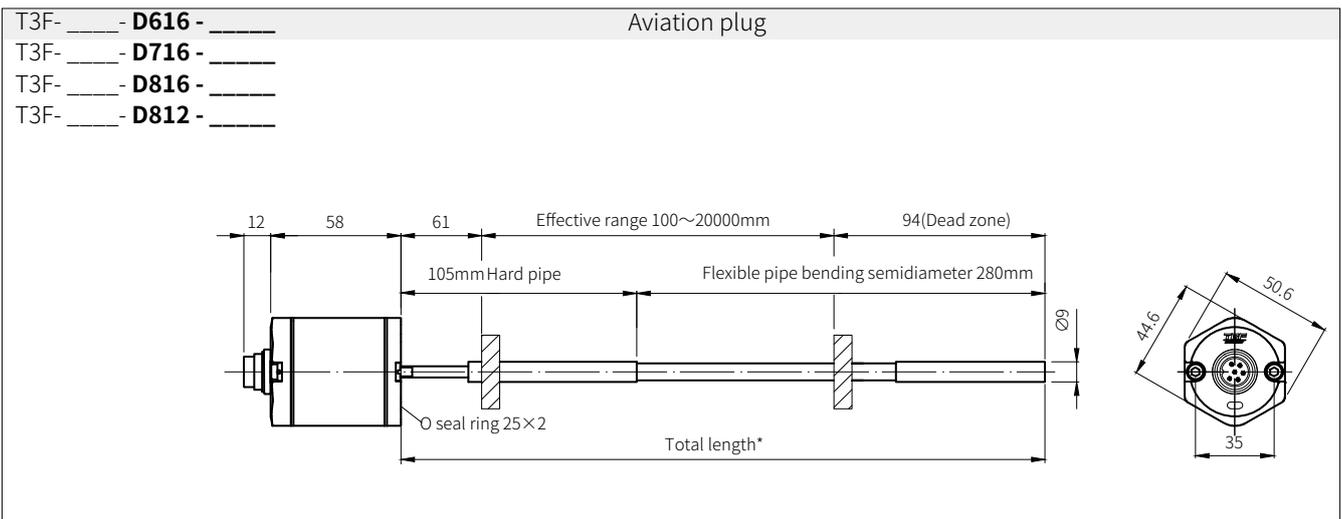
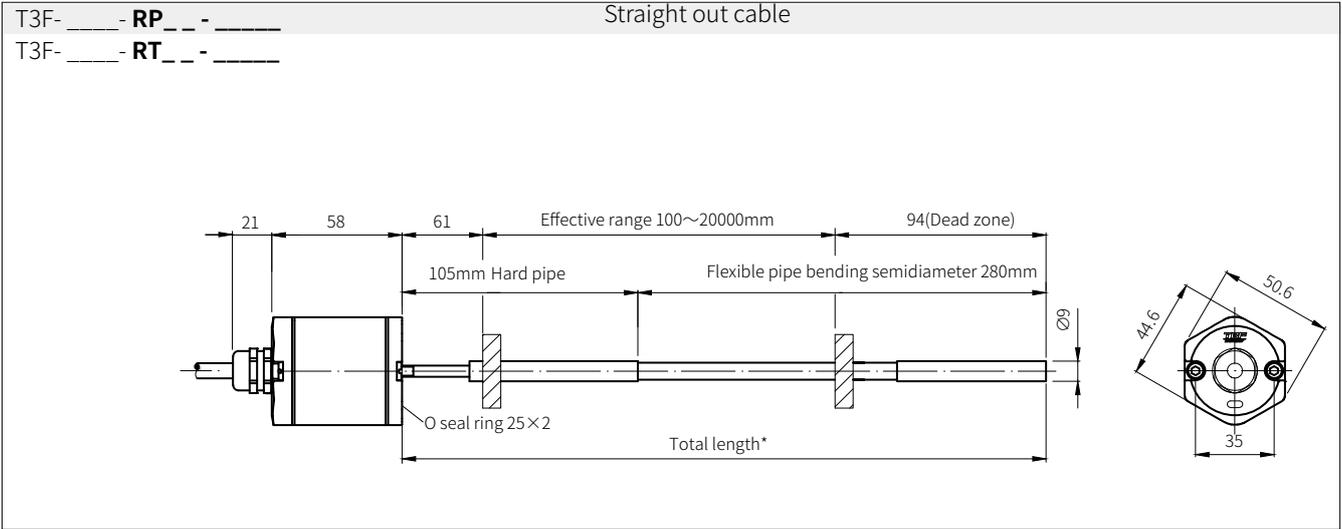


Confined space installation



100...20000
Wider stroke length range

| | | |
|------------------------------|--------------------------------|--|
| Input | Measured data | Position |
| | Measurement range | 100mm...20000mm |
| Output | Digital | Start/Stop pulse, DPI/IP mode supportive |
| Resolution | Resolution | Depends on controller |
| | None-Linearity | $< \pm 0.02\% \text{F.S. (min. } \pm 100\mu\text{m)}$ |
| | Repeatability | $< \pm 0.001\% \text{F.S.}$ |
| | Update time | Depends on controller |
| | Temperature coefficient | $< 30\text{ppm}/^\circ\text{C}$ |
| Mounting | Mounting position | Any |
| | Pressure resistance outer tube | Thread metric M18×1.5, 3/4"-16UNF-3A etc. |
| Design/ Material | Electronics housing | Aluminum alloy/Zinc alloy |
| | Magnet | Stainless soft pipe (Teflon skin), min. bending semidiameter 280mm, shipping semidiameter 500mm |
| Electrical connection | Wiring connection | Straight out cable or aviation plug |
| | Operating voltage | 9VDC...36VDC |
| | Polarity protection | Up to -36VDC |
| | Overvoltage protection | Up to +36VDC |
| | Power consumption | $< 80\text{mA}$ (varies with range size) |
| | Dielectric strength | 500 VDC (DC ground to machine ground) |
| Operating conditions | Loop velocity | Any |
| | Operating temperature | -40...120°C (DPI mode only)/-40...105°C (DPI/IP mode) |
| | Humidity | 90 % relative humidity, no condensation |
| | Ingress protection | IP67 installed into pressure pipe (top IP68) |
| | Shock | 100 g/11 ms, IEC standard 60068-2-27 |
| | Vibration | 5 g/10...2000 Hz, IEC standard 60068-2-6 (resonant frequencies exclusive) |
| | EMC | Flexible sensor installed into pressure pipe Electromagnetic emission according to EN 61000-6-3 Electromagnetic immunity according to EN 61000-6-2 |
| ITEM | CATEGORY | PARAMETER |



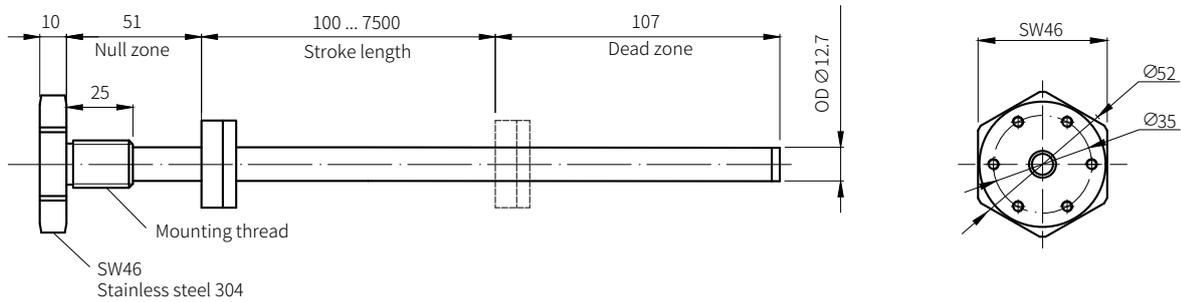
*Total length < 7600mm, error +8mm; > 7600mm, error +15mm /-5mm;
 Total length error has no impact on effective range.

DRAWING OF PRESSURE PIPE

TECHNOLOGY PERCEIVES THE FUTURE

Continuous pressure tolerance of the pressure pipe is 35MPa (70MPa peak).

T3F flexible sensor is installed into pressure pipe, straight out cable IP68, aviation plug IP67.



ORDER CODE

| | | |
|-------------|-----------------------------------|---|
| HD - | M - | |
| | | |
| | Stroke length | Thread |
| | 0100...7500mm (5mm increments) | M Metric M18x1.5 |
| | | V Metric M20x1.5 |
| | | S 3/4"-16UNF-3A |
| | | W Metric M24x1 |
| | | If not selected, thread M18x1.5 by default. |

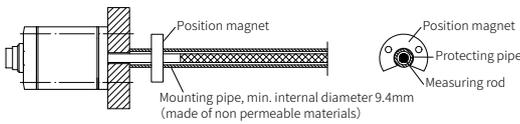
MOUNTING DRAWING

Electronics housing for T3F flexible sensor employs two M4x60 non permeable screws for installation.

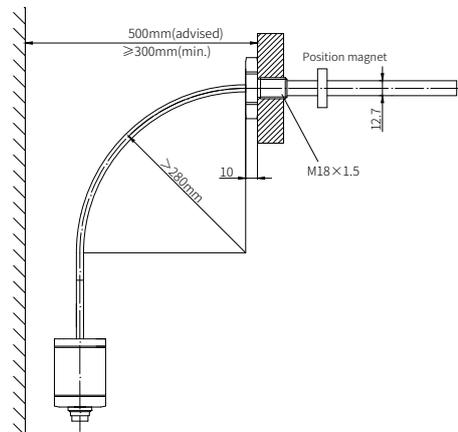
When arc measurement is adopted, the flexible pipe can be bended into required shape with min. bending semidiameter 280mm.

With long range sensor, pipes made of non permeable materials can be used as support. In addition, pressure pipe with flange can also be ordered to support and protect the sensor.

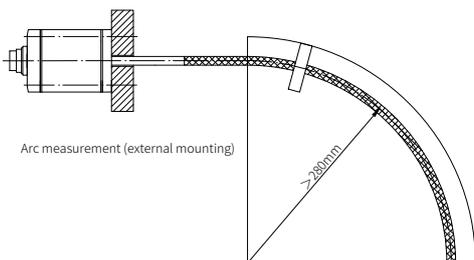
Linear measurement



Pressure pipe



Arc measurement



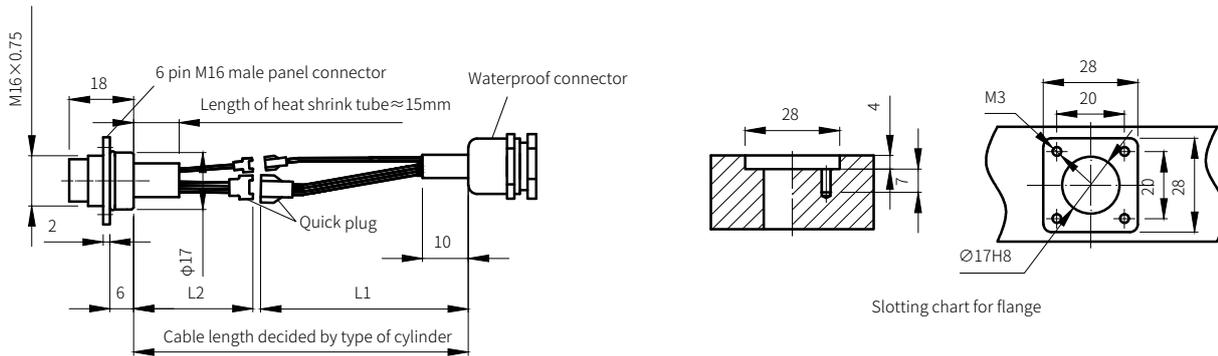


| 6 pin M16 connector | D616 | PIN | Function |
|---------------------|----------------|--------|--------------|
| | | 1 | Start/Stop- |
| | View on sensor | 2 | Start/Stop+ |
| | | 3 | Init+ |
| | | 4 | Init- |
| | | 5 | 9VDC...36VDC |
| | | 6 | 0 VDC(GND) |
| 7 pin M16 connector | D716 | PIN | Function |
| | | 1 | Init+ |
| | View on sensor | 2 | Start/Stop+ |
| | | 3 | Init- |
| | | 4 | NC |
| | | 5 | Start/Stop- |
| | | 6 | 0 VDC(GND) |
| | | 7 | 9VDC...36VDC |
| 8 pin M12 connector | D812 | PIN | Function |
| | | 1 | Init+ |
| | View on sensor | 2 | Start/Stop+ |
| | | 3 | Init- |
| | | 4 | NC |
| | | 5 | Start/Stop- |
| | | 6 | 0 VDC(GND) |
| | | 7 | 9VDC...36VDC |
| | | 8 | NC |
| 8 pin M16 connector | D816 | PIN | Function |
| | | 1 | Init+ |
| | View on sensor | 2 | Start/Stop+ |
| | | 3 | Init- |
| | | 4 | NC |
| | | 5 | Data- |
| | | 6 | 0 VDC(GND) |
| | | 7 | 9VDC...36VDC |
| | | 8 | NC |
| Straight out cable | | Color | Function |
| | | Gray | Start/Stop- |
| | | Pink | Start/Stop+ |
| | | Yellow | Init+ |
| | | Green | Init- |
| | | Brown | 9VDC...36VDC |
| | | White | 0 VDC(GND) |

ORDER CODE

TECHNOLOGY PERCEIVES THE FUTURE

Quick plug connecting definition



ST[1][2] Electronics housing outlet high temperature wire (L1)_ _mm, 6 pin M16 male panel connector outlet wire (L2)_ _mm.

| [1] L1 length | [2] L2 length |
|----------------|---------------|
| 1 50mm | 2 120mm |
| 3 170mm | 4 200mm |
| 5 230mm | 6 350mm |
| 0 Customizable | |

T3F - - - M- - - -

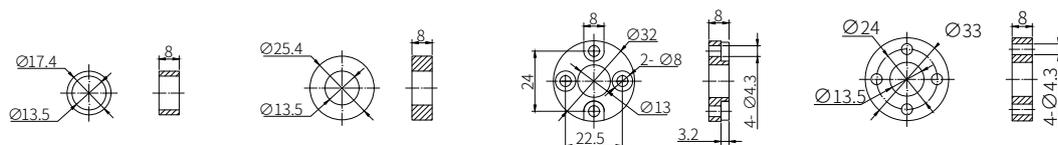
| Pipe mounting | Stroke length | Connection type | Output |
|-------------------------------------|--|---|---------------|
| C Basic structure | 00100...20000mm (< 1000: 50mm increments) | RP/T_ _ Straight out _ _m high performance /high temperature cable | (Output Code) |
| M Thread M18×1.5 with pressure pipe | > 1000: 250mm increments) Max. range 7500mm (pressure pipe installed) | (Fill in zero if less than 2 places) | |
| S 3/4"-16UNF-3A with pressure pipe | | D616 6 pin M16 connector D716 7 pin M16 connector D816 8 pin M16 connector D812 8 pin M12 connector | |
| | | ST_ _ Electronics housing outlet wire (L1)_ _mm, 6 pin M16 connector outlet wire (L2)_ _mm (Quick plug connecting definition) | |

| Start/Stop Output Code | [1][2]-[3][4] |
|------------------------|---|
| | [1][2] Output SS DPI mode only SD DPI/IP mode |
| | [3][4] Magnet 01 one magnet 02 two magnets |

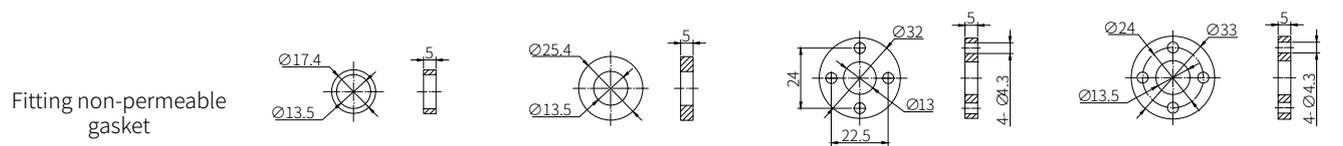
Model selection | Model: T3F-M-00600M-ST21-SS-01

Explanation: T series III generation, T3F flexible sensor, installed inside pressure pipe, mounting thread metric M18x1.5, stroke length 600mm, quick plug connected, high temperature cable, electronics housing outlet wire(L1)120mm, panel connector wire (L2) 50mm, Start/Stop output, DPI mode only, single magnet.

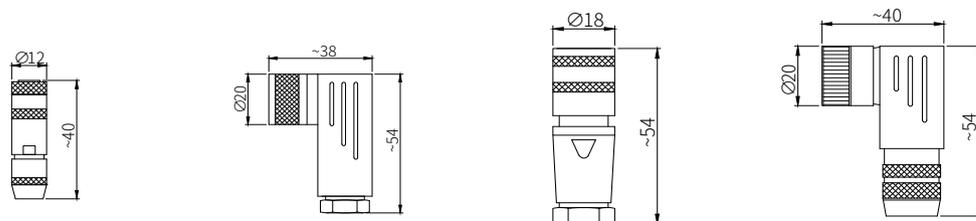
■ Please contact us for more customized products.



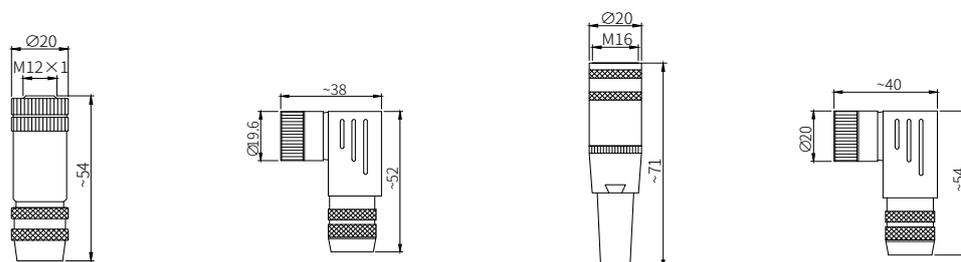
| | | | | |
|-----------------------|----------------|----------------|----------------|----------------|
| Name | Ring magnet | Ring magnet | Ring magnet | Ring magnet |
| Operating temperature | -40...125°C | | | |
| Order code | 12-1032 | 12-1019 | 12-1024 | 12-1001 |



| | | | | |
|-----------------------|----------------------|----------------------|----------------------|----------------------|
| Name | Non-permeable gasket | Non-permeable gasket | Non-permeable gasket | Non-permeable gasket |
| Operating temperature | -40...125°C | | | |
| Order code | 12-1037 | 12-1021 | 12-1025 | 12-1008 |

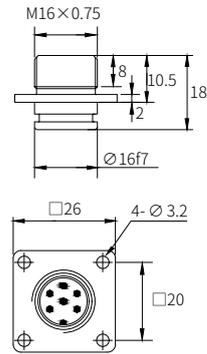


| | | | | |
|-------------------|----------------------------|--|----------------------------|--|
| Name | 6 pin M16 female connector | 6 pin M16 female connector (90 degree angle) | 7 pin M16 female connector | 7 pin M16 female connector (90 degree angle) |
| End view drawing | | | | |
| Material | Galvanized nickel | | | |
| Fitting diameter | 6...8mm | | | |
| Connection | Welding | | | |
| Order code | 18-3001 | 18-3003 | 18-4001 | 18-4002 |



| | | | | |
|-------------------|----------------------------|--|----------------------------|--|
| Name | 8 pin M12 female connector | 8 pin M12 female connector (90 degree angle) | 8 pin M16 female connector | 8 pin M16 female connector (90 degree angle) |
| End view drawing | | | | |
| Material | Galvanized nickel | | | |
| Fitting diameter | 8...10mm | 6...8mm | 6...9mm | 6...8mm |
| Connection | Threaded | | Welding | |
| Order code | 18-5004 | 18-5005 | 18-5002 | 18-5003 |

| | |
|-------------------|---|
| Name | 6 pin M16 male panel connector |
| End view drawing |  |
| Material | Galvanized nickel |
| Connection | Welding |
| Order code | 18-3006 |



Building 6, Dazu Enterprise Bay,
8th yard of Liangshuihe 2nd street, BDA P.R.China

Tel: +86 10-67948976 67948916
Fax: +86 10-67948979
Technical support: +86 (0)13370126657

Beijing Tebeifu Electronic Technology Co., Ltd.

www.tbfsensor.com