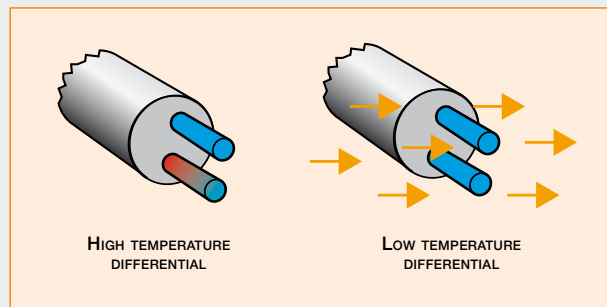


THERMAL DISPERSION



The thermal switches are based on heat transfer. One sensor is at the process temperature and the other is being heated by a constant power. As the flow rate increases, the temperature difference between the sensors decreases. A set point is established so when that specific temperature difference is reached the relay changes state. This can be on either increasing or decreasing flow or flow/no flow. When used in a level or interface application it is primarily the thermal conductivity of the fluid that will provide the difference in heat transfer.



flow.magnetrol.com

THERMATEL® TD1/TD2**Thermal dispersion switch****DESCRIPTION**

Thermatel® TD1/TD2 switches can easily be adjusted to detect flow (gases and liquids), level or liquid-liquid interface. TD1 is a line-powered 24 VDC unit with integral electronics and a built-in DPDT relay. TD2 is either VDC or VAC line-powered, has integral or remote electronics and offers additional LED indication, time delay and mA output for diagnostics and trending.

With continuous diagnostics, automatic temperature compensation, narrow hysteresis and fast response time, TD1/TD2 bring you the latest in thermal dispersion technology.

FEATURES

Easy field calibration – pre-calibration from factory on request.

Variable flow or flow / no flow detection of gases and liquids.

Excellent low flow sensitivity.

Automatic temperature compensation for repeatable alarm under varying process temperatures.

Continuous diagnostics detect sensor fault.

Continuous monitoring of flow rate versus setpoint via LED (TD2).

mA output provides repeatable indication of flow rate and fault detection (TD2).

Set point / alarm can be measured over test points (TD2).

Optional retractable fitting for dismantling under process conditions.

Unique spherical tip design option ideal for liquids or high viscosity applications.

Process conditions up to +450 °C (+850 °F) and 413 bar (6000 psi).

Integral or remote electronics up to 150 m (500 ft).

Suited for SIL1 and SIL2 loops (full FMEDA report available).

APPLICATIONS

Pump protection, low or high flow indication, high viscosity level, high temperature/pressure, interface detection.

MEDIA: All types of gases and liquids.

VESSELS: Pipe sizes down to 1/4". Max sensor length up to 3.3 m (10.8 ft). Can be installed vertically/horizontally, flanged, threaded or with compression fitting with or without hot or cold tap.

CONDITIONS: Can be used on conductive and non conductive media, very light density to heavy viscous media. Can be set to ignore foam, aeration, turbulence, and cavitation.

AGENCY APPROVALS

	Ex d	Ex ia	Ex n	Ex t	XP	IS	NI	Other
ATEX	●							Ex d+ib
CCOE	●							
CSA					●		●	
FM					●		●	
EAC (GOST)	●							
IEC	●							Ex d+ib
Inmetro	●							Ex d+ib
Korea	●							
SIL	SIL 1 (1001)							
Other approvals are available: consult factory for more details.								

THERMATEL® TD2
Thermal dispersion switch
for hygienic use



DESCRIPTION

The Thermatel® TD2 switch can easily be adjusted to detect flow (gases and liquids), level or liquid-liquid interface. TD2 is either VDC or VAC line-powered and offers additional LED indication, time delay and mA output for diagnostics and trending.
The unit has both 3A and EHEDG approval for use in hygienic applications.

FEATURES

- Easy field calibration – pre-calibration from factory on request
- Variable flow or flow / no flow detection of gases and liquids
- Excellent low flow sensitivity
- Automatic temperature compensation for repeatable alarm under varying process temperatures
- Continuous diagnostics detect sensor fault
- Continuous monitoring of flow rate versus setpoint via LED
- mA output provides repeatable indication of flow rate and fault detection
- Set point / alarm can be measured over test points
- Suited for SIL1 loops (full FMEDA report available)
- Hygienic process connections

APPLICATIONS

Pump protection, low or high flow indication, high viscosity level, high temperature/pressure, interface detection
MEDIA: All types of gases and liquids
VESSELS: Max. sensor length up to 3.3 m (10.8 ft). Can be installed vertically/horizontally.
CONDITIONS: Can be used on conductive and non conductive media, very light density to heavy viscous media. Can be set to ignore foam, aeration, turbulence, and cavitation.

AGENCY APPROVALS

	Ex d	Ex ia	Ex n	Ex t	XP	IS	NI	Other
SIL	SIL 1 (1001)							
Other approvals are available; consult factory for more details.								

THERMATEL® TG1**Thermal dispersion switch****DESCRIPTION**

The Thermatel® TG1 switch consist of electronics in a DIN rail housing and a remote sensor with aluminum or stainless steel sensor housing (max 500 m (1640 ft) away from electronics).

The TG1 switch can easily be adjusted to detect flow (gases and liquids), level or liquid-liquid interface. The unit is two-wire 24 VDC powered and intrinsically safe approved.

TG1 offers standard LED flow indication, TG2 offers LED flow indication per NAMUR NE 44.

FEATURES

Easy field calibration – pre-calibration from factory upon request

Variable flow or flow / no flow detection of gases and liquids

Excellent low flow sensitivity

Continuous diagnostics detect sensor fault

Continuous monitoring of flow rate versus setpoint via LED

mA output provides repeatable indication of flow rate and fault detection

Optional retractable fitting for dismantling under process conditions

Unique spherical tip design option ideal for liquids or high viscosity applications

Process conditions up to +450 °C (+850 °F) and 413 bar (6000 psi)

Suited for SIL1 loops (full FMEDA report available).

APPLICATIONS

Pump protection, low or high flow indication, high viscosity level, high temperature/pressure, interface detection

MEDIA: All types of gases and liquids

VESSELS: Pipe sizes down to 1/4". Max sensor length up to 3.3 m (10.8 ft). Can be installed vertically/horizontally.

CONDITIONS: Can be used on conductive and non conductive media, very light density to heavy viscous media. Can be set to ignore foam, aeration and turbulence.

AGENCY APPROVALS

	Ex d	Ex ia	Ex n	Ex t	XP	IS	NI	Other
ATEX		•						
EAC (GOST)		•						
SIL	SIL 1 (1001)							
Other approvals are available; consult factory for more details.								