



**COM – Oil Regulator 24V and 230V
Models for 60 and 120 bar
New: T-Version for up to 100% Humidity**

**COM Oil Management:
The electronic oil level regulation system with alarm function and compressor shut-down. Flexible with a 24 VAC and a 230 VAC Version.**



“Made in Germany”



Product highlights:

- Software feature “Power on Logic” with suppressed time delays for Injection and Alarm during first installation
- Sophisticated operating principle, stand-alone controller for Oil supply with oil level sensor and solenoid valve
- Optimized energy consumption by special Design of Solenoid Valve and Coil
- High-precision Sensor technology allows a very precise level detection
- No incorrect measurements by foaming and dirty Oil or incidence of light
- T-Version for 100% humidity (**CO₂ applications**)
- Standard Version compatible with Hydrocarbon Refrigerants (R290, R1270)

Technical Data

CE mark in compliance with Low-Voltage Directive, EMC Directive	2014 / 35 / EU 2014 / 30 / EU	Time delay	Alarm: 90 s Fill: 10 s
Applicable standards	EN 12284, EN 378, EN 61010-1:2010, EN 61326, EN 61000-6-2:2005, EN	Material	Housing and Adapter (EN AW 6081, 6082), Oil Conn.: CW617N Sight Glass: 11SMnPb37
Pressure rating: Test Pressure:	COM1: 60 bar COM2: 120 bar COM1: 66 bar COM2: 132 bar	Media Compatibility	HFC, CO ₂ , HC, mineral, synthetic and ester oil, other refrigerants on request.
Power supply Voltage/ Current COM1:	24VAC 50Hz, +10/-15%, 0,4 A 230VAC 50Hz +10/-15%, 0,04 A	Alarm contact	max. 3A, 230V AC, floating
COM2:	24VAC 50Hz, +10/-10%, 0,4 A 230VAC 50Hz +10/-10%, 0,04 A	Protection class	IP 65 (IEC529 / EN 60529)
Vibration resistance	max. 4g, 10... 250Hz, (EN 60068-2-6)	Oil connection	7/16"-20 UNF male
MOPD solenoid valve	COM1: 40 bar COM2: 80 bar	Humidity COM1/2 T-Version	0-80% rH (none condensing) Up to 100% humidity
Media/Storage temperature	-40 ... 80°C	Ambient temperature	-40 ... 50°C (static)

Refrigerant	Group acc. PED 2014/68/EC	Group acc. EN378	Refrigerant	Group acc. PED 2014/68/EC	Group acc. EN378
R404A R134a R448A R449A R450A R513A R744	II	A1	R1234ze (E) R1234yf R32 R455A R454C	I	A2L
R1270 R290			I		

Description

Adequate oil level is an important requirement for long life of the compressor. Depending on the system design (eg. in rack applications) the correct oil level control under different operating conditions is possible only using an active regulation system. The passive systems are problematic because they only operate satisfactorily under constant operating conditions, but due to seasonal variations this is not possible.

Variations in operating conditions and defrost cycles may be covered by an active oil regulation, ensuring reliable operation. Active systems monitor the oil level in compressors and generate an alarm for low oil level. Even without built-in compressor oil pump and oil differential pressure switch (for example, scroll compressor), the oil supply to the compressor can only be monitored with an active control.

A Hall sensor and a built-in magnet in the float system measure the oil level in the compressor. Depending on the oil level and the consequent changes in magnetic field strength results in a variable voltage induced into the Sensor. This is evaluated by an electronic unit and accordingly, the LED's and the solenoid valve will be actuated. If the oil level is in the Alarm Range (see Operation), the COM switches with a delay time of 90 seconds the relays contact into the alarm state. This signal can be used to shut down the compressor or for data processing. During the alarm condition oil is permanently fed into the compressor, with the target to bring the oil level to normal. If successful, the alarm is reset.

The installed software features a **“Power on Logic”**. During the first installation and power on of the Oil controller the time delays for “Injection” and “Alarm” are suppressed. This means a compressor having no Oil at all, will result in an immediate injection of Oil and at the same time switches into Alarm. This is to avoid that such compressor does not run for the standard 90 sec. time delay until the Alarm occurs.

Operation

The oil sight glass is divided into ranges:

Normal Oil Level: 40-60% sight glass height Critical

Oil Level: 25-40% sight glass height and Alarm Level:

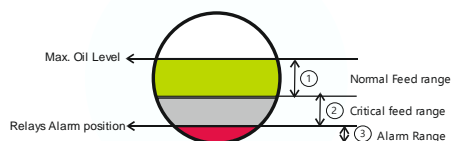
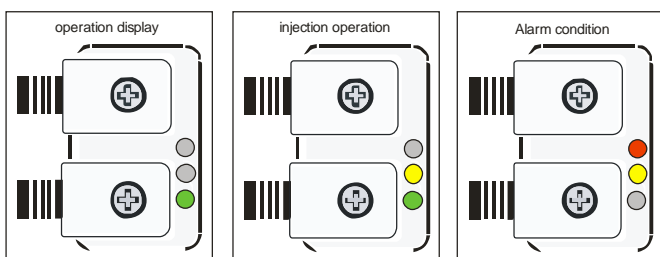
from <25% sight glass height.

If the green LED is on the COM is in operation and the oil level is within normal range. If the oil level for longer than 10 seconds is below the normal range, the solenoid valve is switched on, so that oil can be filled up to 60% sight glass height (maximum filling height). The valve closes again. The time delay of 10 seconds may be useful for certain types of compressors and applications since during the start of the compressor oil level varies and without a delay the filling of oil would start although enough Oil is present. With this delay an overfilling of the compressor can be avoided.

If the oil level in a low pressure system in spite of active oil filling moves into the "critical area", this could be a result of a compressor throwing more Oil into the system than the COM can re-fill. In such a case, the differential pressure (oil pressure minus suction pressure) has to be increased to such an extent that sufficient oil can flow back. This can be achieved by the use of an ORV valve that is available with 1,5/3,5 and 5 bar differential pressure.

To avoid oil shortage DEKA Controls recommends to leave the COM in operation even during compressor is in off condition.

The LED's and their meaning for the operating conditions



Models

Type	COM1 P/N	COM2 P/N	Supply Voltage	Max. Operating Pressure (bar)	Compressor connection	Weight incl. Coil (g)	
						COM1	COM2
COM_-24 Base Unit	12001	12029			./.	560	630
COM_-24-T B. Unit	tbd	tbd	24 VAC 50 Hz	COM1: 60 bar COM2: 120 bar	./.	560	630
COM_-24/118-18*	12035	12051			1-1/8"-18 UNEF	635	705
COM_-24/118-18L	tbd	tbd			1-1/8"-18 UNEF	661	731
COM_-24/000	12033	12063			3-4 holes	680	750
COM_-24/114	12038				Rotalock 1-1/4"	665	
COM_-24/DO6		12061			6/6 holes		740
COM_-230 Base Unit	12002	12030	230 VAC 50 Hz	COM1: 60 bar COM2: 120 bar	./.	560	630
COM_-230-T B. Unit	tbd	tbd			./.	560	630
COM_-230/118-18*	12045	12053			1-1/8"-18 UNEF	635	705
COM_-230/118-18L	tbd	tbd			1-1/8"-18 UNEF	661	731
COM_-230/000	12047	12055			3-4 holes	680	750
COM_-230/114	12048				Rotalock 1-1/4"	665	
COM_-230/DO6		12062			6/6 holes		740

* only for Bitzer Compressors. For Dorin and Danfoss Compressors, see table below

Adapter Type	P/N	Connection	Weight (g)	Max. Operating Pressure (bar)
COM-AD-118-18	12005	1-1/8"-18 UNEF	75	120 bar
COM-AD-118-18 (Dorin)	12011		75	
COM-AD-118-18 (Danfoss)	12012		83	
COM-AD-118-18L	12087		101	
COM-AD-DO6 (Dorin)	12013	6/6 Loch	115	
COM-AD-034-14	12004	3/4"-14 NPTF	60	
COM-AD-000	12003	3-4 holes	125	
COM-AD-114	12008	Rotalock 1-1/4"	105	
COM-AD-134	12007	Rotalock 1-3/4"	135	
COM-AD-241	12000	M 24 x 1	99	

Cable Connection with Plugs

Type	P/N	Supply Voltage	Length (m)	Temperature Range °C (static)	Description	Weight (g)
COM-P300	12023	24 and	3,0 m	-40 ... +80°C	Supply	150
COM-P600	12025	230 VAC	6,0 m		Voltage	250
COM-S300	12024	230 VAC	3,0 m		Relais-	130
COM-S600	12026		6.0 m		connection	230

Accessories

Type	P/N	Description	Connection	Weight (g)
TEA-20VA	14002	Transformer 230VAC/24VAC, 15		795
TEA-60VA	14001	Transformer 230VAC/24VAC, 60		1.180
ORVH-015H	13015	Differential Valve, PS: 120 bar Δ = 1,5 bar	3/8" SAE (Inlet/Outlet 5/8"- UNF)	46
ORVH-035H	13016	Δ = 3,5 bar		
ORVH-050H	13017	Δ = 5,0 bar		
ORV-015H	13004	Differential Valve, PS: 60 bar Δ = 1,5 bar		
ORV-035H	13005	Δ = 3,5 bar		
ORV-050H	13006	Δ = 5,0 bar		

Selection of COM1 (60 bar)

Brand	Model	Type of Adapter
Bitzer	4VC, 4TC, 4PC, 4NC, 4J, 4H, 4G, 6J, 6H, 6G, 6F, 8GC, 8FC, 4VHC-10K, 4THC-12K, 4PHC-15K, 4NHC-20K, 4VSL-15K...4NSL-30K Ecoline: 4VES-7Y...4NES-20(Y), 4VE-7Y...4NE-20(Y), 4JE-13Y...4FE-35(Y)	COM-AD-000
	2KC, 2JC, 2HC, 2GC, 2FC, 2EC, 2DC, 2CC, 4FC, 4EC, 4DC, 4CC2KHC, 2JHC, 2HHC, 2GHC, 2FHC, 2EHC, 2DHC, 2CHC, 4FHC, 4EHC, 4DHC, 4CHC, 2MSL-07K...4CSL-12K Ecoline: 2KES-05(Y)...2FES-3(Y), 2EES-2(Y)...2CES-4(Y), 4FES-3(Y)...4CES-9(Y)	COM-AD-118-18 (P/N 12005)
Bock	HA, HG, O-Series, HGX4/310-4, 385-4, 464-4, 555-4 (CO2)	COM-AD-000
	HA12/22/34, HG12/22/34 HGX12P/40-4, 50-4, 60-4, 75-4 (CO2) HGX22P110-4, HGX22P125-4, HGX22P/160-4, HGX22P/190-4 (CO2), HGX34P/215-4, HGX34P/255-4 (CO2)	COM-AD-118-18 (P/N 12005)
	HA/HG 22/34 (alternative, 20mm longer than Adapter P/N 12005)	COM-AD-118-18L
Copeland	D2, D3, D4, D6, D9, 4CC, 6CC, ZBH, 4M, 6M	COM-AD-000
	ZB15...ZB57, ZB(D)66...ZB(D)114, ZF06...ZF18, ZF25...ZF54, ZS21...ZS45, ZO21...ZO104	COM-AD-114
	ZB220	COM-AD-134
Danfoss	LFZ, MFZ, MLZ, MLM, MT, SM, SZ, LT	COM-AD-118-18 (P/N 12012)
Dorin	all KP, K Models (except those under COM-AD-118-18) SCC 500B, 750B, 1500B, 1900B, 2000B, 2500B, H41, H5, H6, H7, SCC_1, SCC_32, SCC_4, CDSW_35, CDS_41	COM-AD-000
	H11, H2, H32, H35, K100CC/CS, K150CC/CS, K180CC/CS, K200CC, K230CS, K235CC, K240SB, K40CC, K50CS, K75CC/CS- SCC 250B, 300B, 350B, 380B, CDS_11	COM-AD-118-18 (P/N 12011)
Frascold	Series A, B, D, F, S, V, Z Series A-SK, D-SK, F-SK, Q-SK, S-SK	COM-AD-000
Panasonic	3CB067SA0M...3CB110SA0M (M24x1)	COM-AD-241 (P/N 12000)
	3CC149LA0M, 2CC171LA0M, 3CC171LA0M, 2CC205SA0M, 3CC205LA0M	COM-AD-000

Selection COM2 (120bar)

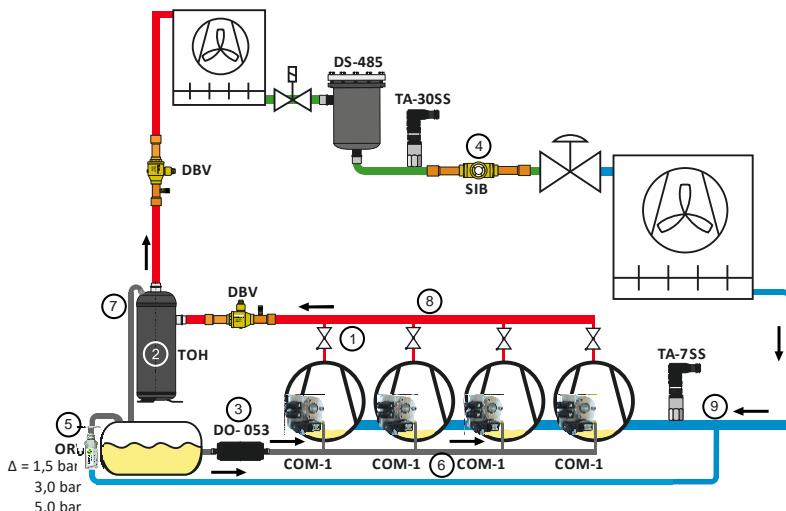
Brand	Model	Type of Adapter
Bitzer	2MTE-4K...6CTE-50K, 4PTEU-6LK...6CTEU-50LK, 4PTE-7.F3K, 4MTE-10.F4K, 4KTE-10.F4K	COM-AD-118-18
	CKH4	COM-AD-118-18L
Bock	HAX2 CO2T, HGX2 CO2T	G1"
	HGX34 CO2T, HGX46 CO2T	COM-AD-118-18
Copeland	4MSL, 4MTL	COM-AD-118-18
Dorin	CD200, CD300, CD400, CD2S-200, CD2S-400	COM-AD-DO6
Frascold	S8-8TK...S30-26TK	COM-AD-118-18

Selection COM1 for R290, R1270 Compressors (60bar)

Brand	Model	Type of Adapter
Bitzer	Ecoline: 2KESP-05(Y)...2FESP-3(Y), 2EESP-2(Y)...2CESP-4(Y), 4FESP-3(Y)...4CESP-9(Y)	COM-AD-118-18
	Ecoline: 4VESP-7Y...4NESP-20(Y), 4VEP-7Y...4NEP-20(Y), 4JEP-13Y...4FEP-35(Y)	COM-AD-000
Frascold	Serie A, B, D, Q, S, V, Z, W	COM-AD-000

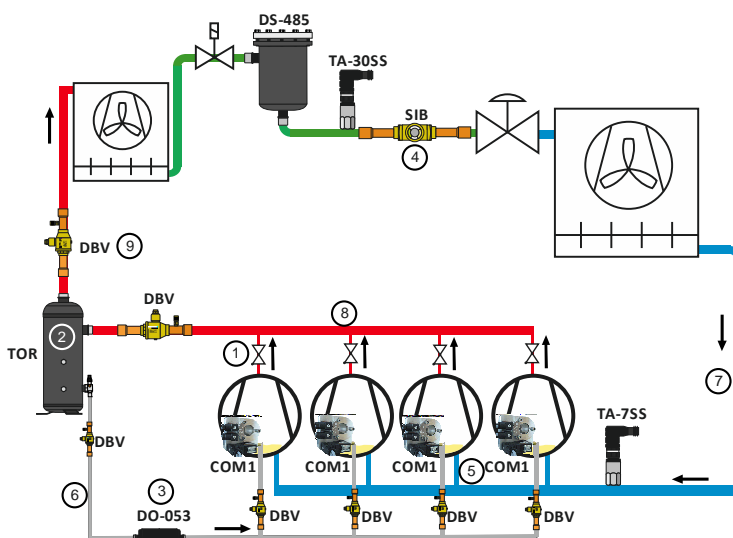
Oil Management: Typical Low Pressure System

- 1 Check Valves
- 2 Oil Separator TOH
- 3 Oil Filter DO
- 4 Sight Glass SIB
- 5 Differential Valve ORV
- 6 Oil Management COM1
- 7 Oil Line
- 8 Discharge Line
- 9 Suction Line

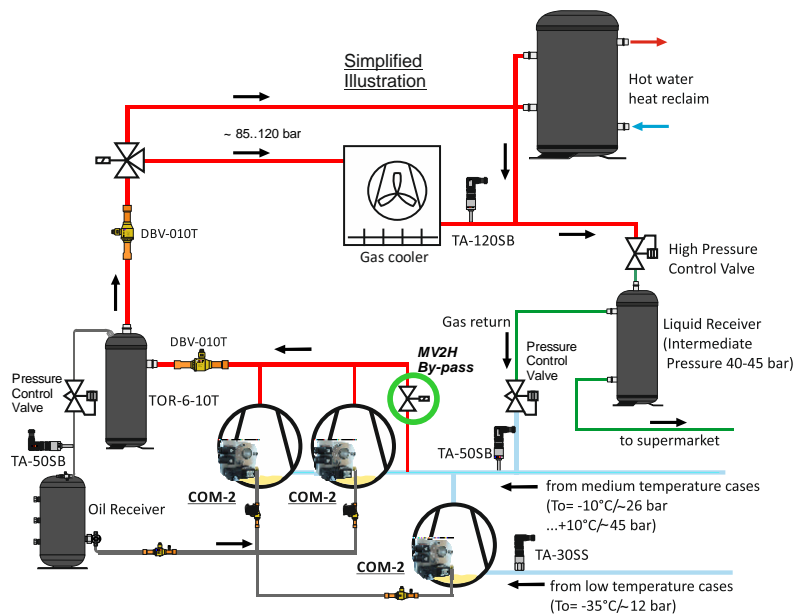


Oil Management: Typical High Pressure System

- 1 Check Valves
- 2 Oil Separator TOR
- 3 Oil Filter DO
- 4 Sight Glass SIB
- 5 Oil Management COM1
- 6 Oil Line
- 7 Suction Line
- 8 Discharge Line



Transcritical CO2 Cycle



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