



Complete Systems

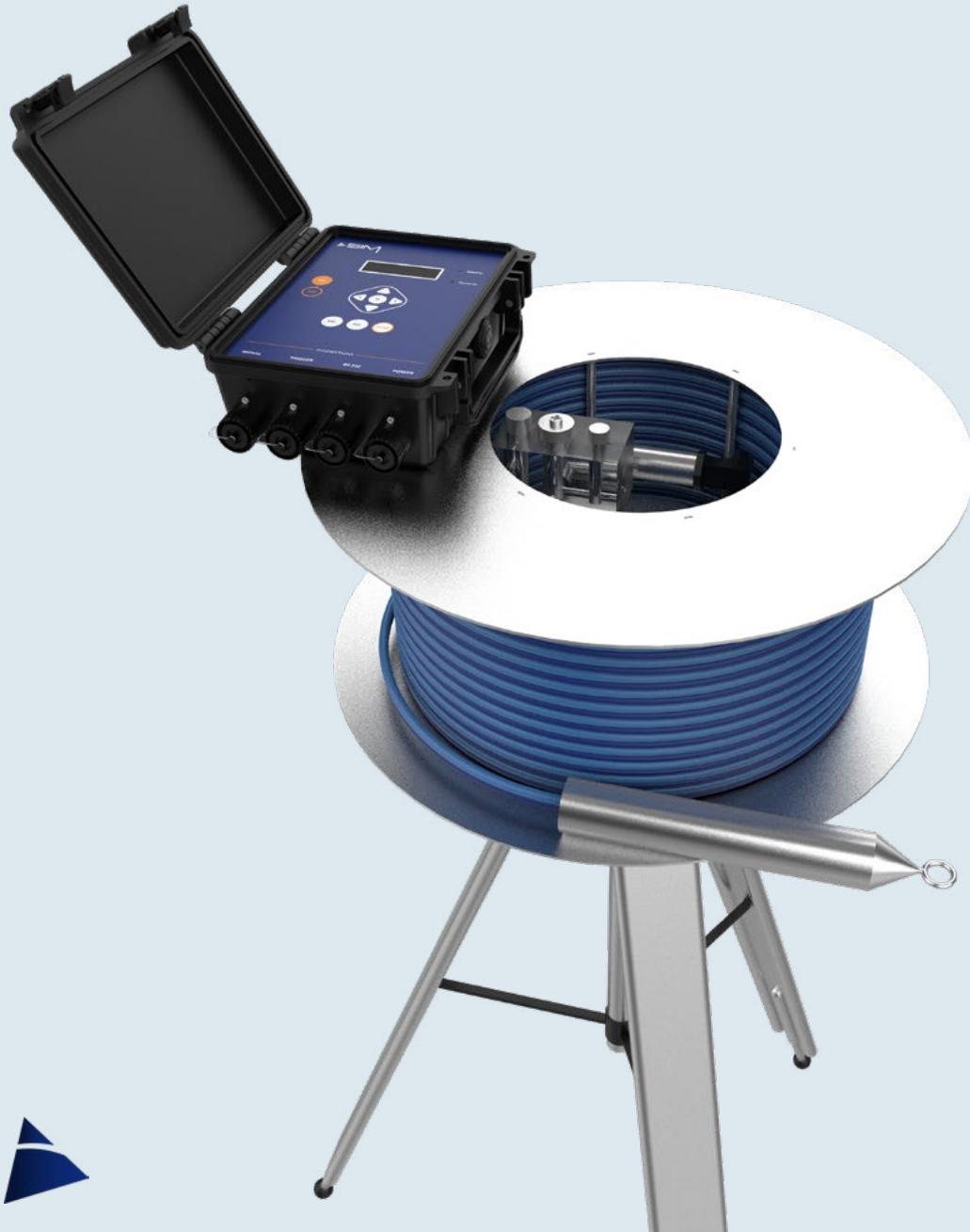


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Complete Systems

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ST150 PROFILAB System



Description

The ST150 profilometer was designed by SIM STRUMENTI to measure vertical settlements in embankments or in foundations. The particular care with which the instrument was made guarantees high precision and reliability of the measurements. The system consists of a sensor (pressure sensor), a reference cup, an electric cable, an hydraulic cable and the PROFILAB data acquisition unit.

The sensor is inserted from one side of the polyethylene pipe (previously laid horizontally), it is pulled from the opposite side by a pull cord or pushed with a fiberglass rod. In the case of blind pipes, it is possible to use a dead end pulley to be able to insert and slide the sensor on the same side of the pipe.

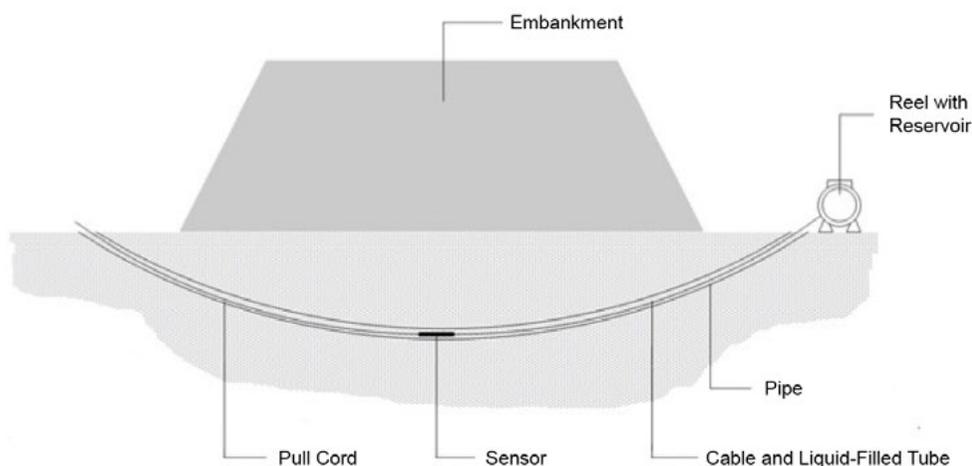
The sensor is made to slide inside the tube and stop every meter. The pressure sensor located inside it detects the level of the liquid acting on the sensitive membrane and consequently the difference in height between the reference cup and the sensor. The PROFILAB control unit will acquire the data and store it.

Applications

Settlement measurements in earthworks, embankments, foundations etc.



ST150 PROFILAB System



Technical features

Sensor

| | |
|-----------------------|-----------------------|
| Range | 3, 5, 7, 8, 10, 20 mt |
| Supply | 8-24Vcc |
| Output | 4-20mA |
| Overpressure | 150% FS |
| Linearity | 0.1% FS |
| Operating temperature | -20 ÷ +70 °C |
| Protection | IP68 |
| Material | Stainless Steel |
| Dimensions | Ø40 x 200 mm |

Data acquisition unit - PROFILAB

| | |
|-----------------------|------------------------------|
| Supply | 12Vcc |
| Resolution | ±20000 points |
| Acquisitions interval | 1 mt |
| Max. length | 150 mt |
| Memory | 30 pipes of 100 mt |
| Communication | RS232 |
| Display | LCD 4x20 characters, Backlit |
| Keyboard | membrane |
| Operating temperature | -20 ÷ +70 °C |
| Dimensions | 267 x 197 x 115 mm |
| Weight | 1.8 Kg |

Accessories

| | |
|---|--------------------------|
| Stainless Steel pull cord | ST150-AX-FNAC-MM* |
| Reel for Stainless Steel pull cord | ST150-AX-RLFN |
| Fiberglass rod | ST150-AX-FBRD-MM* |
| Vertical cage for fiberglass rod | ST150-AX-VCFB |
| Dead end pulley | ST150-AX-DEPL |

*MM Indicate the desired length

DS826

ALF System (Landslide alert)



Description

The ALF system (Landslide Alarm) mod. DS826 is an autonomous system, designed to give a quick response to the monitoring of surface landslides. The system, which is very simple to install and manage, is able to provide an alarm for real time event.

In case of need, the system can be quickly and easily moved from one point to another. The system is battery powered and can be further equipped with a photovoltaic panel, installed at the top of the mounting pole.

The system consists of a multiturn rotary displacement sensor, with a maximum development wheel of 2000mm, a data acquisition unit and a GSM modem. The sensor, the data acquisition unit and the modem are placed in the same container. A Kevlar or invar wire is stretched between two points, where on one side it is fixed to a pole, using a special bracket, while on the other, it is slid around the wheel and held by ballast. In this way the wire can be stretched for distances up to 40 meters. For the assembly it is sufficient to anchor two piles in the ground at the desired distance and successively install it, with the appropriate supplied brackets: the sensor, its corresponding counter and stretch the wire.

The alarm can be triggered:

- by a SMS messages
- Locally, by activating a siren, flasher, traffic light, etc.
- by activating remote devices (e.g. traffic light for road block), radio or modem with I / O inputs (MDS-ADV model)

In order to activate a local alarm, it is required a relay board.

Applications

Monitoring of settlements of rock or terrain surfaces, tunnels, dams, etc.



DS826

ALF System (Landslide alert)

Technical features

| Sensor | DS826-FS* |
|-----------------------|-------------------------------------|
| Type | Potentiometer |
| Range | From 100 to 2000 mm in 100 mm steps |
| Supply / Output | 2.5Vcc / 2400mV |
| Linearity | ± 0.1 %FS |
| Repeatability | <0.01% |
| Operating temperature | -30 ÷ +80 °C |
| Protection | IP65 |

| | | |
|----------|-------|--------------------------------------|
| Material | Wheel | Stainless Steel |
| | Box | Reinforced polyester with fiberglass |

| Acquisition System Unit | MYLOG*** |
|--------------------------------|---|
| Alarm level | 1 |
| Scan rate | Programmable from 1min to 24hrs |
| Memory rate | Programmable from 1min to 24hrs |
| Consumption | 20mA for reading 120mA with modem in communication |

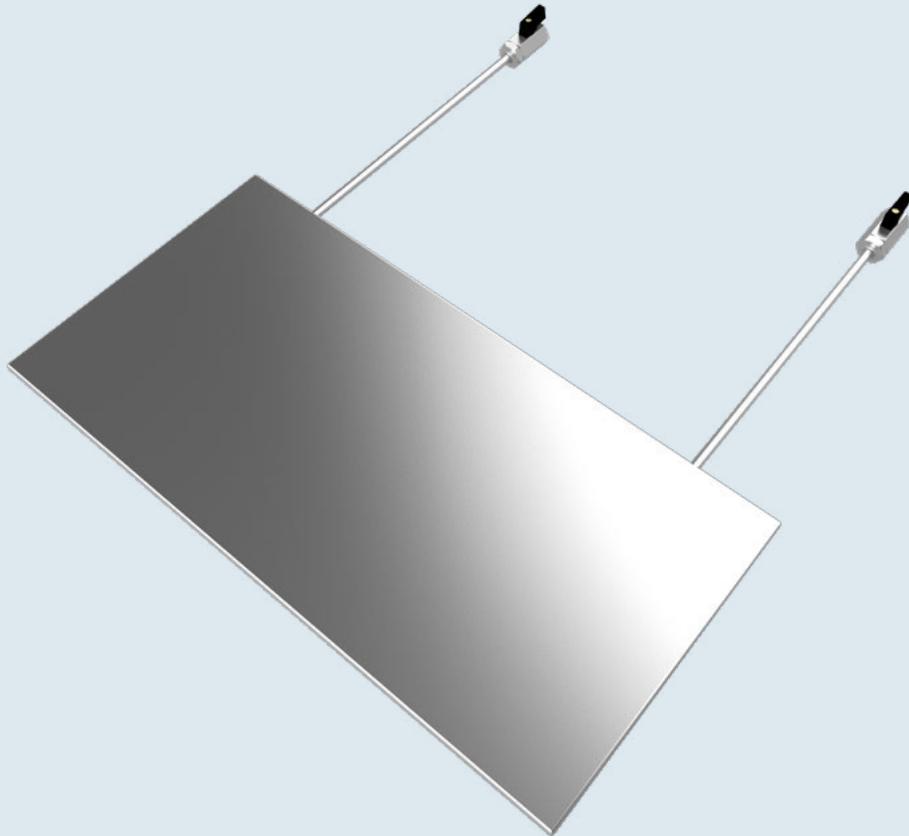
| GSM modem | MDS-BSE**** |
|------------------|--------------------|
|------------------|--------------------|

Accessories

| | |
|---|-------------------------|
| Wall mounting bracket | DS825- MWWL |
| Pole mounting bracket | DS825 - MWBM |
| Invar wire | DS825- WRIN-MM** |
| Kevlar wire | DS825- WRKV-MM** |
| 4-20 mA converter | DS825 -BEMA |
| Stainless steel mounting pole (1" x 3mt) | DS825 -PLIN |
| Photovoltaic panel | DS826-PN-FV |
| Alarm board with Test and Reset buttons | DS826-SC-AL |
| Radio board | DS826-RD |
| GSM modem with alarm | MDS-ADV |

- *FS Indicate the range
- **MM Indicate the length
- *** For further information about the technical features see the technical sheet of the data acquisition unit MYLOG
- **** For further information about the technical features see the technical sheet of the modem mod. MDS-BSE

PR330 Flat Jack



Description

The PR330 system is able to perform non-destructive mechanical measurements in masonry, allowing to determine the state of stress present in the structures, as well as to determine its deformability characteristics.

The test is based on the measurement of the stress state in a point of the structure due to the effect of a cut made on the analysis part. The release of the tensions causes a closure of the cut. By initially positioning the heaters, in a symmetrical position with respect to the cut, the relative distance is measured before the cut and immediately after using a displacement sensor. A flat jack (made of a thin steel sheet) is inserted inside the cut which, managed by a hydraulic pump, will restore the initial state of the masonry by canceling the failure previously measured by the displacement sensor after the cutting operation .

Under these conditions, the pressure inside the jack, measured by a precision pressure gauge, is equal to the pre-existing stress in the masonry.

SIM STRUMENTI offers as an alternative to the mechanical measuring system (displacement sensor - pressure gauge) an automatic system, composed of displacement meters and a pressure meter, connected to a SIM STRUMENTI data acquisition system.

Finally, the flat jack can be left inside the walls during the restoration of the structures, so as to detect any overloads induced in the structures by means of special pressure gauges.

Applications

Pressure measurement in masonry, foundations, structures etc.



PR330

Flat Jack

Technical features

| | |
|-----------------------|--------------------------------------|
| Model | PR330-FS* |
| Range | 0.5-1-2-3-4-6-10-16-25-40-60-100 bar |
| Supply | 8-24 Vcc |
| Output | 4-20 mA |
| Linearity | 0.25% FS |
| Repeatability | 0.01% FS |
| Operating temperature | -20 ÷ +70 °C |
| Dimensions | 200 x 400 x 6 mm |
| Weight | 0.6 Kg |
| Material | Stainless Steel |
| Protection | IP68 |

LV660

ALIN System (Flood alert)



Description

Given the growing demand from municipalities and authorities to monitor the levels of rivers, streams and canals, with the need to alert the local population and prepare for the eventual closure of roads due to a flooding danger, SIM STRUMENTI designed the ALIN system (Flood Alert).

The system consists mainly of an ultrasonic level sensor mod.LV630 connected to a data acquisition system capable of storing data and managing alarm thresholds. Two data acquisition units can be used: MYLOG, if only 1 alarm threshold is required or MINILOG in case more levels of alarm are required.

The alarms can be local (traffic light, siren, closing bar, etc.) and / or sent via GSM modem with SMS messages. Traffic lights or sirens can be activated via cable, GSM modem or radio.

The system is equipped with a battery and can be additionally powered by electric power supply or, upon request, with a photovoltaic panel.

The system is supplied with the VEDO management software that can be used both on site as well as remotely.

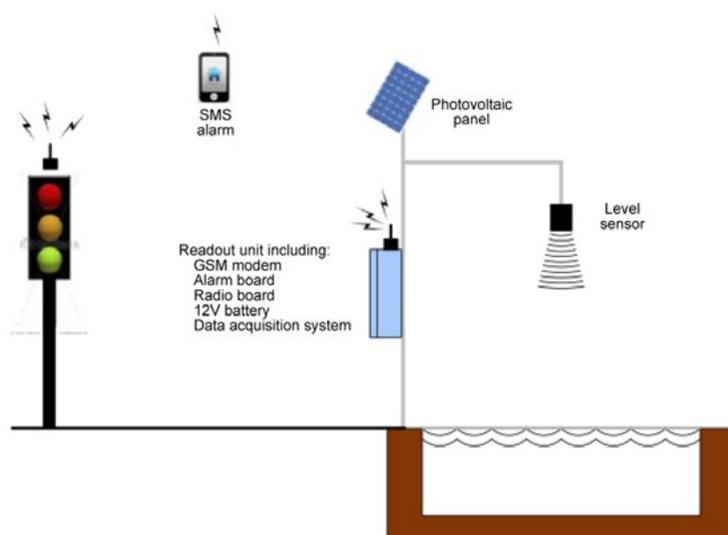
Applications

Measurement of water levels in wells torrents, basins, rivers, channels etc.



LV660

ALIN System (Flood alert)



Technical features

| Model | LV 660-LY-FS* | LV 660-ML |
|----------------------------|----------------------------------|-----------------------------------|
| Max range (mt)** | | 0.1 ÷ 15.2 mt |
| Supply | | 10-30 Vcc |
| Data acquisition system*** | MYLOG | MINILOG ML-4CH |
| Alarm levels | 1 | Max 4 |
| Scanning rate | Programmable from 1min to 24h | Programmable from 10sec to 24h |
| Reading rate | Programmable from 1min to 24h | Programmable from 10sec to 24h |
| Consumption | | 120 mA max |
| GSM modem | | MDS-BSE |

Accessories

| | |
|--|--------------------|
| Photovoltaic panel | LV660-AX-PF |
| LV630 bracket | LV660-AX-ST |
| MINILOG data acquisition system | LV660-AX-ML |
| MYLOG data acquisition system | LV660-AX-LY |
| Alarm board (with TEST and RESET buttons) | LV660-AX-AL |
| GSM modem mod. MDS-MDV | FL555-AL |
| Radio board | LV660-AX-RD |
| Traffic light | LV660-AX-SF |
| Siren | LV660-AX-SR |

*FS Indicate the range:

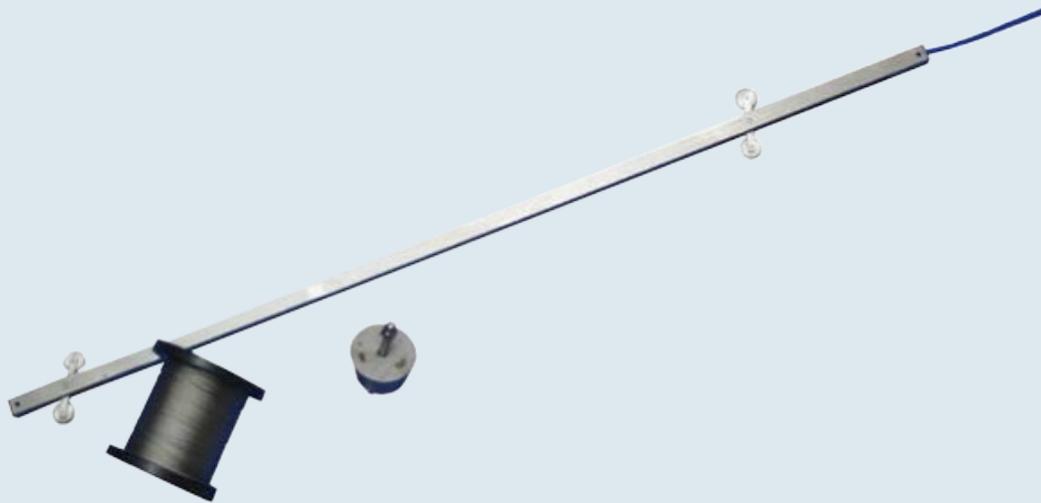
01 for max 4.3 mt / **02** for max 9.1 mt / **03** for max 15.2 mt

** For additional information on the technical features, refer to the ultrasound level meter LV630 technical data sheet.

*** For additional information on the technical features, refer to the data acquisition systems technical data sheets.

IN935

Depth fixed inclinometer



Description

The necessity for a continuous monitoring of the landslide areas with effective alarm systems, has led SIM to develop the depth fixed inclinometers model IN935.

Keeping the same high quality features of the inclinometric system IN910, this model has the advantage of resetting the all the occasional errors existing in the mobile inclinometric measurements, as well as having real time landslide monitoring. Inserted in inclinometric casing, the IN935 series electrolytic or Hall effect probes can measure position shifts of sliding planes.

The probe consists of a cart having inside the sensor. A desired number of probes are inserted in the inclinometric casing, installed at a specific depth.

The connection between the elements of the inclinometric column is fastened by a stainless steel cable and the distance between the probes can be decided or in the project phase as well as during installation.

The entire inclinometric column is hanged at the top the casing by a element called "Support head".

Every sensor is provided with a calibration certificate that attests the results of the test performed and all electromechanical features.

Manual read out with DATAVIEW.

Automatic read out with MINILOG, MYLOG.

Readout units with NATUN.

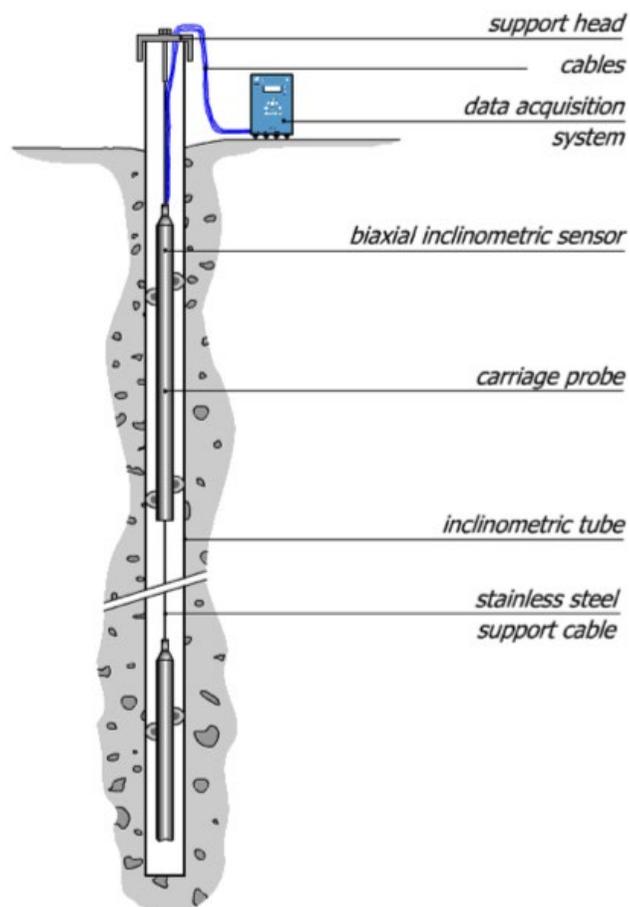
Applications

Measurement of horizontal displacement in landslides, dams, embankments, bridges, viaducts, tunnels etc.



IN935

Depth fixed inclinometer



Technical features

| Model | IN935-HL-FS* | IN935-EL-FS* |
|---------------------------|---------------------|---------------------|
| Sensor | Hall effect | Electrolytic |
| Range | ±5, ±10, ±20, ±30 | ±5, ±10 |
| Supply | 12-24Vcc | |
| Output | ± 2V | 4-20mA |
| Linearity | 0.5% | 0.25% |
| Repeatability | 0.03% | 0.01% |
| Alignment | 0.2° | 0.1° |
| Zero shift in temperature | 0.03%FS/°C | 0.001%FS/°C |
| Temperature sensibility | 0.02 %FS/°C | 0.001%/°C |
| Operating temperature | -20 ÷ 80°C | -54 ÷ 125°C |
| Diameter | 25x25 mm | |
| Length | 1150 mm | |
| Probe step | 1000 mm | |
| Weight | 1.8 Kg | |
| Material | Stainless steel | |

Accessories

| | |
|---|------------------------|
| Stainless steel cable | IN930-MWDM-MM** |
| Clamps | IN930-MR01 |
| Stainless steel connecting rod (2mt) | IN930-AS02 |
| Stainless steel connecting rod (1mt) | IN930-AS01 |
| Support head | IN930-TS01 |
| Bag | IN910-BRIN |

*FS Indicate the range
 **MM Indicate the meters



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