

T351 with Offset Mount fitted at centre of anemometer/wind-vane mounting arm type 405-1.

This miniature screen forms the housing for a range of temperature sensing elements, providing weather protection while allowing free passage of air.

The circular design with white polished surfaces results in a low temperature rise due to solar radiation by day and a low temperature drop due to outward radiation to clear skies at night. Apart from the more rapid thermal response, the performance is comparable to that of the traditional Stevenson screen.

Two-part construction enables easy access for cleaning, and the element with attached cable may be withdrawn from below for replacement or calibration purposes.

Prt Version PX, PY

The prt element is a fine non-inductively wound coil encased in a hard glass rod, providing a non-hygroscopic surface to allow rapid evaporation of any water droplets or condensation, while also having minimal response to radiation entering the screen from below.

It is available in 4-wire (which may of course be connected as 3-wire) or 2-wire plus compensating loop.

Curve-Matched Thermistor Version TR

The thermistor is encapsulated at the tip of a small closed end tube in bright stainless steel and sealed directly to the end of the 2-wire screened cable. The circuit is greatly simplified in this method, the temperature being calculated by means of look-up tables stored within a computer or data-logger.

Screen-Only Version

Two standard types are available, accepting element diameters as follows:

G05 (5mm) used for type TR

G12 (12mm) used for prt types

Other diameters can be supplied to special order.

PERFORMANCE

Efficiency: 2.3°C/Kw/m² @ 1m/s windspeed (temperature rise due to solar radiation).

Accuracy: See element data (allow for errors due to method of measurement, including any mismatching of connecting cables).

Temperature range: -50 to +70°C.

Max. windspeed: >75m/s.

PHYSICAL

Height: 110mm, basic screen (see outline of required version).

Diameter: 75mm.

Cable length: 5m. Other lengths are available up to 100m, however, the higher resistance and matching of the individual cores imposes a practical limitation in other than 4-wire constant-current circuits.

Mismatch error: 0.024°C (3-wire connection) resulting from maximum 2% variation of cable resistance with standard 5m length (0.048°C for PY version).

Where longer cables are supplied, special matching of individual cores within ½ % is provided as standard.

Weight: 90g (screen) + 190g (Pt sensor with 5m cable).

Fixing: 0.25BSW/UNC nylon screw into base.

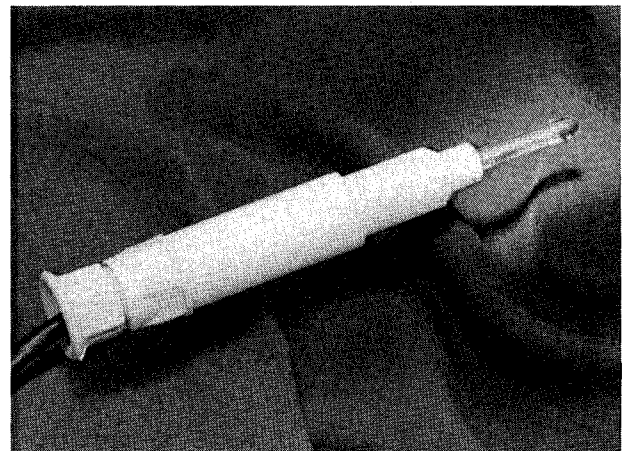
Optional mount: 405-OM Offset mount (see photo above).
405E-L2 Side mount (illustrated overleaf).

Materials: Screen: White, weather-resisting plastics, aluminium alloy, nylon fittings.

Mounts: Anodized aluminium alloy, stainless steel fittings.



Two-part construction allows easy access for cleaning.



Hard glass prt element with holder containing thermal barrier and lead resistance equalization.

ELECTRICAL

Sensor type:

Element:

Accuracy:

Resistance at ref. temperature:

Temperature coefficient:

Self-heating:

Insulation resistance:

Long term drift:

Response (at 4m/s windspeed):

Measuring current (suggested max.):

Cable:

Cable diameter:

Loop resistance:

Matching:

T351-PX or T351-PY

Non-inductively wound platinum wire in a cylindrical glass package to BS1904 \equiv DIN IEC751.

1/3DIN & 1/5DIN are also available.

- PX = 4-wire prt.

- PY = 2-wire prt + compensating loop.

$\pm(0.3^\circ\text{C} + 0.005[\text{T}])$ for IEC751 (Class B)

$\pm(0.1^\circ\text{C} + 0.005[\text{T}])$ for 1/3DIN etc.

where [T] is temperature above or below 0°C.

100 Ohms at 0°C

0.385 Ohms/°C

0.5°C/mW⁽³⁾

>100 Mohms

0.005°C/year

50s

1mA

5m 4-wire 7 x 0.2mm overall braid screened and pvc sheath. (tinned cu.)⁽⁴⁾

4.5mm

920 mOhms (max. at 20°C)

2% (0.5% available)

T351-TR

Unicurve⁽¹⁾ - curve matched thermistor.

$\pm 0.2^\circ\text{C}$ (0 to 70°C)

$\pm 0.3^\circ\text{C}$ (-30 to 0°C)

$\pm 0.5^\circ\text{C}$ (-50 to -30°C)

2 Kohms at 25°C⁽²⁾

Varies (as Unicurve⁽¹⁾)

1°C/mW⁽³⁾

>100 Mohms

0.02°C/year

50s

100µA

5m 2-wire overall screened and pvc sheath.⁽⁴⁾

4.5mm

500 mOhms (nominal)

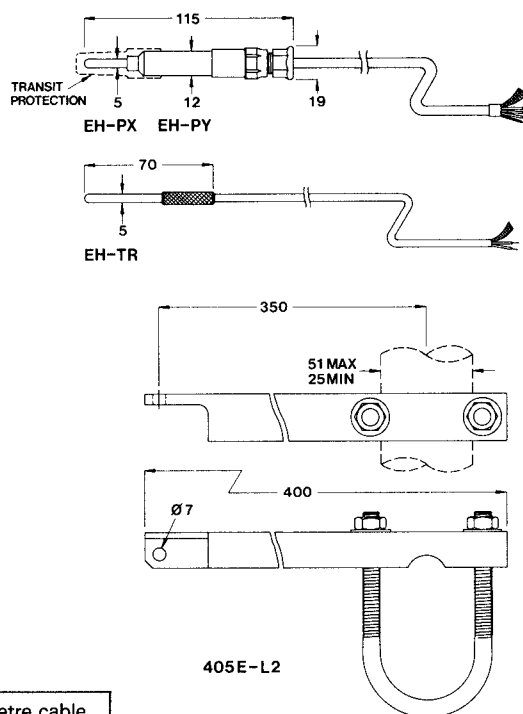
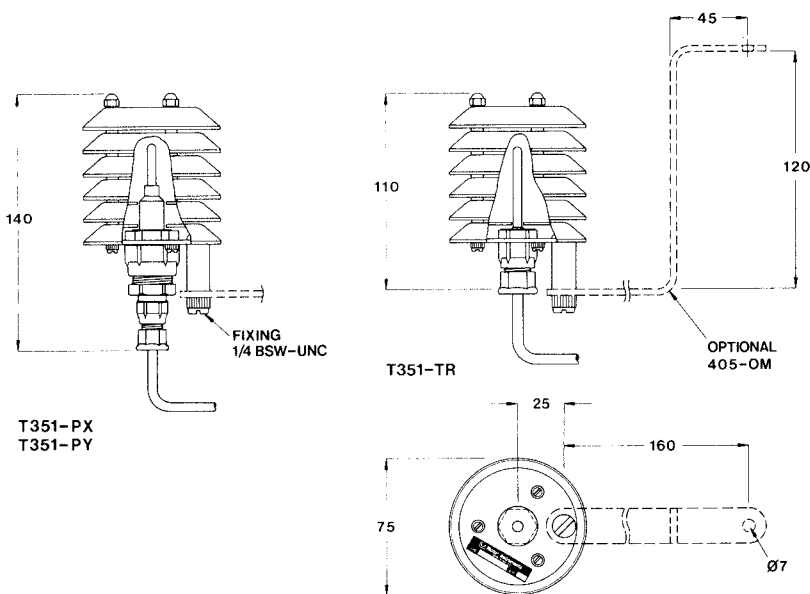
Notes:

(1) - Unicurve is a product of Fenwell Inc.

(2) - Alternative resistances available, e.g. 2.252K, 10K, 20K.

(3) - In still air.

(4) - Although the standard pvc sheathed cable will withstand temperatures down to -50°C and below, care should be taken not to allow flexing below approximately -10°C as the material becomes progressively more brittle at lower temperatures. Special wide temperature-range cable can be supplied where required.



Order Code (example):

T351 - PX - D/3 - 10m

<p>T351: Mini-Screen EH: Element holder (with element and cable as specified, but supplied without screen)</p>	<p>PX: Pt100, 4-wire (or 3-wire) PY: Pt100, 2-wire + comp. loop TR: Curve-matched thermistor G05: Housing only for 5mm dia. probe G12: Housing only for 12mm dia. probe</p>	<p>10m: 10 metre cable Blank: Standard 5m cable, other cable lengths may be specified.</p>
<p>D/3: 1/3 DIN IEC751 D/5: 1/5 DIN IEC751 Blank: DIN IEC751</p>		

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