

Multi-Function-Sensor Automatic Voltage Detection



A. u. K. Müller

Solenoid valves
Control valves
Special valves and systems

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Series IRS-UWS-xb



Resilient clip

Sensor

IR-windows

Piezotaster optional



Characteristics

- External IR-sensor with micro controller
- Compact design
- Voltage recognition 6V , 9V (battery) or 12V (power supply)
- Check and switch off in case of low battery voltage or mains power failure (with power supply IRS-PS-x only)
- Battery low voltage signal
- Low quiescent current for elongated battery lifetime
- Easy to assemble and service
- Short response time on detection of user
- Automatic detection range adjustment to environment on Power-On
- Resin moulded electronic, protection type IP 65
- High operating safety through the use of high quality materials and 100% final testing of the products
- Default values changeable by optional available remote control RC20

Description

Opto-electronic sensor unit available for use with bistable cartridge valves having a nominal voltage of 6 VDC (e.g. 50.007.101, see separate data sheets) for use for urinal, toilet (WC) or shower.

As an option, the sensors can also be supplied pre-set at the factory for monostable cartridge valves up to a maximum of 12 V DC.

Compact design for easy integration of sensor at minimum required space.

The minimised power consumption allows, using common batteries, a surpassing long durability and safe operation.

Individual settings may be achieved by an optional IR-remote control. (detection range, ON- OFF, follow-up-time).

Easy assembly, service and check of battery.

The sensor can optionally be fitted with a button connected to a cable, which can be used to start the immediate flow of water.

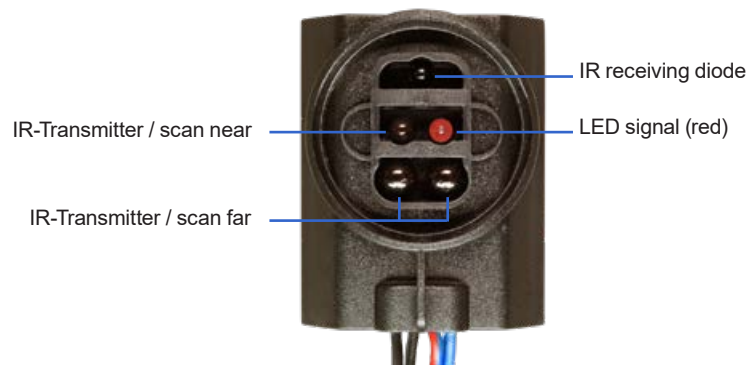
Applications

- Control unit for sanitary urinals, WC's and Showers
- Flushes
- Irrigation systems
- Industrial appliances

Modes

IRS-UWS-U	Urinal (Stadium Mode included)
IRS-UWS-WC	WC
IRS-UWS-BDM	Shower (Body Detect Mode)

The functionality is factory set to order.

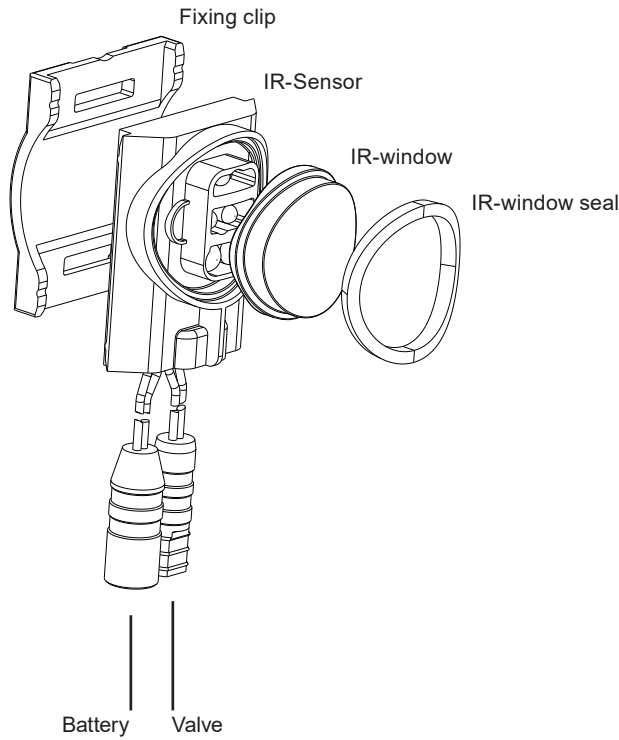


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Series IRS-UWS-xb



Materials

Housing	POM
IR-windows	PC
Resilient clip	PC
Window strip	EP cellular rubber

Options

Standard cable length			
Valve	With twin strand (red/blue) and female connector	252 ⁺¹⁰ (9.92 ^{+0.4} in)	mm
Power supply	With twin strand (red/black) and male connector	187 ⁺¹⁰ (7.36 ^{+0.4} in)	mm

Other connectors and cable types on request

Technical Data

Type	opto electronical IR-sensor	
T-Ambient	60	°C max
Nominal voltage * Un	6 9 12	V DC (battery) V DC (battery) V DC (power supply)
Operating voltage Un: 6 VDC Un: 9 VDC Un: 12 VDC	5,0 - 6,0 V DC open/close 5,7 - 9,0 V DC open/close 11,0 - 12,0 V DC open/close	
Signal of low voltage level Un: 6 VDC	< 5,55 V DC LED flashing < 5,45 V DC LED persistent signal, valve will be closed permanently	
Un: 9 VDC	< 5,7 V DC LED flashing < 5,4 V DC LED persistent signal, valve will be closed permanently	
Un: 12 VDC	< 11,0 V DC valve is closed with emergency pulse when using power supply unit IRS-PS-x	
Voltage recognition	Battery (6V or 9V): on each output pulse or every 24 h Power supply: every 0,5 sec	
Output voltage ±U	5	V DC
	for the 6 V battery the output voltage corresponds to the battery voltage	
Pulse shape/-time for bistable valves		
Output current max.	800	mA
Protection type	IP 65 according to EN 60529	
50.00x.101 (6 V DC only, see separate data sheet) Other valves on request.		
Lifetime of battery	6 V Lithium (min. 1.300 mAh) approx. 4 years ... 9 V Alkaline (min. 600 mAh) approx. 2,5 years for 150 cycles / day	

* Apply only one of the mentioned voltages!

Accessories for IR-Sensor	Thickness**		ID
Resilient clip (to fix sensor in housing)			007495
IR Window seal			007516
IR Window round	2 mm (0.08 in)		007491
IR Window squared			007492
IR Window round	3 mm (0.12 in)		007493
IR Window squared			007494

** IR Windows for use with different wall thicknesses of the tap ware.

Series IRS-UWS-xb



Default and adjustable settings

IRS-UWS-U Urinal (Stadium Mode included)	Default Settings		Optional settings with IRS - RC20 Remote Control		Push button on request *
Response time	1	sec	-	-	Yes
Detection range	650 (25.59)	mm ± 23% w/o IR-window	350 - 700 (13.78 - 27.56)	mm (in)	
Min. length of stay	7,5	sec ± 25%	-	-	
Flushing time	5,5	sec ± 1	0,1 - 12	sec	
Enforced flush **	every 24	h	1 - 72	h	

* The optional push button starts the flush procedure immediately.

Stadium mode

For the urinal functionality a stadium mode is included. If more than three detections occur within 3 minutes, the Stadium mode is set active. On each detection an opening pulse is activated first and then a closing pulse after half the set flushing time has been elapsed.

If no detection occurs within 5 minutes, the stadium mode is deactivated.

Upon request, the stadium mode can be disabled by manufacturer.

** Refer to "Enforced flush" on page 8.

IRS-UWS-WC WC	Default Settings		Optional settings with IRS - RC20 Remote Control		Push button on request *
Response time	1	sec	-	-	Yes
Detection range	650 (25.59)	mm ± 23% w/o IR-window	350 - 700 (13.78 - 27.56)	mm (in)	
Min. length of stay	5,0	sec ± 25%	-	-	
Flushing time delay	4,0	sec ± 25%	0,5 - 8	s	
Flushing time	3,0	sec ± 1	0,5 - 15,5	sec	

* The optional push button starts the flush procedure immediately.

IRS-UWS-BDM Shower (Body Detect Mode)	Default Settings*		Optional settings with IRS - RC20 Remote Control		Push button on request **
Response time	1	sec	-	-	Yes
Detection range	650 (25.59)	mm ± 23% w/o IR-window	350 - 700 (13.78 - 27.56)	mm (in)	
Min. length of stay	2,0	sec ± 25%	-	-	
Max. time of flow	600	sec ± 25%	-	-	
Turn off delay	3,0	sec ± 1	0,5 - 8	sec	
Permanent - OFF	-	-	enable / disable		

* Optional cleaning mode: covering of the sensor window for 5 s deactivates the sensor for 30 seconds.

** The optional push button starts the flow procedure immediately.

IRS-UWS-OF ON/OFF Mode	Default Settings*		Optional settings IRS - RC20 Remote Control		Push button on request **
Response time	≤ 0,5	sec	-	-	Yes
Detection range	80 (3.15)	mm	40 - 150 (1.57- 5.90)	mm (in)	
Max. time of flow	120	sec ± 25%	10 - 310	sec	
Enforced flush ***	OFF	-	1 - 72	h	
Permanent - OFF	-	-	enable / disable		

* Optional cleaning mode: covering of the sensor window for 5 s deactivates the sensor for 30 seconds.

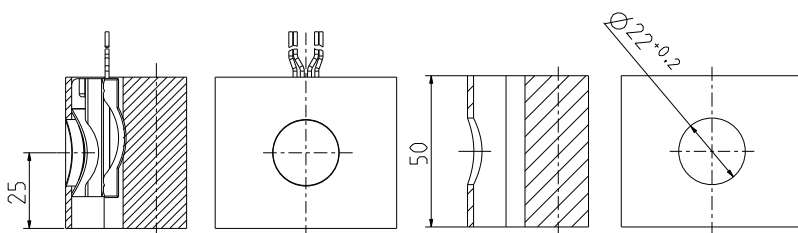
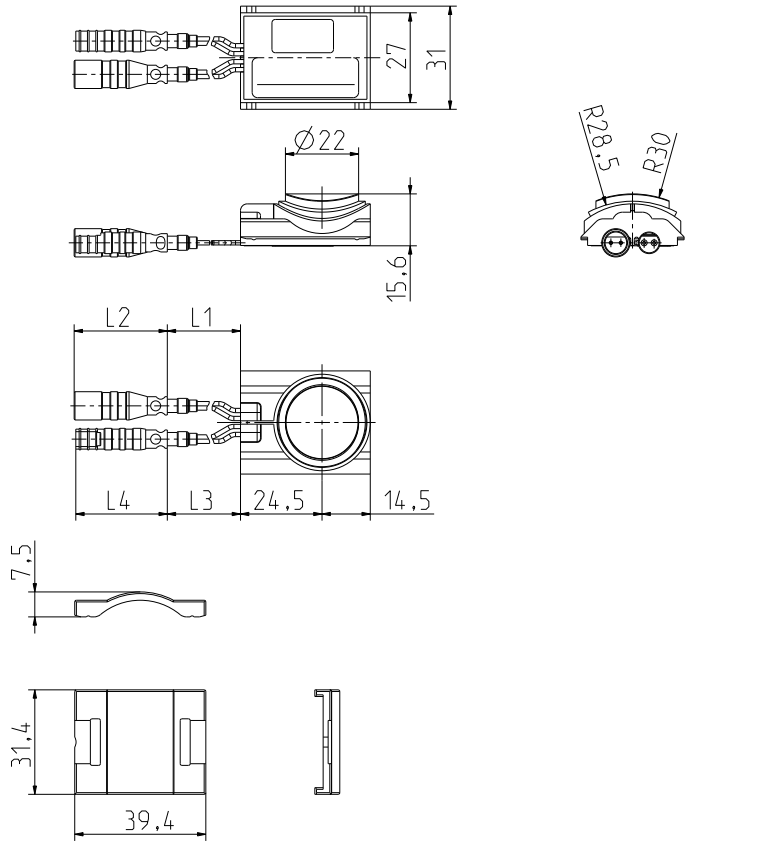
** The optional push button starts the flow procedure immediately.

*** The time interval for the enforced flush is restarted after each flush pulse. The flush period is about 30 seconds.

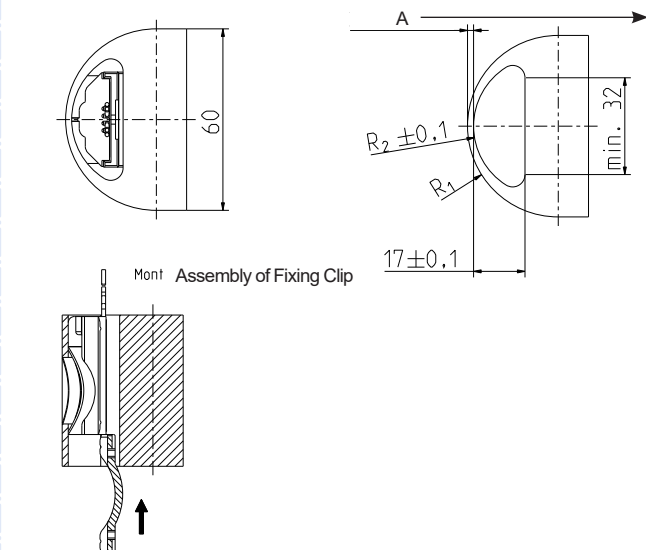


Series IRS-UWS-xb

Sensor with round window.



Installation example for sensor with round window.

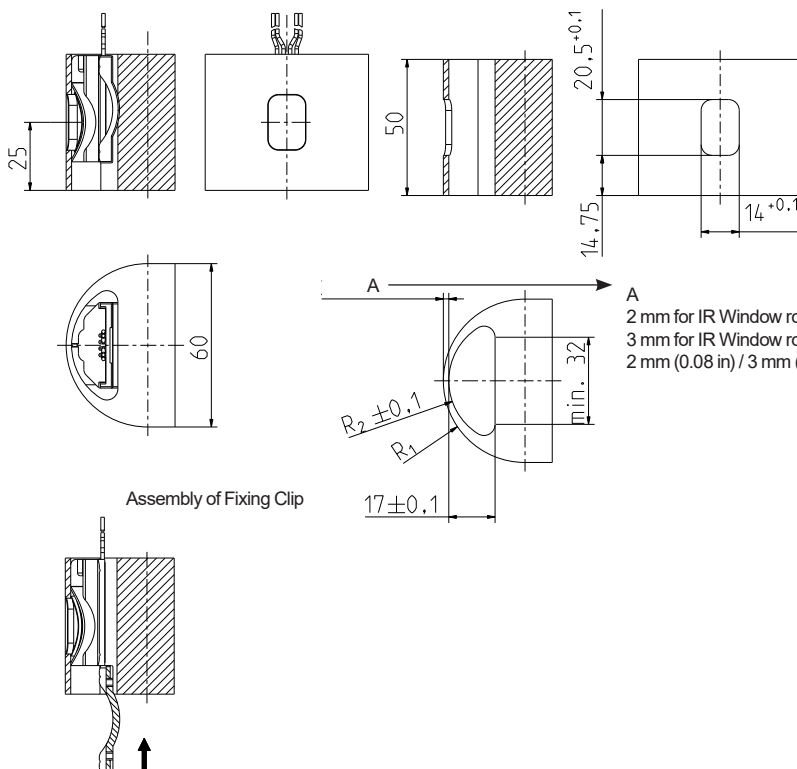
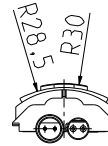
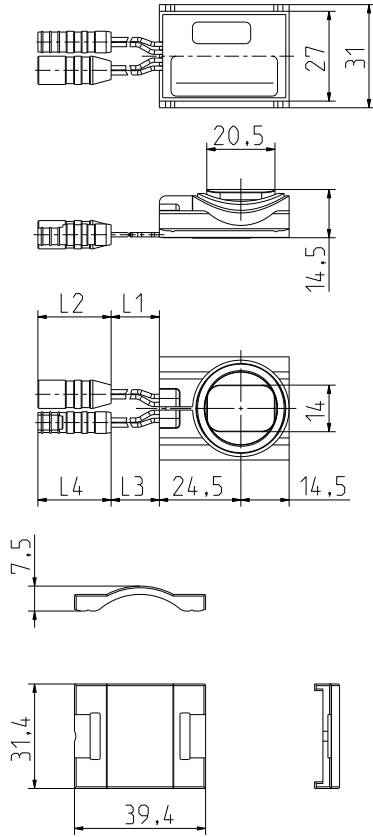


A
2 mm for IR Window round 2 mm thickness
3 mm for IR Window round 3 mm thickness
2 mm (0.08 in) / 3 mm (0.12 in)

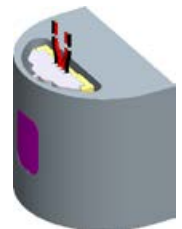


Series IRS-UWS-xb

Sensor with squared window.



Installation example for sensor with squared window.





Series IRS-UWS-xb

Version with optional piezo switch



Technical Data	
Type	Piezo switch
Construction	flat operator, 3 mm height*
Connection	strands (red/black) and female connector
T-Ambient	75 °C max
Protection type	IP 68 according to EN 60529
Lifetime	typical 50 millionen cycles

* on request also available with illuminated ring (LED)

Materials	
Housing	Stainless steel
O-ring	n.a.

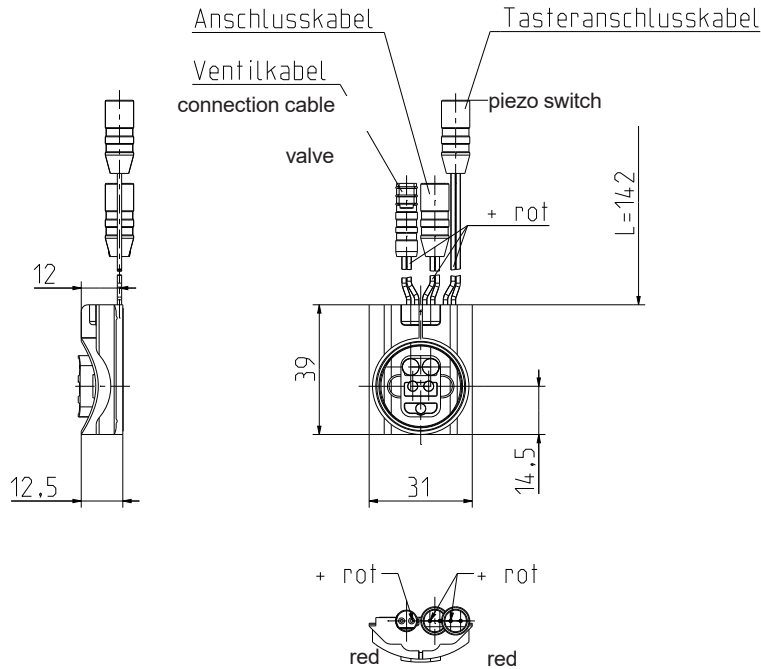
Options			
Standard cable length			
Valve	With twin strand (red/blue) and female connector	252 ⁺¹⁰ (9.92 ^{+0.4} in)	mm
Power supply	With twin strand (red/black) and male connector	187 ⁺¹⁰ (7.36 ^{+0.4} in)	mm
Piezo switch	With strands (red/black) and female connector	280 ⁺¹⁰ (11.0 ^{+0.4} in)	mm

Other connectors and cable types on request

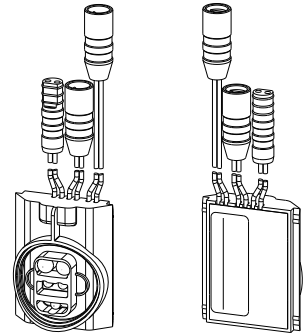
Note:

To prevent damage to the sensor system, the correct assignment of the power supply and button assignment plugs (always on the outside of the housing) must be observed.

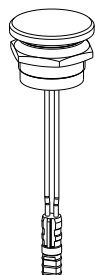
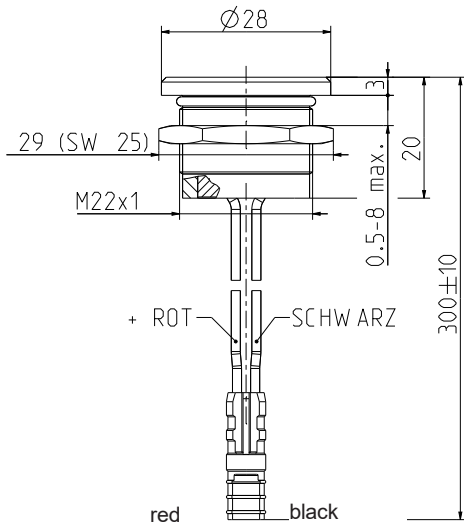
Series IRS-UWS-xb



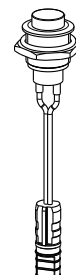
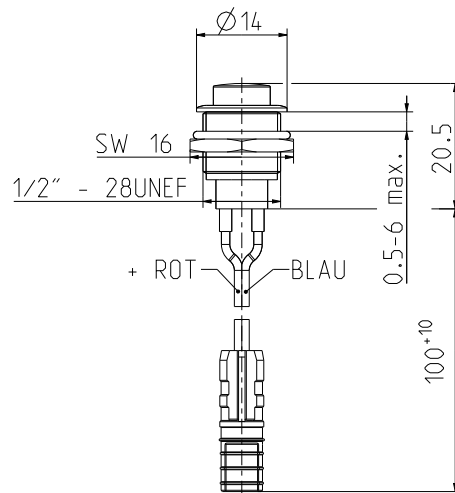
IR-Sensor with connection for piezo switch or other push buttons.



Piezo switch



Pushbutton





Series IRS-UWS-xb

Special features

Power Saving Mode (For battery driven IR sensor only):

For **Urinal**, **WC** and **Shower** applications the sensor can be set to a power saving mode, which can only be activated within the first 30 minutes after connection to the power supply. If the sensor is continuously covered by an appropriate reflecting material no more than 65 mm (tolerance 30 - 80 mm) away from the sensor, the signal diode is illuminated red. The valve then closes and both the diode and the sensor are switched off. After removing the cover from the sensor, it resumes its normal function and opens the valve for a short period. Now the power saving mode can again be activated for 30 minutes. If the sensor is deactivated and then reactivated again by use of the remote control, the power saving mode is also accessible for 30 minutes.

If the valve, battery and sensor are already built into a urinal flushing system, for subsequent installation to a urinal, the power saving mode will save the energy of the battery. It also prevents accidental operation of the valve during installation.

Hygienic flush:

The optional hygienic flushing can be freely defined.

Note:

If used within the first 30 minutes after connection of the supply voltage, the power saving mode can be triggered accidentally, especially in case of small space.

The change of the settings with the optional Remote Control is only possible within the 30 minutes time period after Power-On.

This time period can also be restarted by disconnecting the sensor from the power supply and a following reconnection.

Optional Push button:

The Sensor can be equipped with a third connection for a push button.

Actuating the push button forces an immediate flow or flush without IR-detection.

This cable could have free lead end or a connector to apply an external push button or an already attached push button.

Please contact us for a specific request.

Optionale Fernbedienung:

For a detailed description of how to change settings of the detection range or flush time with the Remote Control, please refer to separate data sheet IRS-RC20.



Optional plug-in power supply unit:

Note:

The emergency shutdown function of the valve in mains operation is only guaranteed with the IRS-PS-x power supply unit!

Please refer to separate data sheet IRS-PS-x for available Power Supply.



Notes on installation

- When installing the sensor into the armature it is to be ensured that the sensor window is not damaged.
- Take care to guide the connecting cables away from sharp-edged parts and avoid kinking of the cables.
- When placing the armature into operation it should be done in the following order:
 - a) mount armature and connect hydraulically
 - b) open right-angle stop cock
 - c) connect power supply (in the case of Sleep-Mode take off foil)
 - d) Wait for initialisation. During initialisation no object should be exposed in the detection area. The completion of the initialisation process is marked with a triple light signal.
- For the hygienic flushing, a functioning drainage is to be provided.

Note concerning reflective and mirror surfaces:

The detection range defined corresponds to a Gray-Card. The actual detection range depends strongly on the surface properties of the object to be detected. Problems can occur if the sensor, for example, is positioned without sufficient distance against a bright wall (reflecting tiles or mirrors). Also, an opposite IR sensor faucet could lead to interference.