ANALOGUE PROCESS CONTROLS

Standard Items

Type	Range	Part Number
Tachometer relay	5 -100 rpm	TR4801-01-110/230VAC
Tachometer relay	50 -1000 rpm	TR4801-02-110/230VAC
Tachometer relay	500 -10000 rpm	TR4801-03-110/230VAC

Note: For suitable panel mounting or DIN rail wiring sockets see page 39.

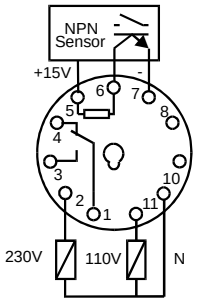
FSRS Shaft Rotation Sensor

The FSRS shaft rotation sensor is specifically designed to prevent access to a normally rotating machine until it has slowed to a safe speed. An adjustable potentiometer on the facia enables the sensor to be set for an appropriate minimum speed which may be considered as safe for the operator to gain access. If the sensor does not receive a pulse within the time set by the potentiometer, it's output will energise and this signal can be used to disable a guard. By using the normally closed contacts the sensor becomes fail-safe in the event of loss of power.

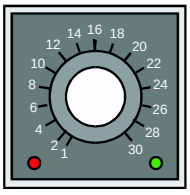
Specification

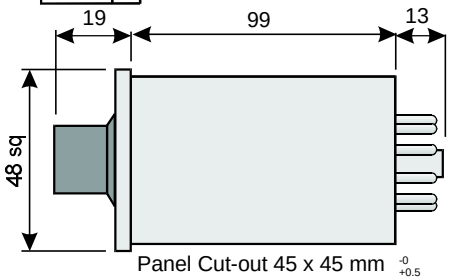
Supply voltage :	110/230(220-240)Vac @ 50/60 Hz
Power drain :	4VA
Time delay :	1 to 30 seconds
Sensing speed :	Calculated by S_{min} = 60/nT rpm where n = No. of pulses per revolution T = time set on potentiometer
Min. Pulse width:	3 msecs (for 50% duty cycle). To calculate the minimum 'flag' width (W_f) use the formula $W_f = \pi r/10$ mm(50% duty) where r = radius of shaft
Input sensor:	Any volt-free contact(no bounce) or 3-wire active sensor with a power consumption of < 25mA at 15Vdc. See SI or SC series sensors on pages 31 - 33.
Output rating:	SPCO relay rated at 5A/240Vac/30Vdc resistive
Electrical life:	100,000 ops at rated load
Ambient range:	10 to 50°C non-condensing
Approvals:	Conform to CE emc EN50081-1 & EN50082-1 and low voltage EN6010-1 directives

Connection Diagram



Dimensions





Panel Cut-out 45 x 45 mm $^{-0}_{+0.5}$

Standard Item

Type	Delay	Part Number
Shaft Rotation Sensor	30 sec	FSRST30SLP-110/230VAC

Note: For suitable panel mounting or DIN rail wiring sockets see page 39.

FLST Liquid Level Detector

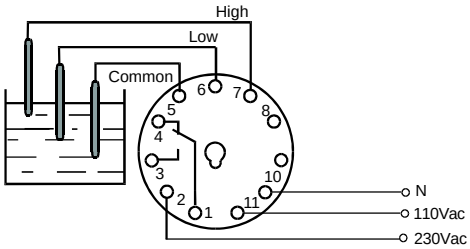
The FLST liquid level detector has a fixed sensitivity, designed primarily to sense water using a conductive differential sensing device. By shorting the high and low probes, however, it can also be used for single point detection. Under differential operation, the output relay will energise when the liquid falls below the 'Low' level and de-energise when it rises above the 'High' level.

* Differential or single point sensing
* Level indicating LEDs
* Dual supply voltage

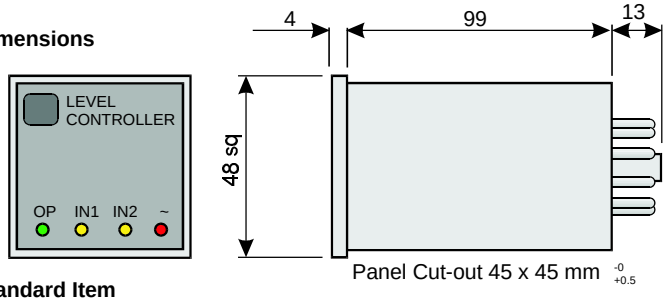
Specification

Supply voltage:	110/230(220-240)Vac @ 50/60 Hz
Power drain:	4VA
Operating res:	950KΩ on, 220KΩ off
Sensing delay:	500 msec typical
Output rating:	SPCO relay rated at 5A/240Vac/30Vdc resistive
Electrical life:	100,000 ops at rated load
Ambient range:	-10 to 60°C non-condensing
Approvals:	Conforms to CE emc EN50081-1 & EN50082-1 And low voltage EN6010-1 directives
Weight:	180gms

Connection Diagram



Dimensions



Panel Cut-out 45 x 45 mm $^{-0}_{+0.5}$

Standard Item

Type	Part Number
Differential Level sensor	FLST -110/230VAC

Note: For suitable panel mounting or DIN rail sockets see page 39.

FLDT Liquid Level Detector

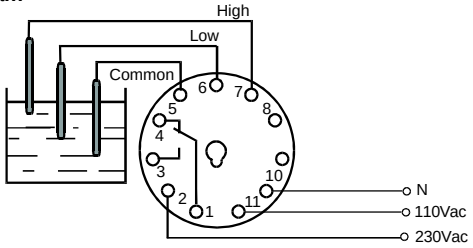
The FLDT liquid level detector is designed to operate with a differential sensing device but by shorting the high and low probes it can also be used for single point detection. A sensitivity control on the front of the unit enables it to be used for a wide range of conductive liquids. Under differential operation, the output relay will energise when the liquid falls below the 'Low' level and de-energise when it rises above the 'High' level.

* Differential or single point sensing
* Adjustable sensitivity control
* Dual supply voltage

Specification

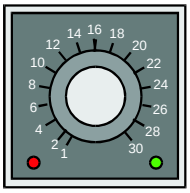
Supply voltage:	110/230(220-240)Vac @ 50/60 Hz
Power drain:	4VA
Operating resistance range:	2KΩ ON, 5KΩ OFF to 20KΩ ON, 59KΩ OFF
Sensing delay:	500 msec typical
Output rating:	SPCO relay rated at 5A/240Vac/30Vdc resistive
Electrical life:	100,000 ops at rated load
Ambient range:	-10 to 60°C non-condensing
Approvals:	Conforms to CE emc EN50081-1 & EN50082-1 And low voltage EN6010-1 directives
Weight:	200gms

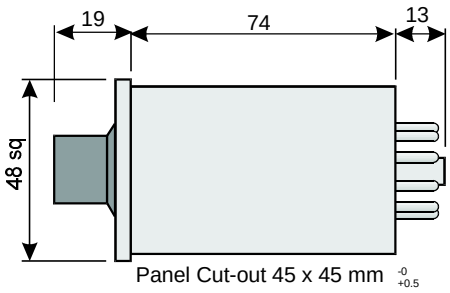
Connection Diagram



DIGITAL TEMPERATURE CONTROLLERS

Dimensions





Panel Cut-out 45 x 45 mm $^{-0}_{+0.5}$

Standard Item

Type	Part Number
Differential Level sensor	FLDT -110/230VAC

Note: For suitable panel mounting or DIN rail sockets see page 39.

T3S Thumbwheel On/Off/Prop LED Temperature Controllers

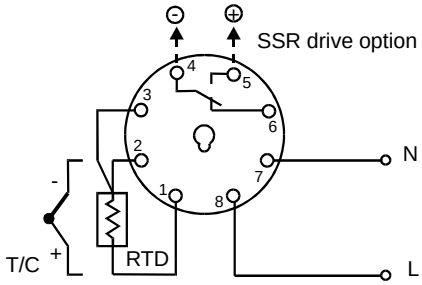
The T3S range of temperature controllers offer easy to set, non programmable digital on/off or proportional control. Options are available for J/K thermocouples and PT100 RTDs inputs with either relay or SSR drive outputs.

* Selectable on/off or proportional action
* Upto 800°C scale ranges
* J, K T/couple or PT100 input options
* Relay or SSR drive output options

Specification

Supply voltage:	90 to 264Vac/dc @ 50/60 Hz	
Power drain:	5VA max.	
Scale accuracy:	+/- 1% of FSD	
Scale ranges:	PT100:	99.9, 199, 399°C
	J T/c:	199, 399°C
	K T/c:	399, 799°C
Max ext. resist:	T/couple:	100 Ω, PT100: 5 Ω per wire
Control band:	On/Off:	Hysteresis = 0.2 to 0.5% of scale range
	Propl:	Propl. band = up to 3% of scale range
Reset adjust:	+/-3% of Scale Range	
Output rating:	Relay:	2A/240Vac resistive
	SSR:	20mA/12Vdc
Electrical life:	100,000 ops at rated load	
Ambient range:	-10 to 50°C non condensing	

Connection Diagram



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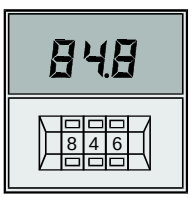
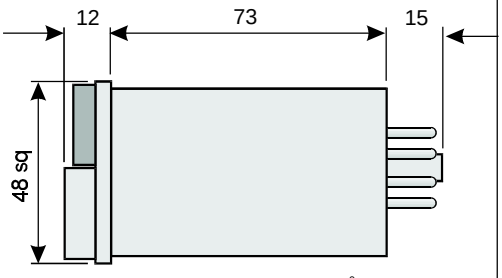




Panel cut-out 45 x 45 $^{-0}_{+0.5}$

Standard Items

Input	Output	Range	Part Number
J T/c	Relay	0 to 199°C	T3S-B4RJ2C
J T/c	Relay	0 to 399°C	T3S-B4RJ4C
K T/c	Relay	0 to 399°C	T3S-B4RK4C
K T/c	Relay	0 to 799°C	T3S-B4RK8C

For suitable panel mounting or DIN rail wiring sockets see page 39.

DTC410 On/Off LCD Temperature Controllers

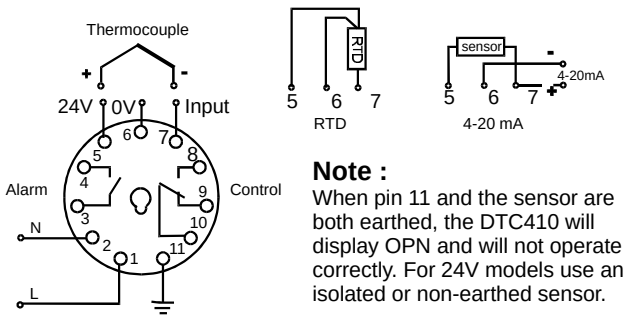
The DTC410 range of on/off temperature controllers are designed to offer the programmable functionality of modern PID controllers but at a price suited to on/off applications. The clear LCD display and 2-button programming gives an easy to use set-up procedure. Message displays also provide a clear indication of alarms or error status. For the matching UDT timer see page 7.

* 4 programmable t/couple input options
* PT100 & 4-20mA input options
* Programmable set-point limits
* 10 programmable alarm options
* Direct or reverse action

Specification

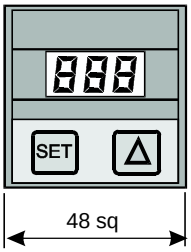
Supply voltage:	24Vac/dc @ 60mA max.	
	110Vac, 50/60 Hz @ 1.5VA max.	
	220-240Vac, 50/60 Hz @ 1.5VA max.	
Sensor options:	J, K, T, N T/couples, PT100 and 4-20mA	
Scale ranges:	J T/c	= -99 to 700°C (999°F)
	T T/c	= -99 to 300°C (570°F)
	K & N T/c	= -99 to 999°C or F
	PT100	= -99 to 400°C (700°F)
	4-20mA	= scalable -99 to 999 units
Gain accuracy:	T/c	= +/- 0.25% of scale range
	Others	= +/- 0.6% of scale range
Offset accuracy:	T/c = +/- 5°C, PT100 = +/- 2°C	
Outputs:	Control:	3A @ 240Vac, SPCO relay
	Alarm:	0.5A @ 120Vac, SPNO relay
Approvals:	Conforms to CE generic standards EN50081-1 and EN50082-1 for emc and EN61010-1 for low voltage	
Ambient range:	-10 to 50°C non-condensing	
Memory back-up:	Lithium battery with 10 years operating life	
Weight:	205gms	

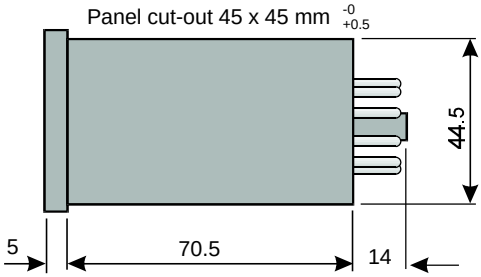
Connection Diagram



Note :
When pin 11 and the sensor are both earthed, the DTC410 will display OPN and will not operate correctly. For 24V models use an isolated or non-earthed sensor.

Dimensions





Standard Items

Input	Voltage	Part Number
Thermocouple	24Vac/dc	DTC410-01-24
	110Vac	DTC410-01-110
	230Vac	DTC410-01-230
PT100	24Vac/dc	DTC410-02-24
	110Vac	DTC410-02-110
	230Vac	DTC410-02-230
4-20 mA	24Vac/dc	DTC410-03-24
	110Vac	DTC410-03-110
	230Vac	DTC410-03-230

For suitable panel mounting or DIN rail wiring sockets see page 39. For thermocouples, PT100 and other applicable types of sensor see page 28.