

MultiTrode.
For ultra-reliable
level sensing
and control.

multitrode
WATER • WASTEWATER • PUMP STATION • TECHNOLOGY

The Liquid Level Sensor you don't need to clean.

The most reliable and cost-effective level sensor for wastewater.

Lasts for over 20 years!

- Reduces maintenance costs.
- No more false readings or burnt-out pumps.
- Simple to install and guaranteed for 10 years.
- Cuts the risk of spills.

Why is it so reliable?

No electronics and no moving parts means there is nothing to fail – that's why it gets a 10-year warranty.

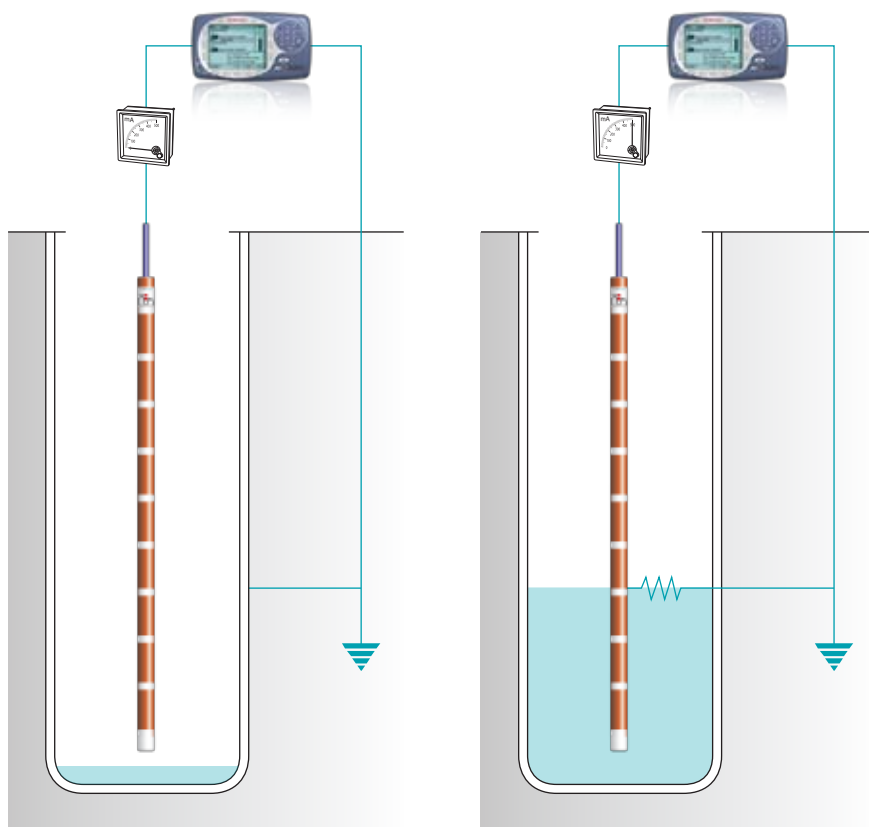
How does it work?

The Probe works by using the conductive properties of the water itself to complete a circuit with a controller. It's mounted near the inflow, allowing the turbulence to keep it clean. Even if a build-up does occur it's usually conductive (in wastewater) and so the Probe keeps right on working.

When cleaning is required, the probe is installed off a mounting bracket that includes a cleaning device.



Typical installation in the UK.



When a sensor is not covered with liquid there is no circuit to ground/earth.

Each sensor completes a separate circuit to ground/earth through the liquid.

Primary Level in Wastewater.

Connects to:



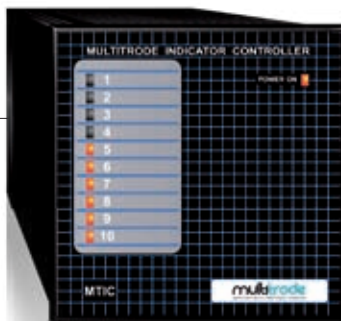
MultiSmart Pump Station Manager

Full control and monitoring with SCADA connectivity – see MultiSmart brochure for details.



MTDPC Pump Controller

Simple lead/lag control with level display, typically non-utility.



MTIC Indicator Controller

4-20mA output to connect to PLC control and 10 Digital Outputs (for each level sensor) for simple control.



MTISB Intrinsically Safe Barrier

The MTISB is used between the MultiTrode probes and control equipment. It eliminates the risk of dangerous energy entering the potentially explosive environment where the probe is located. 5-channel (MTISB5) and 10-channel (MTISB10) barriers available.

Primary Level in Industrial Applications.

Single Pump Control.

Works well in confined spaces and with a wide variety of effluents.



MTR with
2 single sensor probes



MTRA with
3 single sensor probes



SafeSmart-TL version with
3-sensor probe

2 Pump Control.



MTIC with 10-sensor probe



MTDPC with 10-sensor probe



Two single sensor probes (e.g. from a sump pack),
with optional extender bracket.

How accurate is the Probe?

The probe gives 10% resolution, more than enough for most pump stations.

Why is it easier to install than other level devices?

All you do is hang the Probe on its own cable into your wet well, using the bracket we supply. Installation is simple – any one of your technicians could do it in an hour or so. What's more, you install the Probe relatively low down in the wet well, so compared to ball floats it allows the well to be cleaned out more thoroughly. That means less debris build-up, odors and pump clogs.

Why do we like the Probe? It's simple, safe, cuts
maintenance time and makes life so much easier!

Gray Walls, Public Works Director, Town of Troy, NC

Backup Control - Simple Spill Preventer.

The sump pack (MTR or MTRA with 2-single sensor probes) is ideal as a spill preventer. Instead of having a high level float wired as a high level alarm, the sump pack provides simple but effective backup control for those times when the primary control system has failed.

It keeps the well emptied, giving you more time to deal with the problem.

Better Backup Control - Advanced Spill Preventer.

The SafeSmart family provides better backup control by reading the thermal state of the pump (via thermistors and thermal switches) to ensure the pump doesn't run while too hot, even under backup conditions.

Specifications for ordering the Probe.

The mounting bracket is a standard accessory supplied with the multi-sensor probes (3-sensor and 10-sensor probes) and is available as an optional extra on the single sensor probe.

ORDERING EXAMPLES AND INFORMATION

Model Code	Probe Length	Number of Sensors	Sensor Separation
0.2/1-xx	0.2m / 8in	1	N/A
0.5/3-xx	0.5m / 16in	3	150mm / 6in
1.0/10-xx	1.0m / 40in	10	100mm / 4in
1.5/10-xx	1.5m / 60in	10	150mm / 6in
2.0/10-xx	2.0m / 80in	10	200mm / 8in
2.5/10-xx	2.5m / 96in	10	250mm / 10in
3.0/10-xx	3.0m / 115in	10	300mm / 12in
6.0/10-xx	6.0m / 224in	10	600mm / 24in
9.0/10-xx	9.0m / 368in	10	900mm / 40in

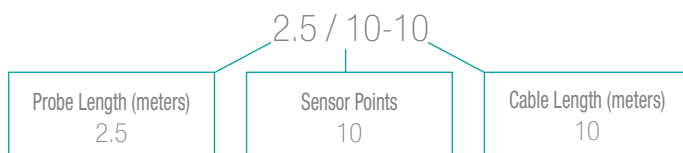
xx = 10 (for 10m or 33ft of cable); or 30 (for 30m or 100ft of cable)

Probes are supplied with a standard length of cable in either 10m / 33ft or in 30m / 100ft lengths.

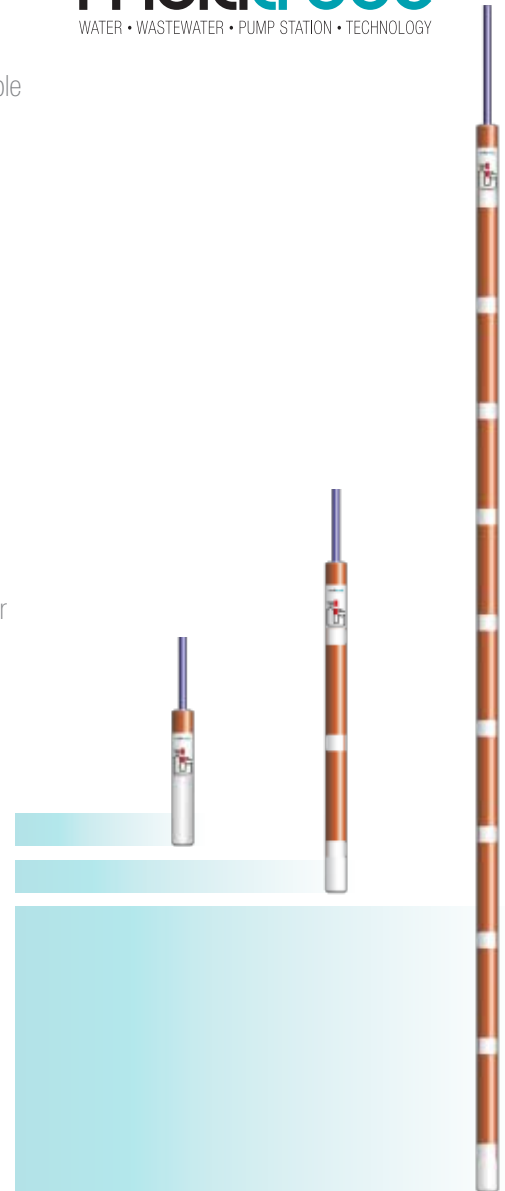
SPECIAL PROBES

Special Probes with custom sensor spacing are available to suit your every application (18 sensors maximum).

Please call our office and speak with our design team for your customized drawing.



Add "FSP" to the end of the part number to order the failsafe probe (for use with MultiSmart and the SafeSmart range).



The sump pack is also ideal for primary pump control in industrial applications.



MTDPC

Simple 2-pump control, with operator interface. Suitable for empty (pump down) and fill (pump up) applications and for use with the MultiTrode probe.

The MTDPC integrates all basic control functions into one panel – with setpoints for two pumps with alternation, a fault input for each pump and an operator interface showing pump status at a glance.

- Level display, pump and fault status indication.
- Alternation or fixed sequence.
- Adjustable setpoints via the keypad.
- Adjustable sensitivities for a wide range of liquids.
- Cost-effective and simple to use.
- Pump auto / off / manual selection.
- Level simulator via keypad to test the control panel.

Applications:

- Effluent and stormwater pits.
- Sullage pits.
- Water tanks.
- Car park pits.
- Wash down pits.
- Basement sumps.

MTDPC SPECIFICATIONS

MODE OF OPERATION:

Mode	Fill or Empty (Charge or Discharge) Selectable via function switch
Pump Alternation	Alternation or Fixed: Selectable via Keypad

LEVEL SENSING PROBE INPUTS:

Number of inputs	10
Output voltage	10VAC Nominal (open circuit)
Output current	0.8mA max. (per sensor)
Sensitivity settings	1k, 4k, 20k and 80k Ohm Via function switch
Max cable length	50m

BUTTONS:

Pump Mode:	Auto / Off / Manual
Fault Resets:	Pump 1, 2 and Level Alarms.
Configuration:	Alternation / fixed sequence Level and alarm setpoints Level simulation

FAULT INPUTS

Fault Input:	Critical (Lockout) or Non-Critical (Auto Reset); Selectable via function switch, one fault input per pump
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RELAY OUTPUTS:

No. of relay outputs	2 pump N/O, 2 alarm (steady or flash) N/O 1 common alarm N/O
Relay contact rating	250VAC 5A Resistive, 2A Inductive
Relay contact life	10 ⁵ @ 2A Operations

DISPLAY:

LEDS	Hi intensity (Red & Green)
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PHYSICAL PRODUCT:

Controller Dimensions	3 3/4"H x 3 3/4"W x 5 11/16"D (inches) 95H x 95W x 145D (mm)
Material	Aluminium and Polycarb
Mounting	DIN Rail Mounted
Terminal size	2 x 13 AWG / 2.5mm ²
Keypad Dimensions	4 1/8"H x 6 7/8"W x 1"D / 105H x 175W x 24D (mm)
Material	Polycarbonate
Mounting	Panel Mounted

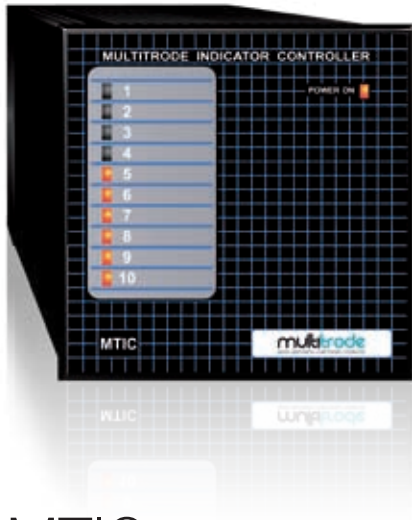
POWER SUPPLY:

Supply voltage AC	MTDPC 3 110VAC nom. 50/60Hz MTDPC 2 240VAC nom. 50/60Hz
Power Consumption	6VA max.

ENVIRONMENTAL RANGE:

Operating Temp.	-10°C to +60°C (+14°F to 140°F)
Humidity	90% non condensing

RECOMMENDED PROBE 10-SENSOR PROBE



MTIC

Connect the MultiTrobe probe to a PLC/RTU – or provide independent control.

The MTIC Indicator Controller provides continuous level indication and pump control from the MultiTrobe probe.

The 4-20mA output allows the probe to be connected to a PLC or dedicated pump controller system. The 10 Digital Outputs (one for each probe input) provide a mechanism for simple pump control without any other control device.

- 4-20mA output.
- 10 digital outputs.
- Bargraph for level indication.
- Control up to 3 pumps.

MTIC SPECIFICATIONS

MODE OF OPERATION:

Mode	Fill or Empty (Charge or Discharge)
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PROBE INPUTS:

Sensor Inputs	10
Sensor Voltage	10VAC Nominal
Sensor Current	0.8mA max (per sensor)
Sensitivity	1k, 4k, 20k, 80k Ohms

RELAY OUTPUTS:

Selectable Delays	0, 5, 10, 15 sec
Relay contact rating	250VAC 5A Resistive, 2A Inductive
Relay contact life	10 ⁵ Operations
Terminal size	2 x 2 x 13 AWG / 2.5mm ²

ANALOG OUTPUT:

Analog	4-20mA RLoad < 940 Ohms
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DISPLAY:

LEDs	10 LED bargraph & Power On
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PHYSICAL PRODUCT:

Dimensions	3.78"H x 3.78"W x 5.12"D (inches) 96H x 96W x 130D (mm)
Mounting	Panel mounted through cut-out (brackets supplied)
Enclosure	Extruded aluminum

POWER SUPPLY:

Supply Voltage AC	MTIC2 240V, 50/60Hz MTIC3 110V, 50/60Hz
Power Consumption	16VA max.
Supply Voltage DC	MTIC5 24V MTIC6 12V
Power Consumption	10W max.

ENVIRONMENTAL RANGE:

Operating Temp.	-10°C to +60°C (+14°F to 140°F)
Humidity	90% non condensing

RECOMMENDED PROBE 10-SENSOR PROBE



NEW

SAFE-FSP & SAFE-TL SafeSmart Backup Controllers.

For the rare times when the primary control or primary level device fails, an independent backup control system reduces the risk of spills.

SafeSmart Backup Controllers, used with a 3-sensor probe (or 3 single-sensor probes), are the next generation of backup systems for wastewater lift stations.

Most utilities have been using a high level sensor into their primary control device, so if the primary control device fails the operations staff find out through a 'Comms Fail' alarm from the SCADA system. This puts time pressure on every aspect of the organization.

A SafeSmart Backup Controller helps avoid this risk.

Complete back up controller including pump control, level alarms and pump sensor inputs:

- Perfect pump control for one pump (either primary or redundant control).
- One level alarm - either high or low.
- Manual (hand) operation from an external selector switch or (SAFE-TL only) keypad.
- Pump thermal protection (thermistor, thermal switch or Flygt FLS).
- Adjustable delays for pump start / stop and alarms.
- Failed Probe detection (requires new failsafe probe).
- Adjustable sensitivity for MultiTrobe probe.
- Parallel operation with MultiSmart.

SAFE-TL also has:

- Seal and thermal protection from Flygt FLS input.
- Remote mount keypad.

SAFE-FSP SPECIFICATIONS

MODE	Fill or Empty (Charge or Discharge) Start / Stop / High level or Low Level Alarm
RELAY OUTPUTS	Pump, Alarm, Probe Fail
RELAY RATINGS	5A Resistive, 2A Inductive, 30VDC or 250VA Contact Life 10 ⁵ operations
PROBE INPUTS	Low / High / Alarm / Alarm failsafe
PUMP INPUT	PTC thermistor or Thermal N/C or Flygt FLS [note] Can work in parallel with MultiSmart pump controller
DIGITAL INPUTS	- Manual (hand) mode - Off mode
DIP SWITCHES	- Empty or Fill mode - High or Low level alarm - Pump Activation Delay 0.5 or 30s - Pump Deactivation Delay 0.5 or 30s - Alarm Activation & Deactivation Delay 0.5 or 30s - Level Alarm & Probe Alarm Outputs N/C or N/O - Probe Sensitivity 1k, 4k, 20k or 80k
DISPLAY LEDS	- Power - Level Alarm - Pump Relay - Thermal Fault - Probe Fault
POWER SUPPLY	11-30v DC @ 0.15A 85-265V 50/60Hz, 3VA
PHYSICAL PRODUCT	DIN rail mounted (4.2"H x 3.0"W x 0.7"D (inches) 106H x 75W x 17D (mm)
ENVIRONMENTAL RANGE	-10°C to +60°C (+14°F to 140°F) Relative Humidity 5 to 90%, non-condensing
ORDERING INFORMATION	SAFE-FSP
RECOMMENDED PROBE ONE FAILSAFE 3-SENSOR PROBE	

SAFE-TL SPECIFICATIONS

MODE Start / Stop / High level or Low Level Alarm

RELAY OUTPUTS Pump, Alarm, Thermal / FLS

RELAY RATINGS 5A Resistive, 2A Inductive, 30VDC or 250VA
Contact Life 10⁵ operations

PROBE INPUTS Low / High / Alarm / Alarm failsafe

PUMP INPUT PTC thermistor or Thermal N/C or Flygt FLS [note] Can work in parallel with MultiSmart pump controller
- Seal

DIGITAL INPUTS - Manual (hand) mode

DIP SWITCHES

- Empty or Fill mode
- High or Low level alarm
- Pump Activation Delay 0.5 or 10s
- Seal Fault Operates DO3 or Indicates LED only
- Thermal Input to be Thermal Only or Thermal & Seal (miniCAS)
- Thermal Reset is Manual or Auto
- Probe Sensitivity 1k, 4k, 20k or 80k

DISPLAY LEADS

- Power
- Level Alarm
- Pump Relay
- Thermal Fault
- Seal Fault

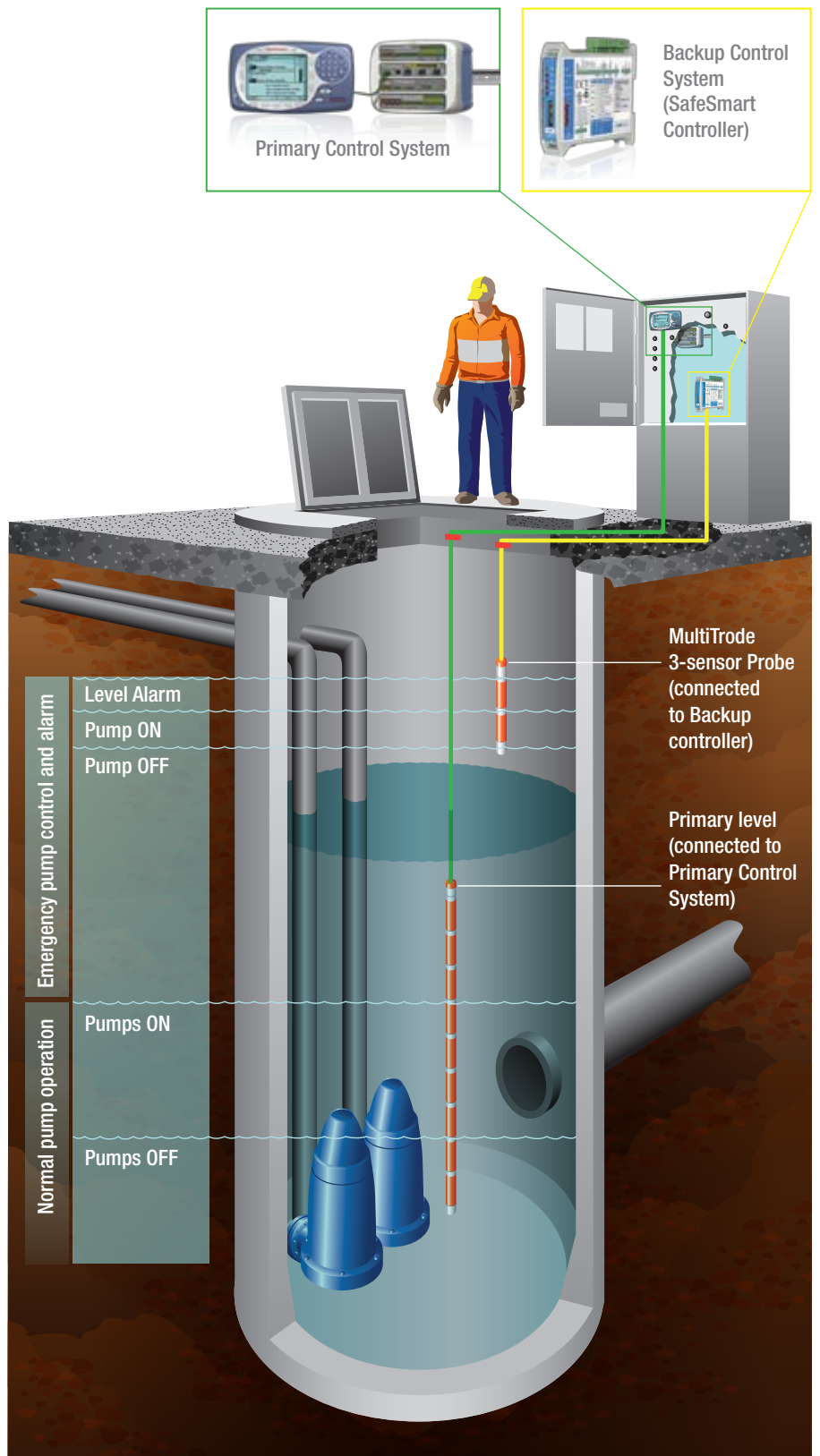
POWER SUPPLY 11-30v DC @ 0.15A
85-265V 50/60Hz, 3VA

PHYSICAL PRODUCT DIN rail mounted
(4.2"H x 3.0"W x 0.7"D (inches)
106H x 75W x 17D (mm)

ENVIRONMENTAL RANGE -10°C to +60°C
(+14°F to 140°F)
Relative Humidity 5 to 90%, non-condensing

ORDERING INFORMATION SAFE-TL

RECOMMENDED PROBE ONE FAILSAFE 3-SENSOR PROBE





SAFE-FS

SafeSmart Failsafe Level Alarm Relay.

The Safe-FS is the next generation of ultra-reliable high level alarming for lift stations and pump stations. It adds failsafe probe functionality, for example, for a situation where rats have been eating through cables. The -FS verifies that the high level alarm is always functioning.

Level Alarm Relay for use with the new failsafe probe.

- Separate relays for level alarm & loss of probe.
- N/O or N/C outputs.
- Adjustable delays.
- LED indication for power, level alarm, loss of probe alarm.

SAFE-FS SPECIFICATIONS

MODE	High Level or Low Level Alarm
RELAY OUTPUTS	- Level alarm N/O or N/C, 0.5s or 10s delay - Probe fail N/O or N/C, 0.5s or 10s delay [note] requires failsafe probe
RELAY RATINGS	- 5A Resistive, 2A Inductive, 30VDC or 250VA - Contact Life 10 ⁶ operations
PROBE INPUTS	- Alarm sensor - Failsafe for alarm sensor
DISPLAY LEDS	- Power On Green, flashes when low - Level Alarm Red, flashes when alarm active - Probe Alarm Red, flashes when alarm active
POWER SUPPLY	11-30v DC @ 0.15A max
PHYSICAL PRODUCT	(4.2"H x 3.0"W x 0.7"D (inches) DIN rail mounted 106H x 75W x 17D (mm)
ENVIRONMENTAL RANGE	-10°C to +60°C (+14°F to 140°F) Relative Humidity 5 to 90%, non-condensing
ORDERING INFORMATION	SAFE-FS
RECOMMENDED PROBE	ONE FAILSAFE SINGLE SENSOR PROBE



MTR family

Simple, reliable and effective – for use with MultiTrode probes or in any control application.

The MTR family gives an ultra-reliable, maintenance free level control system. Use it with the MultiTrode conductive probes and it works in the worst kind of liquids:

- Wastewater.
- Stormwater.
- Industrial effluent.
- Sullage pits.

The adjustable conductivity settings and adjustable delays give it the flexibility that other systems lack.

The MTR controls one pump in fill (pump up) and empty (pump down) applications. The MTRA controls one pump and one alarm in empty only mode.

The MTR family is also available with single sensor probes as a package: MT-SSP

To order the Sump Pack, use the order code MTSSP - relay part number - probe cable length in m.

E.g. MTSSP-MTR3-10 is the ordering code for the sump pack with MTR3 and 2-single sensor probes each with 10m / 33ft of cable.

MTR SPECIFICATIONS

MODE OF OPERATION:

MTR Mode	Fill or Empty (Charge or Discharge)
MTRA Mode	Empty ONLY

PROBE INPUTS:

Sensor inputs	MTR : 2 / MTRA : 3
Sensor voltage	10 / 12VAC Nominal
Sensor current	0.8mA max. (per sensor)
Sensitivity	1k, 4k, 20k, 80k

RELAY OUTPUTS:

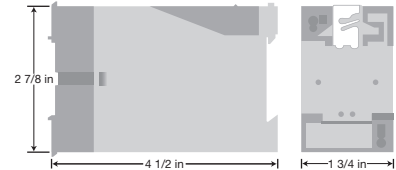
MTR relay output	2 contact sets : 1 N/O & 1 C/O
MTR output delay	0, 2.5, 5, 10, 20, 40, 80, 160 sec
MTRA relay output	2 relays : both N/O
MTRA output delay	Pump: 0.5, 10; Alarm: 0.5, 15 sec
Relay contact rating	250 VAC 5A Resistive, 2A Inductive
Relay contact life	10 ⁵ Operations
Terminal size	2 x 13 AWG / 2.5mm ²

DISPLAY

LEDs:	Power On	Pump	Alarm
MTR	Green	Red	
MTRA	Green	Yellow	Red

PHYSICAL PRODUCT:

Dimensions	2.7/8"H x 1.3/4"W x 4.1/2"D (Inches) 72H x 45W x 114D (mm)
Mounting	DIN Rail or 2 x #6 Screws / 2 x M4 Screws
Enclosure	Makrolon (self-extinguishing)



POWER SUPPLY:

Supply Voltage AC	MTR-2 / MTRA-2 240V 50/60Hz MTR-3 / MTRA-3 110V 50/60Hz MTR-4 / MTRA-4 24V 50/60Hz
Power Consumption	3.5W max.
Supply Voltage DC	MTR-5 / MTRA-5 24V MTR-6 / MTRA-6 12V
Power Consumption	3W max.

ENVIRONMENTAL RANGE:

Operating Temp.	-10°C to +60°C (+14°F to 140°F)
Humidity	90% non condensing

RECOMMENDED PROBE

MTR	2 single-sensor probes
MTRA	3 single-sensor probes, or a 3-sensor probe

A 10-sensor probe can also be connected to the sensors, when you need to have the versatility to change setpoints without going back into the pit.

All specifications subject to change without notice.



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