



PSM INSTRUMENTATION LTD

MTF Series
Vibrating level switch

USER MANUAL

Issue A

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Doc Ref: MAN 62

Contents

| | |
|-----------------------------|----|
| Introduction | 3 |
| Important Safety Notice | 3 |
| Identification | 3 |
| Mounting Examples | 5 |
| Installation | 5 |
| Correct Fork alignment | 5 |
| Mode selection | 6 |
| Function and LED Indication | 7 |
| Wiring | 8 |
| Cover Orientation | 8 |
| Technical Data | 9 |
| Accessories & Spare Parts | 10 |
| Maintenance | 10 |
| Specification | 11 |

Introduction

MTF series is a liquid level switch designed for non-hazardous areas. It must be installed, connected, commissioned, operated and maintained by suitable qualified personnel only observing any national and local requirements which may apply.

Important Safety notice

Protection afforded by compliance to EN60110-1 (1993) may be impaired if the equipment is not used as specified.

Handling

Do not hold by forks.



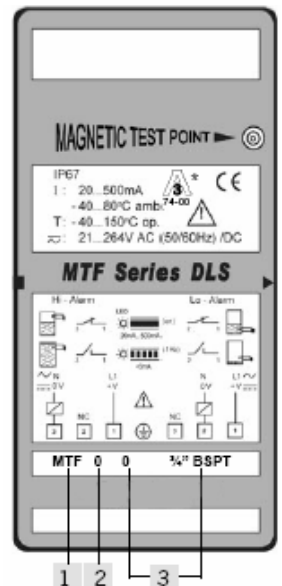
X



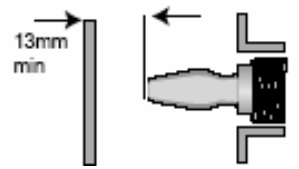
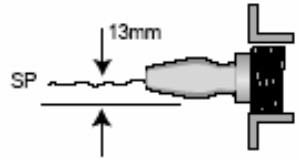
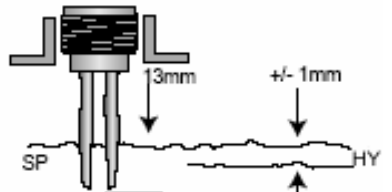
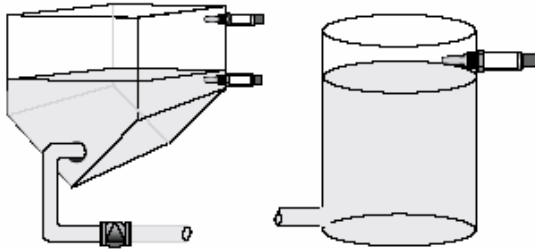
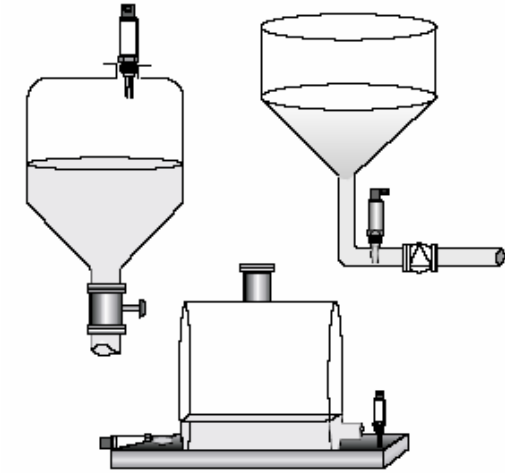
OK

Device Identification

- 1 Model—MTF series
- 2 Output:
 - 0 = Direct load switching
 - 1 = PNP transistor (PLC)
- 3 Mounting
 - 0 = 3/4" BSPT
 - 3 = 1" BSPT (R1")
 - 5 = 3/4" NPT
 - F = 1" BSPP (G1")
 - 7 = 2" Tri Clover Hand Polished
 - L = 1" BSPP (G1") Semi Extended

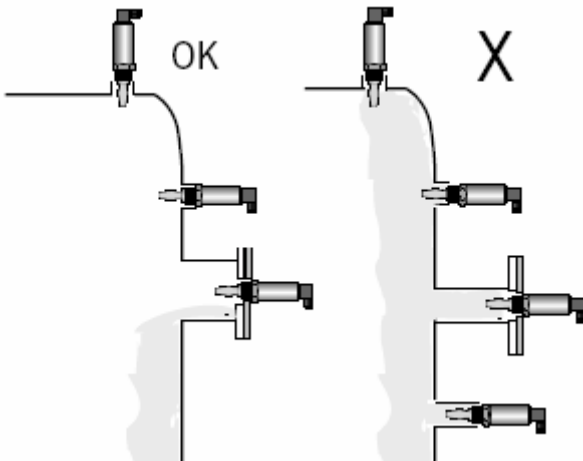


Mounting Examples

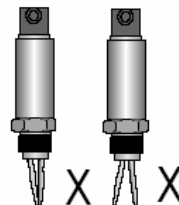
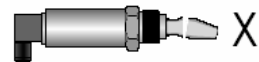
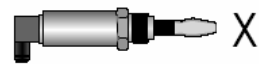
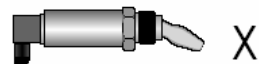


SP = Switchpoint
HY = Hysteresis

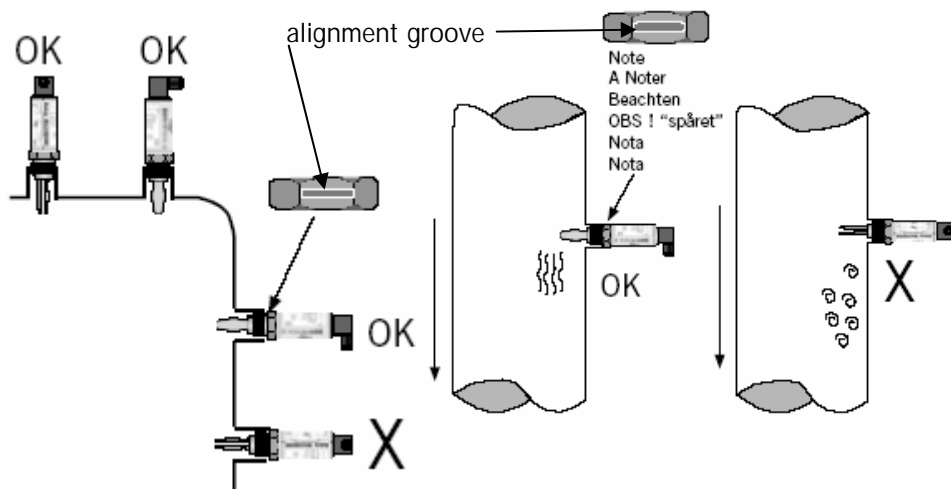
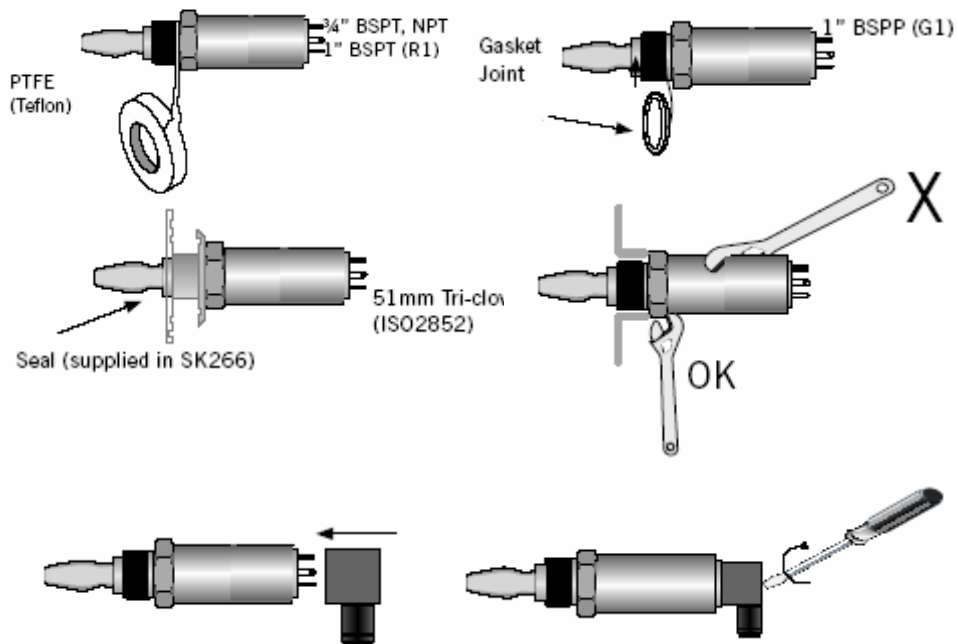
Avoid product build up



Do not alter MTF in any way



Installation

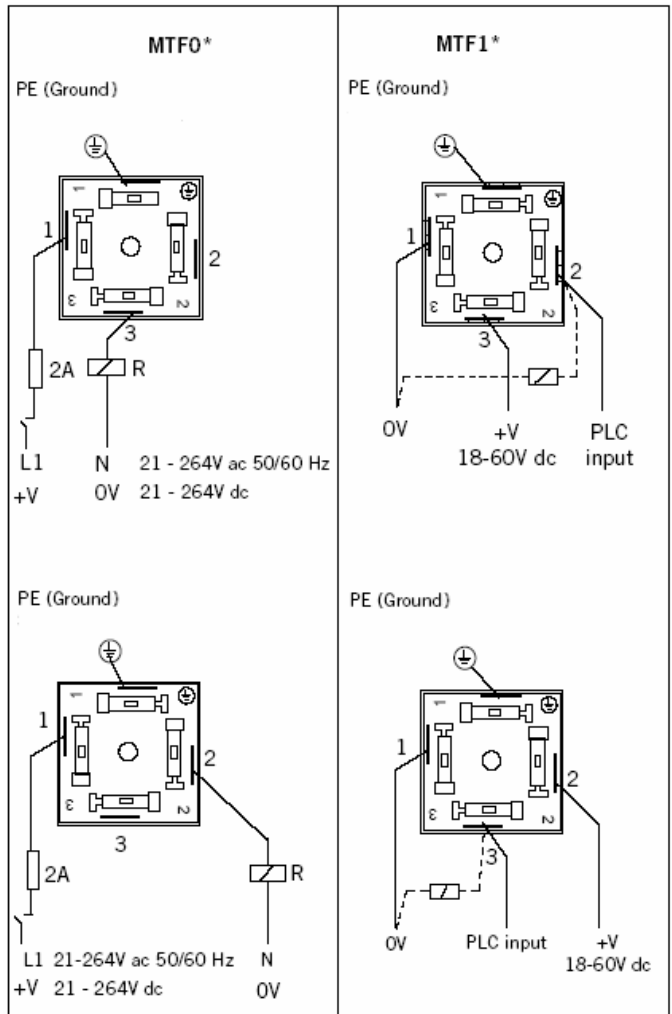


Mode Selection

Direct load switching : ac/dc

PNP for PLC/SPS connection : dc

DRY = ON:
High level alarm

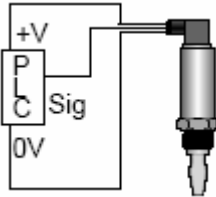


WET = ON:
Low level alarm

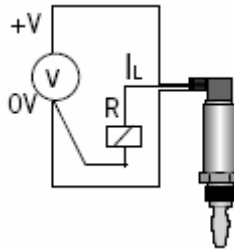
| | |
|---|---|
| R = external load (must be wired) | = external load |
| Max. inrush current: 5A (electrically protected) I Max continuous: 500mA | I Load off: <3mA |
| I Min: 20mA | I Max continuous: 500mA I Load off: <3mA |

Function and LED Indication

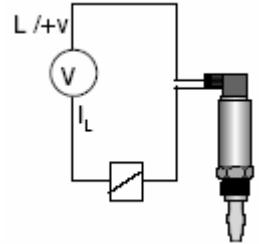
PLC Positive input



PNP dc

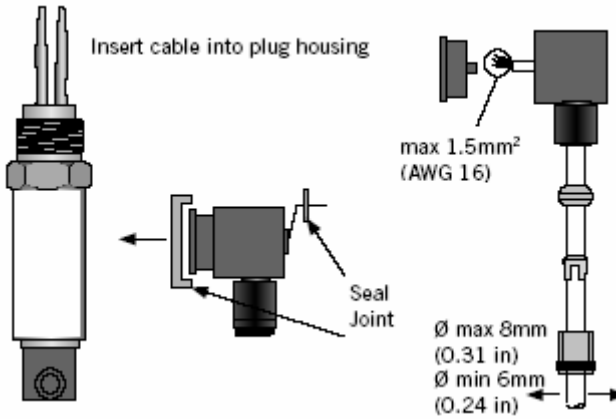


Load switching ac/dc
Max power of load
= $V \times 0.5A$



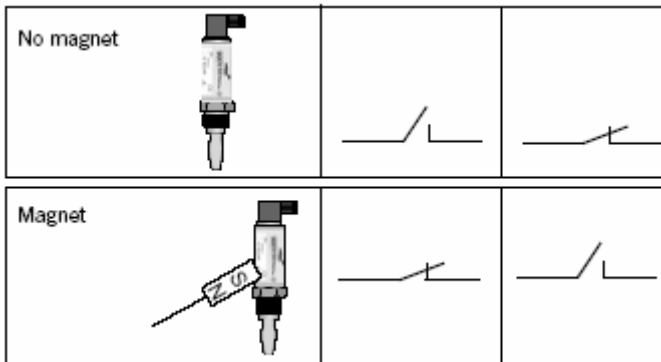
| | High level DRY = ON | Low level WET = ON | L | N | | |
|----------------------------|---------------------|--------------------|----|-----|--|----------------|
| | | | | | | |
| PLC (positive input) | | | | | Short circuit load or $I_{max} > 500mA$ | Internal fault |
| PNP dc | | | | | | |
| Load switching ac/dc | | | | | | |
| L.E.D | On | 1Hz | On | 1Hz | | |
| = Load on = Load off | | | | | | |

Wiring



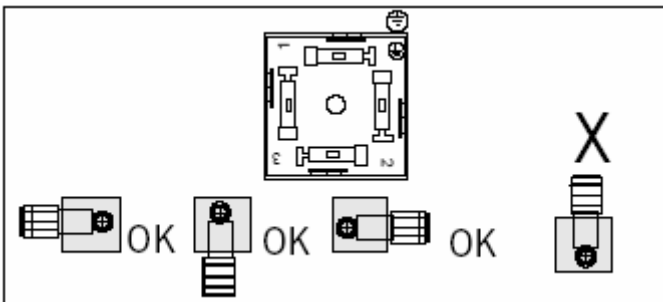
Relay connection warning:
MTF series requires a minimum current of 3mA which continues to flow when MTF is 'off'. If selecting a relay to wire in series with the MTF the user must ensure that the drop-out voltage of the relay is greater than the voltage which will be generated across the relay coil when 3mA flows through it.

Magnetic test point

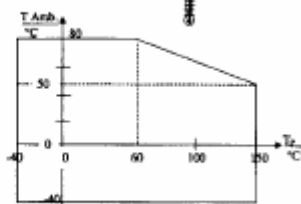
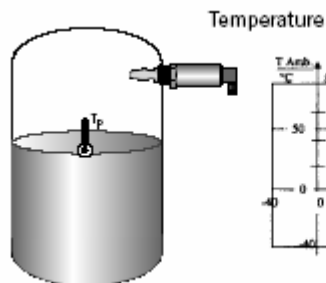


Cover Orientation

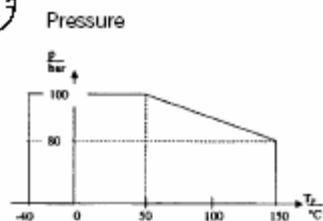
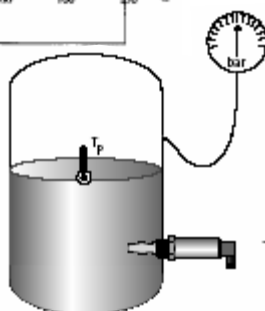
The MTF is IP66 and IP 67 when fitted with the supplied connector and suitable cable.



Technical Data

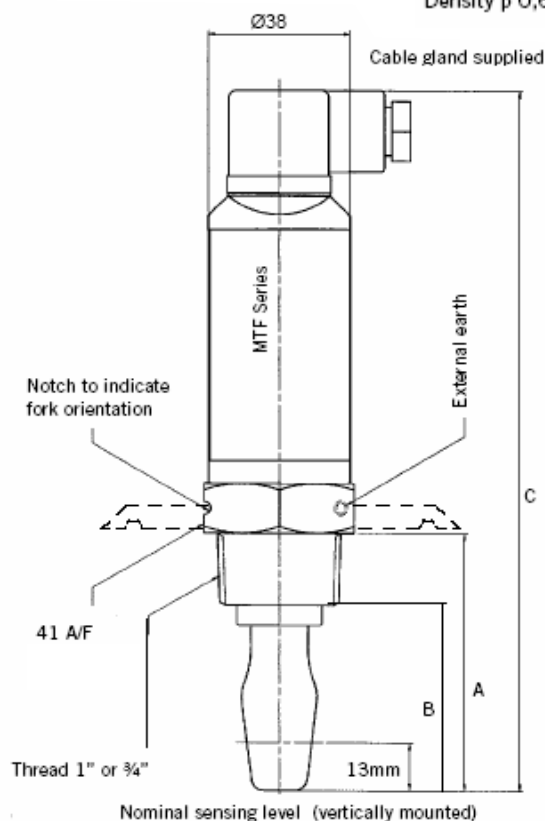


T_{Amb} = Ambient temperature
 T_p = Process temperature
 p = Process pressure



Density ρ 0,6 - 1,6

Viscosity ν max. 10000 cps



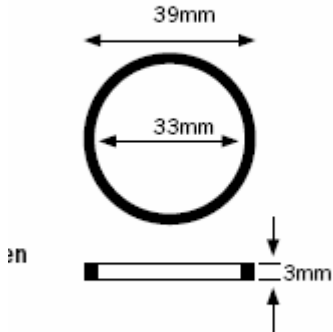
| | A mm | B mm | C mm |
|-------|------|------|------|
| MTF—0 | 69 | 50 | 188 |
| MTF—3 | 69 | 50 | 188 |
| MTF—5 | 69 | 50 | 188 |
| MTF—7 | 65 | 50 | 188 |
| MTF—F | 78 | 60 | 98 |
| MTF—L | 116 | 98 | 239 |

Accessories & Spare parts

Seal for VT*F (G1A)

Part No. SK332

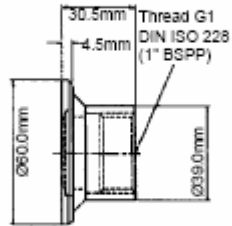
Material: Non-asbestos BS7531 grade X
carbon fibre with rubber binder



Hygienic adaptor boss

Part No. SK267

Material: 316 SS fitting, Viton
'O' ring



51mm Tri-clover kit No. SK266

Kit comprises:-

Vessel fitting, clamp ring, seal

Material: 316 St. steel, Viton seal

Maintenance



Specification

Application & mounting

Most liquids, including coating and aerated liquids, slurries.
For use in safe area only. Mount in any position in tank or pipe.
Mounting is by $\frac{3}{4}$ " or 1" thread or hygienic fitting.

Construction

Wetside material 316L Stainless steel (1.4404)
Gasket (1" BSPP model only) Non-asbestos
BS7531 Grade X carbon fibre
with rubber binder

Dryside materials

Body 304 Stainless steel with polyester label
LED window Flame retardent Polyamide
(Pa12) UL94 V2
Plug Polyamide glass re-inforced
Plug seal Nitrile butadiene rubber
Ingress of protection
rating IP66/67 to EN60529

Operating conditions

Wetside temp. -40°C to +150°C
Ambient temp. -40°C to +80°C
(derated to 50°C at 150°C wetside)
Wetside pressure -0.25 bar g to +100 bar g at 50°C
(30 bar for hygienic fittings)
Liquid sg 0.6 to 2.0
Liquid viscosity 0.2 to 10,000 cps
Switching point 13mm from tip (vertical) / from edge
(water) (horizontal) of fork
Hysteresis (water) +/- 1mm nom.
Switching delay 1 sec dry to wet / wet to dry.

Electrical

Switching mode User selectable (Dry = on or Wet = on) by
selection wiring in plug
Protection Reverse polarity protected. Missing load /
short circuit protection.
Cable connection Via 4 way plug provided – DIN43650
Orientation – 4 position (90/180/270/360 deg.)
Max. conductor size – 1.5mm²
PG9 Cable gland provided – cable dia. 6mm to 8mm.
Earthing MTF Series should always be earthed
either through cable plug or using
external earth connection provided.

Safety EMC

E.M.C. Directive EN50081-1 (Emmissions)
EN50082-2 (Immunity) EN61326
L.V. Directive EN61010-1
Pollution degree 2, Category II (264V max)
Pollution degree 2, Category III (150V max)

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