

TURCK

Level Sensors - Conductive Rods

Conductive Level Probes and Controllers

TURCK offers liquid level probes for use in conjunction with our level control monitors, to provide a simple solution for liquid level applications. The resistance between the terminals is measured to determine the level of the medium in the tank.

Level Controllers

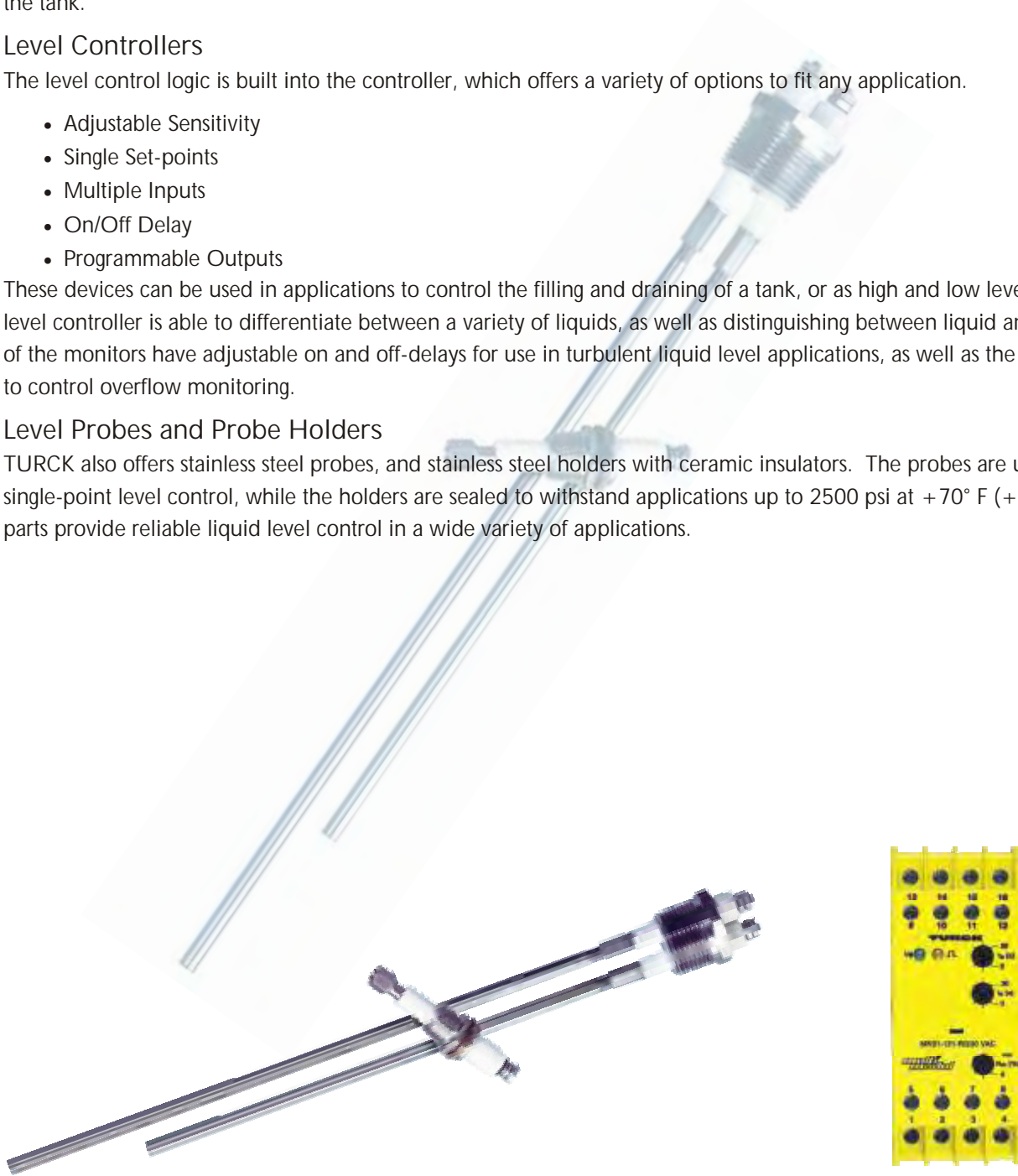
The level control logic is built into the controller, which offers a variety of options to fit any application.

- Adjustable Sensitivity
- Single Set-points
- Multiple Inputs
- On/Off Delay
- Programmable Outputs

These devices can be used in applications to control the filling and draining of a tank, or as high and low level alarms. The level controller is able to differentiate between a variety of liquids, as well as distinguishing between liquid and foam. Many of the monitors have adjustable on and off-delays for use in turbulent liquid level applications, as well as the necessary logic to control overflow monitoring.

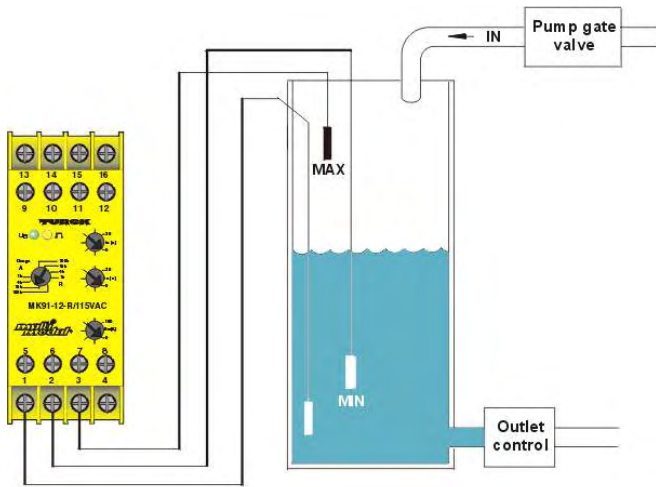
Level Probes and Probe Holders

TURCK also offers stainless steel probes, and stainless steel holders with ceramic insulators. The probes are used to provide single-point level control, while the holders are sealed to withstand applications up to 2500 psi at +70° F (+21°C). These parts provide reliable liquid level control in a wide variety of applications.



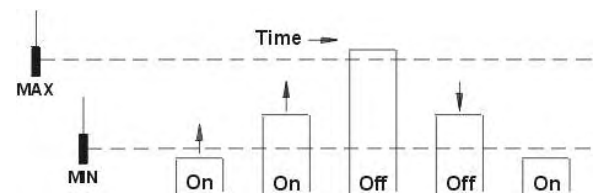
Level Detection Application Examples

Control for Pump-in "Filling" a Tank

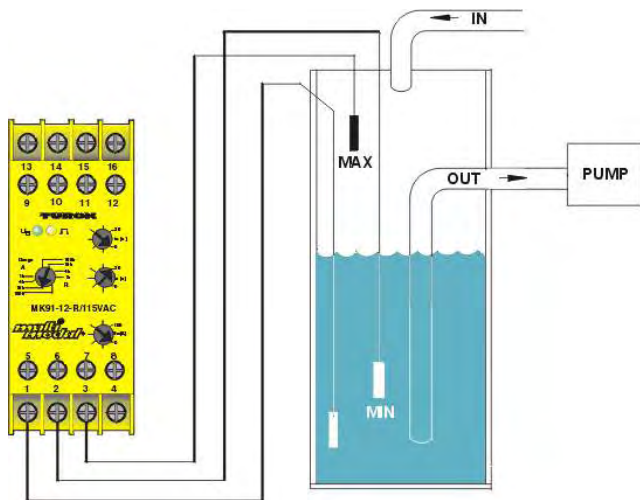


Example Application using MK91-12-R/...

The MK91-12-R will start a pump or open a fill valve when the liquid drops below the MIN level probe and will remain on until the MAX level probe is reached. The relay then de-energizes and stays off until the MIN level is reached. The pump or valve does not cycle constantly, as would be the case if only one sensor were used.

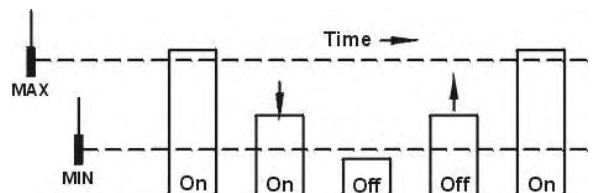


Control for Pump-out "Draining" a Tank



Example Application using MK91-12-R/...

The MK91-12-R will start a pump when the liquid reaches the MAX level probe and remain on until the MIN level probe is reached. The relay then de-energizes and stays off until the MAX level is reached. The pump or valve does not cycle constantly, as would be the case if only one sensor were used.



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MK91-121-R.. and MK91-12-R..

Galvanic Isolation	between input, output and supply circuits, test voltage 2.5 kVrms
Probe Voltage	0.02-5 V _{pp} /150 Hz (delta)
Sensitivity Ranges (Switching Thresholds)	
- Range 1	0.2-1 kΩ
- Range 2	0.8-4 kΩ
- Range 3	2.5-15 kΩ
- Range 4	10-100 kΩ
Hysteresis	approx. 10%
Switch-on Delay	0-20 s (adj.)
Switch-off Delay	0-20 s (adj.)
Contact Material	silver alloy + 3 μ Au
Switching Capacity	≤500 VA / 60 W
Protection	IP 20
Mounting	DIN 50022 or pull-out tabs
Operating Temperature	-25°C to +60°C (-13°F to +140°F)
Line Frequency (AC)	48-62 Hz
Ripple (DC)	≤10%

MS91-12-R..

Galvanic Isolation	between input, output and supply circuits
Probe Voltage	typ. 5 V _{pp} /100 Hz (delta)
Sensitivity Ranges (Switching Thresholds)	
- Range 1	0.1-1 kΩ
- Range 2	0.5-5 kΩ
- Range 3	2-20 kΩ
- Range 4	10-100 kΩ
Hysteresis	10%
Switch-on /Switch-off Delay	0.1-15 s (adj.)
Contact Material	AgCdO
Switching Capacity	≤500 Va/60 W
Protection	IP 20
Mounting	DIN 50022 or pull-out tabs
Operating Temperature	-25°C to +60°C (-13°F to +140°F)
Line Frequency (AC)	48-62 Hz
Ripple (DC)	≤10%

Galvanic Isolation	between input and output circuit, insulation test voltage 4 kV/8 mm input circuit and supply voltage galvanically connected
Switching Point Deviation in	
Supply Voltage Range	≤1%
Operating Characteristics at:	V = 24 V, R _M = 40 k
- Rectangular Signal	f = 1 Hz
- Amplitude of Electrode Voltage	±2 V
- Amplitude of electrode current.	±50 μA
Contact Material	silver alloy + 3μ Au
Switching Capacity.	≤500 VA / 60 W
Protection	IP 20
Mounting.	DIN 50022 or pull-out tabs
Operating Temperature	-25°C to +60°C (-13°F to +140°F)
Line Frequency (AC)	48-62 Hz
Ripple (DC)	≤10%

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Housing Style	Part Number	ID Number	Number of Probes	Maximum Pressure (psi)	Fluid Connection
<p>Probe Holder</p>	WCC-1138	A3365	1	2500	3/8 NPT
<p>Probe Holder</p>	WCT-2	A3375	2	2500	1 in. NPT

Material

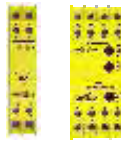
Probe Holders	303/304 Stainless Steel
Insulators	Ceramic
Probes	304 Stainless Steel

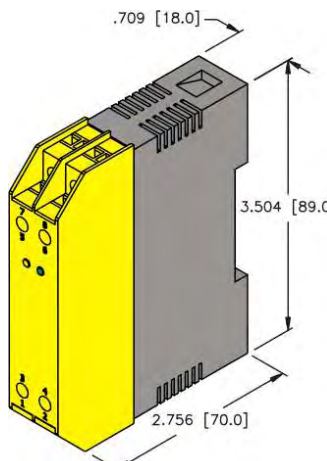
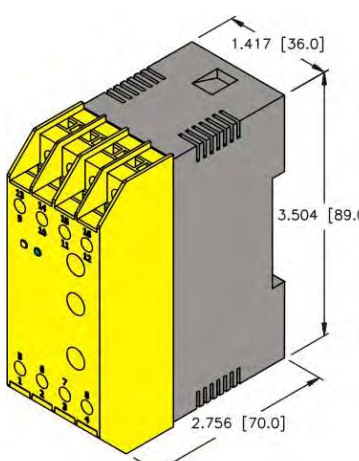
Housing Style	Part Number	ID Number	Material
Stainless Steel Probes <p>1/4 -20 THD</p> <p>LENGTH (See Part Number)</p>	91-SSP 01 Ft	A3000	304 Stainless Steel
	91-SSP 02 Ft	A3002	304 Stainless Steel
	91-SSP 03 Ft	A3004	304 Stainless Steel
	91-SSP 04 Ft	A3006	304 Stainless Steel
	91-SSP 05 Ft	A3008	304 Stainless Steel
	91-SSP 06 Ft	A3010	304 Stainless Steel
	91-SSP 07 Ft	A3014	304 Stainless Steel
	91-SSP 08 Ft	A3016	304 Stainless Steel
	91-SSP 09 Ft	A3018	304 Stainless Steel
	91-SSP 10 Ft	A3020	304 Stainless Steel

For use with Amplifiers on pages D55.

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Housing Style	Part Number	ID Number	Features	Output
<p>Level Control Monitor with Fixed Switch Point</p> 	MK 91-R11/24VDC	M7525202	Single Level Controller 10 second delay	(1) SPDT Relay
<p>Level Control Monitor, Potentiometer/Jumper Programmable</p> 	MK 91-121-R/24VDC	M7545087	Dual Level Controller, Adjustable Delay	(2) SPDT Relays/Parallel
	MK 91-121-R/230VAC	M7545080	Dual Level Controller, Adjustable Delay	

Additional specifications on pages D51-D52.

Material

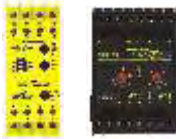
Housing	PC/ABS
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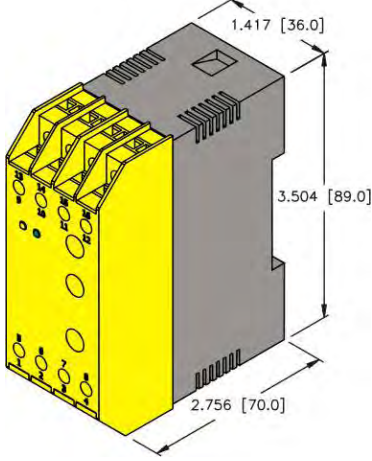
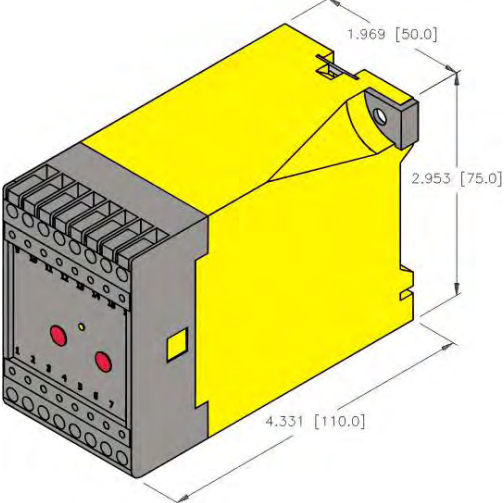
Voltage	Switching Current	Switch Point	Current Consumption	Hysteresis	Power LED	Output LED	Wiring Diagram #	Wiring Diagrams
19-29 VDC	3 A at 250 VUC	40 kΩ Fixed	≤20 mA at 24 VDC	Approx. 5%	GN	YE	1	<p>Diagram 1</p>
20-28 VDC	3 A at 250 VUC	0.2-100 kΩ	≤1.5 W	Approx. 10%	GN	YE	2	<p>Diagram 2</p>
184-264 VAC	3 A at 250 VUC	0.2-100 kΩ	3 VA / < 15 mARMS	Approx. 10%	GN	YE	2	<p>Diagram 2</p>

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Housing Style	Part Number	ID Number	Features	Output
<p>Level Control Monitor 24 VDC, Dip-Switch Programmable</p> 	MK 91-12-R/024VDC	M7545077	Dual Level Controller, Adjustable Time Delay	(2) SPDT Relays/Parallel
	MK 91-12-R/115VAC	M7545072		
	MK 91-12-R/230VAC	M7545070		
<p>Level Control Monitor, Potentiometer/Jumper Programmable</p> 	MS91-12-R	M5220110	Dual Level Controller, Adjustable Time Delay	(2) SPDT Relays

Additional specifications on page D51-D52.

Material

Housing PC/ABS

Voltage	Switching Current	Switch Point	Current Consumption	Hysteresis	Power LED	Output LED	Wiring Diagram #	Wiring Diagrams
20-28 VDC	3 A at 250 VUC	0.2-100 kΩ	≤1.5 W	Approx. 10%	GN	YE	1	<p>Diagram 1</p>
98-126 VAC	3 A at 250 VUC	0.2-100 kΩ	3 VA / < 15 mARMS	Approx. 10%	GN	YE	1	
184-264 VAC	3 A at 250 VUC	0.2-100 kΩ	3 VA / < 15 mARMS	Approx. 10%	GN	YE	1	
20-250 VUC	4 A at 250 VUC	0.1-100 kΩ	≤3 W	Approx. 10%	GN	YE	2	<p>Diagram 2</p>

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