

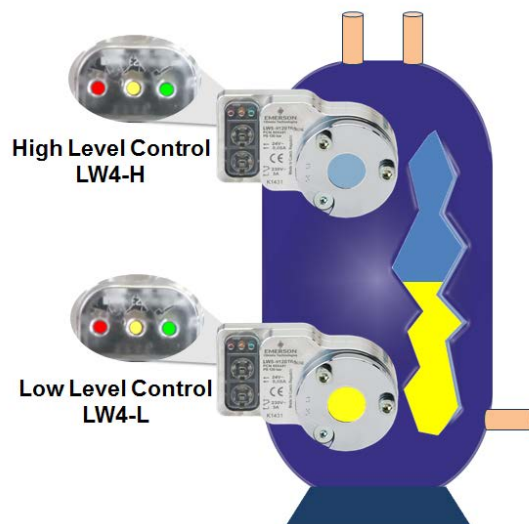
Liquid Level Monitoring System LW4/LW5 - Low or High Level Control

Technical Bulletin

LW4 and LW5 are self-contained units intended for liquid level monitoring at the sight glass or plugged connection of vessels, maintaining a permanent visibility of the liquid level versus other liquid level sensors.

Features

- LW4 for R744 (CO₂) subcritical, selected HFC, HFO/HFO blends refrigerants an oil (MWP PS: 60 bar)
- LW5 for R744 (CO₂) transcritical and oil (MWP PS: 130 bar)
 - CO₂ optimized gasket material, not released for HFC and HFO/HFO blends
 - Applicable only with two adapters (LW0-1/2 CO₂ and LW0-CCA CO₂)
- Function:
 - LW4(X)/LW5(X)-**L**... for **L**ow liquid level monitoring
 - LW4(X)/LW5(X)-**H**... for **H**igh liquid level monitoring
- Green and Red LEDs for indicating status of function/monitoring
- SPDT (NO and NC contacts) digital output for alarming or activation/deactivation of remote device
- 120 seconds time delay
- Easy installation by sight-glass or plugged connection replacement
- Supply 24V AC, 50/60Hz
- Adapters suitable for various types of connections
- **CE** marking under Low Voltage and EMC Directive



Selection table LW4 – max. working pressure: 60 bar (select one item of each group)

1. Base Units				
Type	Part No.	Function	Liquid vessel connection Ø	Medium
LW4X-L120	805493	Low liquid level monitoring	1/2"	HFC, HFO/HFO blends, CO ₂ , oil
LW4X-H120	805494	High liquid level monitoring		
LW4-L120	805490	Low liquid level monitoring	Larger than 1/2"	
LW4-H120	805491	High liquid level monitoring		
2. Adapter flanges / Maximum working pressure: 60 bar				
Type	Part No.	Description /Size		Medium
LW0-1/2	805256	Thread adapter	1/2"-14 NPTF	HFC, HFO/HFO blends, CO ₂ , oil
OM0-CCA	805039		3/4"-14 NPTF	
OM0-CBB	805038	Thread adapter	1-1/8"-18 UNF	
OM0-CCB	805040		1-1/8"-12 UNF	
OM0-CCD	805042	Rotalock adapter	1-3/4"-12UNF	
OM0-CCE	805043		1-1/4"-12UNF	
OM0-CUA	805037	Flange adapter	3- / 4-hole	
3. Plug and cable assembly for digital output signal				
Type	Part No.	Cable length		
OM3-N30	805141	3 m		
OM3-N60	805142	6 m		
OM3-N100	805146	10 m		
4. Plug and cable assembly for power Supply 24VAC				
Type	Part No.	Cable length		
LW-24V-3	805500	3 m		
LW-24V-6	805501	6 m		
LW-24V-10	805502	10 m		



Note 1: LW4X-... are calibrated differently to LW4-... and intended to be used with very narrow (1/2", 12 mm) connection to vessel. 120 seconds time delay has been incorporated to all versions before relay activation occurs.

Note 2: Corresponding sealing parts are included and need not to be ordered separately.

Note 3: For more detail please see table "Overview Adapters".

Liquid Level Monitoring System LW4/LW5

Selection table LW5 – max. working pressure: 130 bar (select one item of each group)

1. Base Units				
Type	Part No.	Function	Liquid vessel connection Ø	Medium
LW5X-L120	805483	Low liquid level monitoring	1/2"	CO ₂ , oil
LW5X-H120-	805484	High liquid level monitoring		
LW5-L120	805480	Low liquid level monitoring	Larger than 1/2"	
LW5-H120	805481	High liquid level monitoring		
2. Adapter flanges / Maximum working pressure: 130 bar				
Type	Part No.	Description /Size	Refrigerant	
LW0-1/2 CO2	805257	Thread adapter	1/2"-14 NPTF	CO ₂ , oil
LW0-CCA CO2	805254	Thread adapter	3/4"-14 NPTF	
3. Plug and cable assembly for digital output signal				
Type	Part No.	Cable length		
OM3-N30	805141	3 m		
OM3-N60	805142	6 m		
OM3-N100	805146	10 m		
4. Plug and cable assembly for power Supply 24VAC				
Type	Part No.	Cable length		
LW-24V-3	805500	3 m		
LW-24V-6	805501	6 m		
LW-24V-10	805502	10 m		



Note 1: LW5X... are calibrated differently to LW5... and intended to be used with very narrow (1/2", 12 mm) connection to vessel. 120 seconds time delay has been incorporated to all versions before relay activation occurs.

Note 2: Corresponding sealing parts are included and need not to be ordered separately.

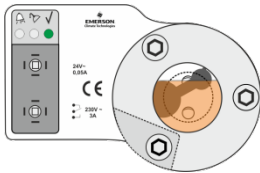
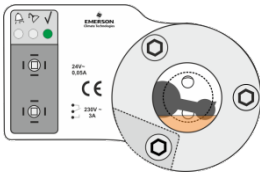
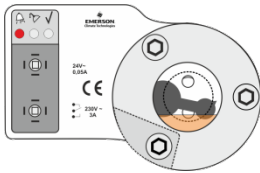
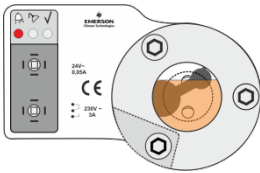
Note 3: For more adapter details please see table "Overview Adapters"

Note 4: Flange or Rotalock adapters for high pressure application upon request.

Accessories and Spare Parts

Type	Part No.	Description	Weight
ECT-623	804421	Transformer 230 VAC / 24VAC, 60 VA	1.20 kg
OM-HFC-K01	805081	Sealing-Kit LW4 (contains all gaskets incl. adapter gaskets)	
OM-CO2-K01	805079	Sealing-Kit LW5 for CO ₂ (contains all gaskets incl. adapter gaskets)	

Function illustration

	Low liquid level monitoring		High Liquid level monitoring	
	LW4-L120 LW5-L120	LW4X-L120 LW5X-L120	LW4-H120 LW5-H120	LW4X-H120 LW5X-H120
<p>● Green LED is ON</p> <p>Normal operation</p>	<p>Liquid level at desired level Floater position at higher level of sight glass</p> 		<p>Liquid level at desired level Floater position at lower level of sight glass</p> 	
<p>● Red LED is ON</p> <p>NOT normal operation: (Examples: Activation of alarm/ open or close of a valve/ stop or start operation a device)</p>	<p>Liquid level is too low (Not sufficient liquid in vessel) Floater position at lower level of sight glass</p> 		<p>Liquid level too high (Excessive liquid in vessel) Floater position at higher level of sight glass</p> 	

Liquid Level Monitoring System LW4/LW5

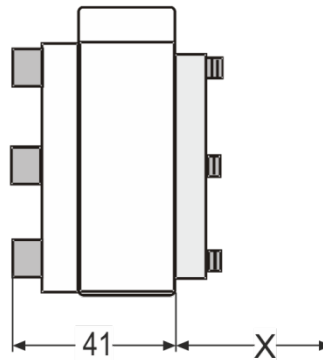
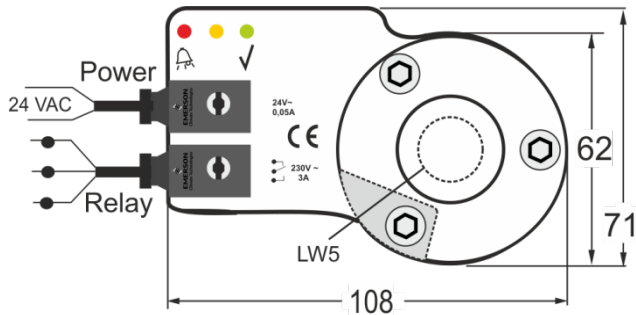
Technical Data

Max. working pressure PS	<u>LW4</u> : 60 bar <u>LW5</u> : 130 bar
Max. test pressure PT	<u>LW4</u> : 66 bar <u>LW5</u> : 143 bar
Burst Pressure	<u>LW4</u> : 230bar <u>LW5</u> : 390 bar
Liquid oil density	700...1300 kg/m ³
Medium temperature range by considering the density of liquid medium	Oil: -20... +80°C
	Refrigerant:
	R32: -20...+65°C
	R134a: 0...+80°C
	R404a: -20...+65°C
R407A: -10...+80°C	
R407C: -15...+80°C	
R407F: -20...+75°C	
R410A: -20...+65°C	
R448A: -20...+75°C	
R449A: -20...+75°C	
R450A: -10...+80°C	
R507: 20...+65°C	
R513A: 0...+80°C	
	R744: -20...+25°C
	<u>LW4</u> : 60 bar / <u>LW5</u> :130 bar (Liquid phase)

Medium compatibility	<u>LW4</u> : HFC, HFO/HFO blends, CO ₂ , oil <u>LW5</u> : CO ₂ , oil Mineral, synthetic and ester lubricants
Storage, transport and ambient temperature	-20...+50°C
Supply voltage Current	24 VAC±10%, 50/60 Hz 0.05 A
Digital output contact:	max. 3 A, 230 VAC SPDT dry contact
Time Delay Alarm	120 sec.
Protection class (IEC529/EN 60529)	IP65
Markings	CE acc. EMC and Low Voltage Directive

Dimensions (mm)

Base Unit LW4 and LW5:



X) See Adapters table for dimension

Liquid Level Monitoring System LW4/LW5

Overview Adapters

Connection type		Connection size / Dimensions (mm)	Base Unit	Medium	Material
Thread adapter	OM0-CCA Part-No.805039	3/4"-14 NPTF 	LW4	Selected HFC & HFO/ HFO blends CO ₂ , Oil	Aluminum
	LW0-CCA CO2 Part-No.805254		LW5	CO ₂ , Oil	Steel & Aluminum
	LW0-1/2 Part-No.805256	1/2"-14 NPTF 	LW4	Selected HFC & HFO/ HFO blends CO ₂ , Oil	Aluminum
	LW0-1/2 CO2 Part-No.805257		LW5	CO ₂ , Oil	Steel & Aluminum
	OM0-CBB Part-No.805038	1-1/8"-18 UNF 	LW4	Selected HFC & HFO/ HFO blends CO ₂ , Oil	Aluminum
	OM0-CCB Part-No.805040		LW4	Selected HFC & HFO/ HFO blends CO ₂ , Oil	Aluminum

Liquid Level Monitoring System LW4/LW5

Overview Adapters

Connection type		Connection size / Dimensions (mm)	Base Unit	Medium	Material
Rotalock adapter ¹	OM0-CCD² Part-No.805042	1-3/4"-12 UNF 	LW4	Selected HFC & HFO/ HFO blends CO ₂ , Oil	Aluminum
	OM0-CCE² Part-No.805043	1-1/4"-12 UNF 	LW4	Selected HFC & HFO/ HFO blends CO ₂ , Oil	Aluminum
Flange adapter ¹	OM0-CUA² Part-No.805037	3- / 4-holes 	LW4	Selected HFC & HFO/ HFO blends CO ₂ , Oil	Aluminum

Note: ¹ Flange or Rotalock adapters for high pressure application upon request.

² M6 screws for fastening are not part of delivery.

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