TW SERIES

TRAILING WIRE FLOW SWITCHES

For open discharge and pipes 50 mm (2") and larger



FEATURES

- Unique trailing wire sensor
- 5–500 VAC 15 A S.P.D.T. switch ('H' model)
- Low voltage gold contact 'L' model available
- 1" BSP or NPT models available
- 316 stainless or polypropylene models
- Easily serviceable
- 400 bar / 5800 psi rated models available
- Manual override built in
- Seal-less magnetic drive
- Adjustable sensitivity
- IP67 weatherproof

15 A
S.P.D.T. switch rated 5–500 VAC

400 bar
5800 psi high pressure models

IP67
Weatherproof electrical housing

50–300
Trailing wire lengths in mm

OUTLINE

The TW Series trailing wire flow switches use a flexible stainless wire sensor rather than a conventional paddle to sense flow. They are suitable for sensing flow in open discharge applications or in pipes of any diameter from 50 mm (2") upwards.

The flexible stainless wire sensor offers major advantages over conventional paddles in applications where solids or semi-solids are present, such as in sewage pumping. They are also suitable for use in slurry and mining applications and in many normal pumping situations where the flow velocity is high and conventional paddle type switches are unsuitable.

The TW Series trailing wire flow switch is supplied with a polypropylene or 316 stainless steel process connection in 1" BSP or NPT. A single pole double throw (S.P.D.T.) microswitch for general control circuit applications is supplied as standard with the TW Series switch. In addition, a low voltage, low wetting current switch with gold contacts is available for signalling applications.

A unique feature of the TW Series is a built-in manual override. Using the manual override allows the system to be manually started at any time by simply pressing the button. It also makes testing and commissioning of systems very simple.

APPROVED STANDARDS

UL
UL1054 · File E41515

CSA
C22.2 No.55 · File LR21642

EN
EN61058-1

CE
Marked

Approvals apply to the 'H' and 'L' microswitches used in the TW Series.

ORDERING

The codes below show the different switch models available in the TW Series – for example **TW-H-25B-SS-100**.

TW – **H** – **25B** – **SS** – **100**

SERIES

TW Series trailing wire flow switch

SWITCH

- **H** Standard switch
- **L** Low voltage gold switch

PROCESS CONNECTION

- **25B** 1" BSP thread
- **25N** 1" NPT thread

WETTED MATERIALS

- **Blank** All wetted parts made from polypropylene
- **SS** Supplied with a high pressure 316 stainless steel process connection

TRAILING WIRE LENGTH

Wire length in millimetres (see note below)

WIRE LENGTH Wire length refers to the distance from the tip of the wire to the bottom end face of the process connection. Available wire lengths: 50 mm, 80 mm, 100 mm, 140 mm, 160 mm, 180 mm, 200 mm, 250 mm and 300 mm.

OPERATING LIMITATIONS

PARAMETER	ALL POLYPROPYLENE MODEL	WITH STAINLESS STEEL PROCESS CONNECTION
Maximum operating pressure (static or dynamic) at ambient temperature	**18 bar** 261 psi	**400 bar** 5800 psi
Minimum burst pressure at ambient temperature	**45 bar** 652 psi	**500 bar** 7215 psi
Maximum operating temperature	**60 °C** 140 °F *	**80 °C** 176 °F
Minimum operating temperature	**–20 °C** –4 °F	**–20 °C** –4 °F
Ingress protection rating	**IP67**	**IP67**

*** PLEASE NOTE** The maximum operating pressure of the TW switch with the polypropylene process connection option must be linearly de-rated as operating temperature is increased, so that at 60 °C (140 °F) the maximum permissible operating pressure for the switch does not exceed 1 bar (15 psi) absolute.

FLOW SENSITIVITY

The TW flow switch is available with wire sensors in various lengths from 50 mm to 300 mm (2" to 12"). The required wire length must be specified when ordering. The flow rate required to actuate the TW flow switch will depend on many variables such as turbulence, liquid viscosity and the exact surface area of sensor wire exposed to the flow. The optimum wire length for a specific application can be obtained using the Paddle Trimming Calculator on our website (see below).

HAZARDOUS AREAS

The TW-H is not certified for use in hazardous areas and must not be installed in any area classified as hazardous under AS/NZS 60079.10 (Zone 0, 1, 2, 20, 21 or 22).

The TW-L is simple apparatus under AS/NZS 60079.11 and may be used in a hazardous area only as part of an intrinsically safe circuit, connected through suitably certified associated apparatus. It is not Ex certified in its own right. The associated apparatus must not exceed Uo ≤ 30 V, Io ≤ 100 mA. The full conditions of use are given in the installation sheet.

Paddle Trimming Calculator ›

Not sure which wire length to use? Go to www.kelco.com.au/en/tools/paddle-calculator and use the calculator – enter your pipe inside diameter, flow rate and liquid to check the switch will operate reliably at your flow.

'H' SWITCH ELECTRICAL DATA

The 'TW-H' models use an S.P.D.T. (single pole, double throw) microswitch for general control circuits up to 500 VAC – ideal for pump starters, relay logic, contactors and timers.

IMPORTANT

Use at any voltage from 5 to 500 VAC (minimum load 160 mA at 5 VDC). Directly switches pump motors up to ¼ HP (approx. 185 W) at 240 VAC – use a contactor or relay for larger motors.

RATED VOLTAGE	NON-INDUCTIVE LOADS (A)			INDUCTIVE LOADS (A)		
	RESISTIVE	LAMP		INDUCTIVE	MOTOR	
	NC / NO	NC	NO	NC / NO	NC	NO
125 VAC	15	3	1.5	15	5	2.5
250 VAC	15	2.5	1.25	15	3	1.5
500 VAC	10	1.5	0.75	6	1.5	0.75
8 VDC	15	3	1.5	15	5	2.5
14 VDC	15	3	1.5	10	5	2.5
30 VDC	6	3	1.5	5	5	2.5
125 VDC	0.5	0.5	0.5	0.05	0.05	0.05
250 VDC	0.25	0.25	0.25	0.03	0.03	0.03

'L' SWITCH ELECTRICAL DATA

The 'TW-L' models use an S.P.D.T. gold contact microswitch rated down to 1 mA at 5 VDC, so they switch reliably at the low wetting currents of PLC inputs, telemetry and relay logic.

PLEASE NOTE

Not suitable for inductive or capacitive loads (contactors, relays). Loads above the rating will damage the switch.

Switch type	**Gold contact microswitch**
Contact configuration	**S.P.D.T.**
Contact material	**Gold alloy**
Rated current (resistive)	**0.1 A at 125 VAC** **0.1 A at 8, 14 and 30 VDC**
Inrush current	**0.1 A maximum (NC and NO)**
Minimum applicable load	**1 mA at 5 VDC**
Operating range (micro load)	**5 to 30 V, 5 to 800 mW** **(26 mA maximum at 30 V)**
Contact resistance	**50 mΩ maximum (initial)**
Typical applications	**PLC, telemetry and low voltage control**

SPARE PARTS

The TW Series trailing wire flow switches are very simple to service, and most components are available in spare part kits.

DIMENSIONS

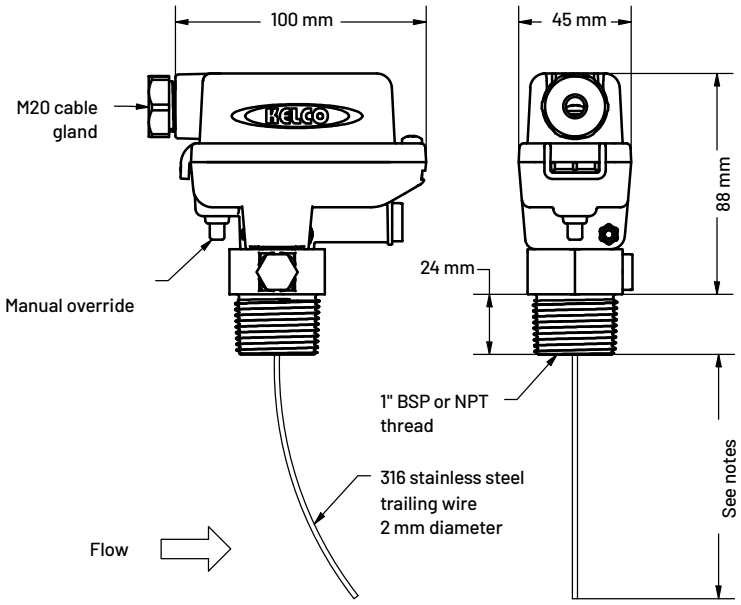


FIG. 1 Overall dimensions

TYPICAL MOUNTING

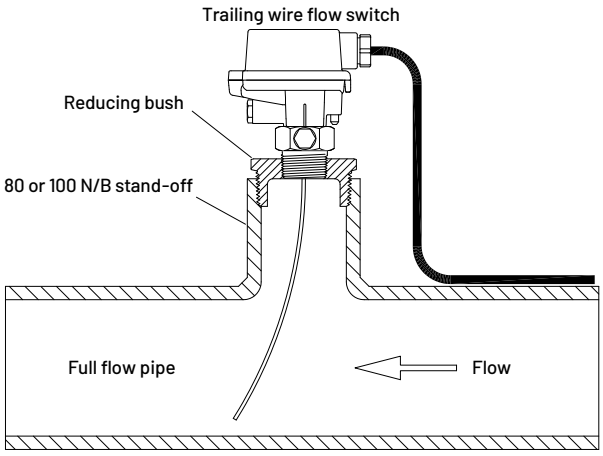


FIG. 2 Typical dead leg stand-off prevents solids reaching the switch body

Kelco Engineering Pty Ltd

ABN 20 002 834 844

HEAD OFFICE & FACTORY
9/9 Powells Road
Brookvale NSW 2100, Australia

POSTAL ADDRESS
PO Box 7485, Warringah Mall
Brookvale NSW 2100, Australia

SALES ENQUIRIES
sales@kelco.com.au
www.kelco.com.au

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