

Flow - manifold block






Characteristics

System	Manifold block
Nominal widths	DN 15..40
Media	Water Oils
Pressure resistance	Max. 25 bar
Temperature	-20..+110 °C

Applications

- Flow recording, monitoring, and control in oil, lubrication, and cooling equipment

Device overview

Device	System	Number of measurement points	Nominal width	Pressure resistance in bar	Medium temperature	Page
VB 	Manifold block with integrated valve	1..8	DN 15..20	PN 25	-20..+110 °C	3
VB2 	Manifold block	8	DN 40	PN 16	-20..+110 °C	4
DIS- 	Manifold block	1-10	G 1	PN 16	0..+60 °C	5

Errors and technical modifications reserved.

Product Information

Manifold VB

For NJ / NJV / VL



Photo - valve block VB-020GA3 flow indicator NJVK1-020WM020

Characteristics

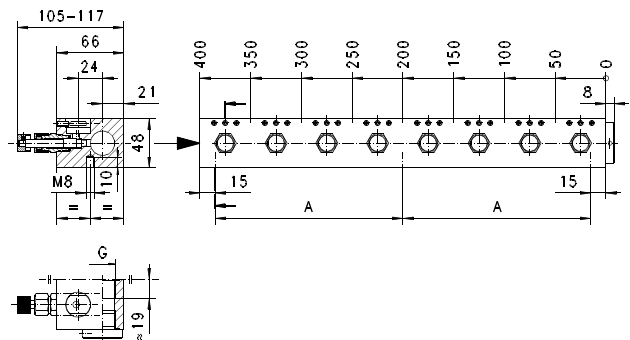
Manifold for single or multiple place systems and integrated needle valve for manual flow regulation.

Technical data

Nominal width	DN 15..20
Process connection	female thread G 3/4, optional G 1/2
Number of measurement points	1..8
Pressure resistance	NJ /NJV PN 25 bar VL PN 10 bar
Medium temperature	NJ /NJV -20..+110 °C VL -20..+100 °C
Ambient temperature	-20..+70 °C
Materials medium-contact	aluminium anodised, NBR, CW614N nickelled, CW614N
Weight	see table "Dimensions and weights"

Dimensions and weights

Number of measurement points	Types	Length (excluding stoppers)	Number of fixing holes	A	Weight kg
1	VB-020GA1	50	2	-	0.6
2	VB-020GA2	100	2	-	1.1
3	VB-020GA3	150	2	-	1.6
4	VB-020GA4	200	2	-	2.1
5	VB-020GA5	250	2	-	2.4
6	VB-020GA6	300	3	135	3.0
7	VB-020GA7	350	3	160	3.4
8	VB-020GA8	400	3	185	3.8



Ordering code

1. 2. 3. 4.
VB - **G**

○=Option

1. Nominal width	015 ○ DN 15 - G 1/2 020 ○ DN 20 - G 3/4
2. Process connection	G female thread
3. Connection material	A aluminium K ○ stainless steel (1.4305) M ○ brass (CW614N nickelled)
4. Number of measurement points	1 1 2 2 3 3 4 4 5 5 6 6 7 7 8 8

Product Information

Manifold VB2

For HD / MR / NJ / NJV / VL

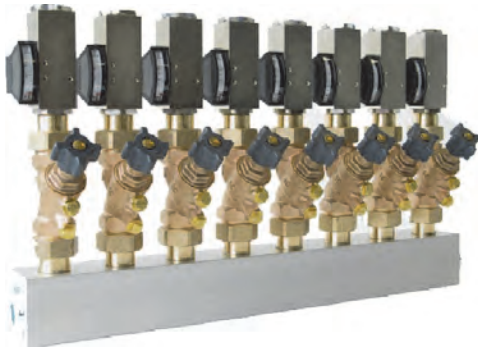
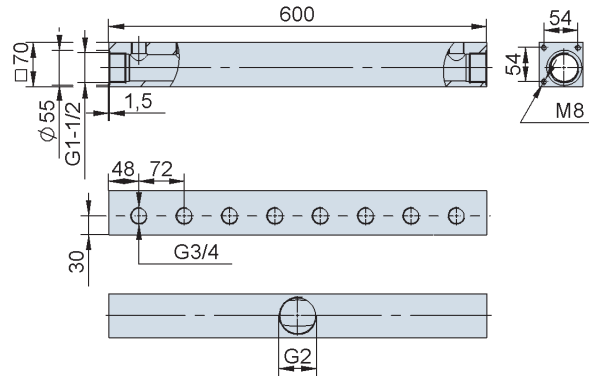


Photo - valve block VB2-020GA8 with valves and flow switch M101

Dimensions



Characteristics

Manifold for monitoring, display, and manual regulation in cooling water applications with up to eight measurement and control points.

Technical data

Nominal width	DN 20
Process connection	female thread G 3/4
Number of measurement points	8
Pressure resistance	PN 16 bar
Medium temperature	-20..+110 °C
Ambient temperature	-20..+70 °C
Materials medium-contact	aluminium anodised, CW614N nickelled, NBR
Weight	5.2 kg

Ordering code

VB2 -

1.	2.	3.	4.
040	G	A	8

1. Nominal width	040	DN 40 - G 1 1/2
2. Process connection	G	female thread
3. Connection material	A	aluminium
4. Number of measurement points	8	8

Optional

- Valves
- 1..7 measurement points

Product Information

Modular flow distributor DIS-..



- **Universal oil lubrication distributor**
- **Modular block construction up to 10 units**
- **Highest overload protection**
- **Bypass system enables replacement of measuring electronics during operation**
- **Very low pressure loss**
- **Various connections in the modular system**
- **Compact size**

Characteristics

In addition to the sensor with 4 – 20 mA and a switching or frequency output, the distributor section for the system oil lubrication combines an adjusting valve for the oil quantity and a switching valve with the settings "Measure oil", "Stop oil", "Bypass oil around the measuring device".

The bypass enables the replacement of the measuring device while the lubrication point receives oil. The oil quantity is the same in the bypass position and measurement position and does not need to be readjusted after switching the measuring device. The measuring device itself is an independently calibrated part and can be easily inspected or cleaned. A diaphragm curved by the oil flow moves a magnet which is detected outside the flow chamber by an analogue Hall sensor. No wear whatsoever arises during operation, and thus a very long service life is guaranteed.

With the spring-like properties of the diaphragm and a shaped end stop, even the hardest impact from liquid is withstood.

The lowest number of media contact parts guarantees faultless operation and a low tendency to contamination.

Since the diaphragm only operates over the bend without a bearing, there are no friction effects and very small hysteresis, as well as good reproducibility of the measured values and switching point as a result.

The low mass and the evaluation of the entire flow cross-section ensure the quick reaction time and problem-free pipework routing.

Figure: The extremely flexible diaphragm is fit on an end stop and therefore can never over-expand due to flow impact.



Installation

The installation position of the block is optional! All values can be pre-adjusted at the factory, if desired. Otherwise, the metering range and the switching point can be programmed with all attributes and parameters via an interface with configurator software on the PC. See the separate description for FLEX-XF, OMNI-XF and device configurator ECI-1.

Despite its low bulk, the dynamic diaphragm is very robust; nevertheless it should not be buckled or compressed through force during installation and removal.

The complete oil distributor is held together by means of a threaded rod between the inflow adapter and end piece. The valve and the measurement insert can be replaced extremely quickly.

(use a size 10 Allen Key, size 24 open-ended spanner, 6 mm screwdriver or the offered service set)

Replacing the measuring insert:

1. Set the valve to bypass (tool: socket)
2. Pull off the fixing bracket of the measuring insert (tool: apply leverage with universal hexagon adjusting pin)
3. Pull out the measuring insert
4. Insert a new measuring insert (make sure that the position of the cross hole is correct!)
5. Insert clamp
6. Adjust any available valve for volume flow (tool: universal hexagon key)

Replacing the valve:

1. This can only take place with the oil flow switched off (supply and outlet of the entire block!)
2. After switching off the oil flow, pull off the fixing bracket
3. Pull out the valve
4. Insert a new valve
5. Secure with the fixing bracket

Monitoring possibility for the measuring devices:

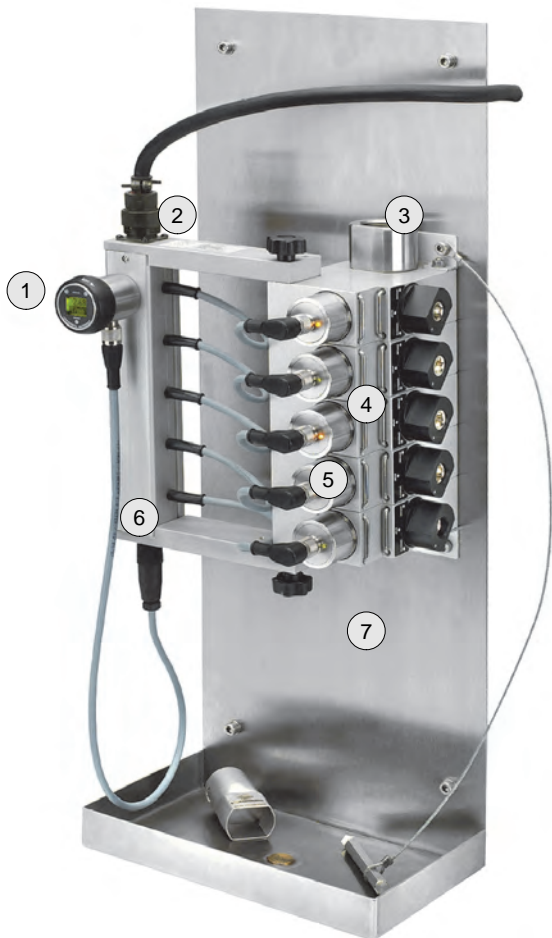
The measuring devices are subject to cyclical inspection in some types of operation.

1. The upstream electric valve briefly interrupts the oil flow (simulates a malfunction):
Error message must appear for each channel. Analogue outputs must go to 4 mA.
2. The measuring device is disconnected via the bypass and removed in order to be tested on a calibration module. The calibration module (KAL) is comprised of a spring scale which exerts a specific force on the dynamic measuring diaphragm. A defined measurement flow must be displayed with this force. If the sensor meets the specified tolerance, it is reinstalled; if not, it is replaced.

Product Information

Summarisation of signals (one error message per distributor).

HONSBERG offers an electric distributor (EV) in which all error signals of the channels of a distributor are incorporated. If one or multiple channels detect an oil shortage, only one signal is sent to the control for this block.



1.	OMNI-EV display
2.	Central electrical supply and signal output (outputs)
3.	Oil inlet, can also be mounted on the opposite side
4.	DIS oil distributor
5.	FLEX-DIS
6.	EV electric distributor can be pivoted around the DIS oil distributor in order to gain better access to the oil outlets
7.	DIS wall panel with oil catch pan

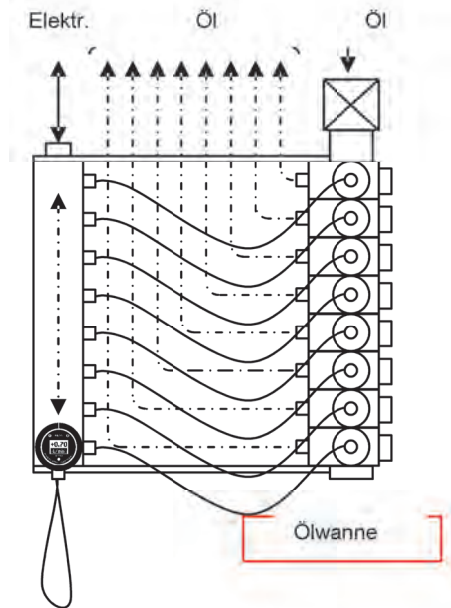


Figure: Possible setup of DIS oil distributor with EV electric distributor and OMNI-EV display.

Then it can be determined on site which device cause the error message (LED is off). At the same time, the strip also enables the connection of an "OMNI" display (2) (see OMNI-EV description), which automatically displays the flow of the respective channel by means of magnetic force. This is required for the adjustment of the channels! The electric distributor is hermetically sealed and suffices the hard environmental conditions.

For wall mounting, a stainless steel wall panel with oil catch pan is offered (DIS wall panel)

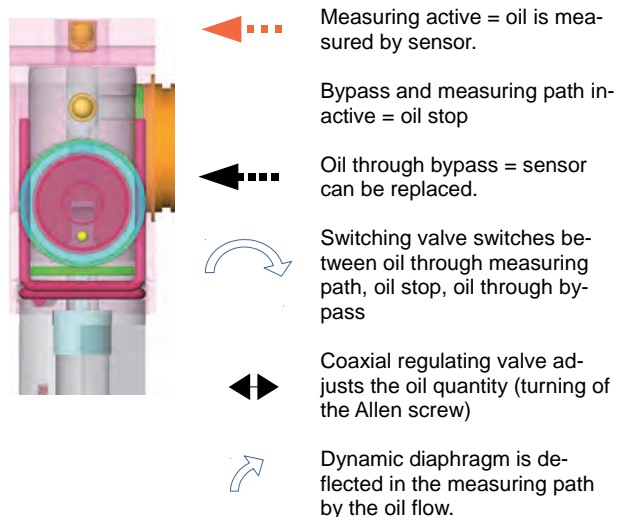
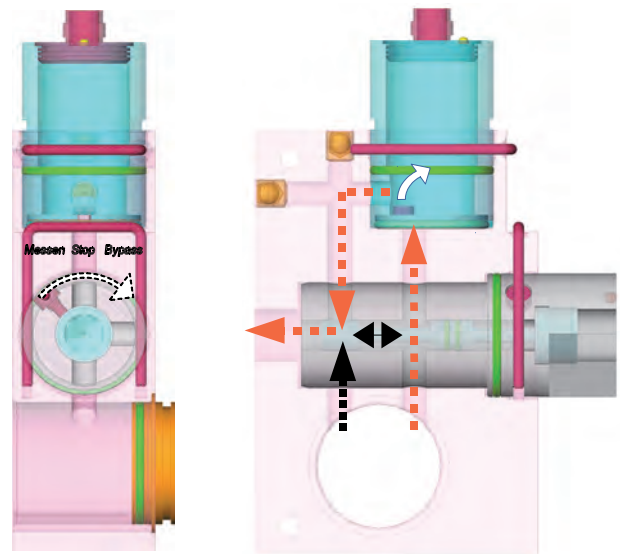
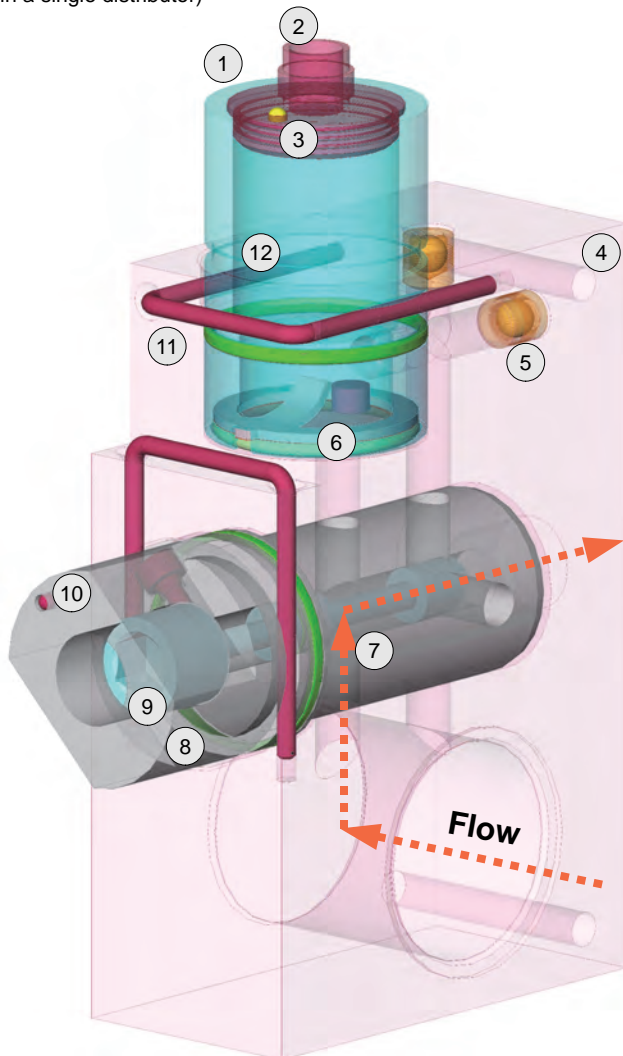
Filtration of the oil with 50 µm is recommended. Ferritic abrasion should be collected with a magnetic filter at the intake port of the oil tank.

Regulation of the oil pressure upstream from the distributor should take place with a pressure constant set to a maximum of 16 bar.

Product Information

Technology at a glance

(Only one section shown, 1 – 10 sections can be installed in rows in a single distributor)



1.	Complete sensor can be replaced during operation when the switching valve is set to bypass
2.	Switch of frequency + 4 – 20 mA output. M12x1, 4-pin
3.	LED on = OK / LED blinking = deficiency / LED off = fault
4.	Fastening hole
5.	Plug with metal / metal seal
6.	Dynamic measuring diaphragm with magnet and end stop
7.	Stop screw for 90° limiting of the switching valve and depth stop for regulating valve
8.	The switching valve is switched with a size 20 open-ended spanner
9.	Coaxial regulating valve. Adjusts the oil quantity independently from the switch position of the switching valve. With a replacement of the sensor, readjustment does not have to take place each time. The oil quantity remains the same in bypass setting. Simple switching with a tool.
10.	Switching valve with function positions.
11.	Durable distributor body made of anodised aluminium
12.	Retaining bracket, extremely fast installation element

Product Information

Technical data

Sensor	Dynamic diaphragm	
Measurement ranges	0.1..3 l/min (at 73 mm ² /s)	Other ranges available on request
Measurement uncertainty	3% measurement between 10% and 100% of the measuring range or 0.1 l/min	
Reproducibility	1 %	
Pressure resistance	PN 16	
Pressure loss	max. 0.1 bar at max. flow and with open valve	
Media temperature	0.. +60 °C (avoid frost and dew)	
Ambient temperature	0.. +70 °C	
Storage temperature	-20.. +80 °C	
Materials medium-contact	Stainless steel 1.4404, FKM, aluminium, plastic, nickel-plated samarium-cobalt magnet	
Materials, non-medium-contact	Electronics housing	Stainless steel 1.4305
Power supply	12.. 24 V DC	
Current requirement	approx. 120 mA	
Analogue output	4.. 20 mA or 0.. 10 V DC	
Switching output	Transistor output "push-pull" (resistant to short circuits and polarity reversal) I _{out} = 100 mA max.	
Switching hysteresis	adjustable (please state when ordering)	
Display	yellow LED (on = normal / off = alarm / blinking = 10% over switching value)	
Electrical connection	for round plug connector M12x1, 4pole	
Ingress protection	IP 67	
Weight		approx. 0.32 kg approx. 0.32 kg approx. 0.42 kg
Conformity	CE	

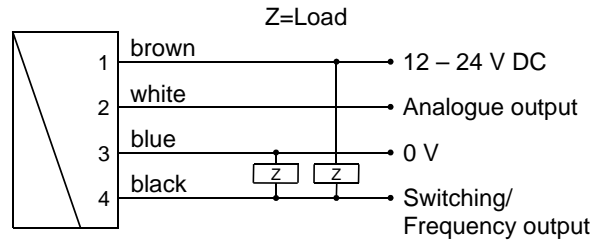
EV Electronics for DIS

Supply voltage	18...24 VDC	
Quiescent current consumption /channel	1.5 W incl. FLEX or OMNI	
Switching output	Relay contact (5 V..30 V) 6 A max. (gold-plated silver contact)	
Plug connector supply of switching outputs		
Plug connector for Omni-EV-DIS connection	M12x1 (4-pin)	
Ingress protection	IP 65	
Conformity	CE	

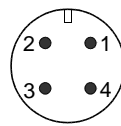
Wiring

Before the electrical installation, it must be ensured that the supply voltage corresponds with the data sheet!

FLEX-DIS

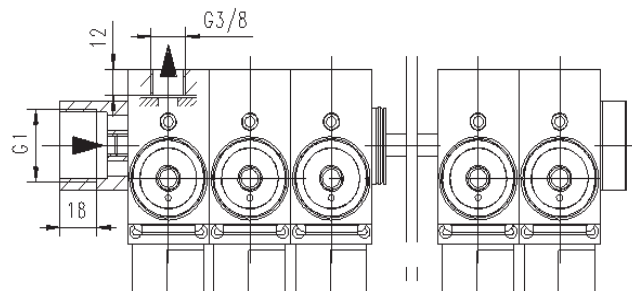
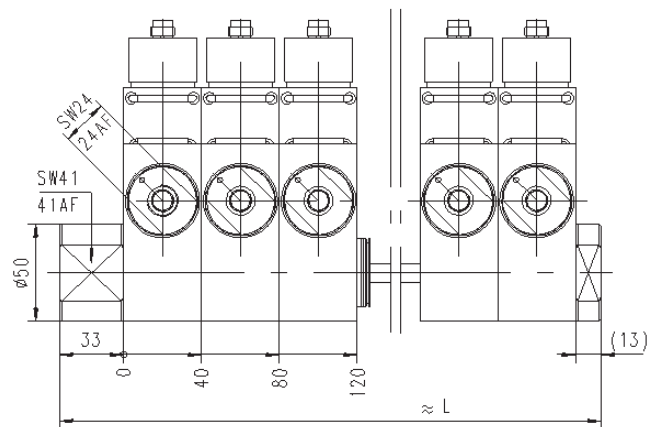


Connection example: PNP NPN



It is recommended to use screened wiring. The push-pull output can as desired be switched as a PNP or an NPN output.

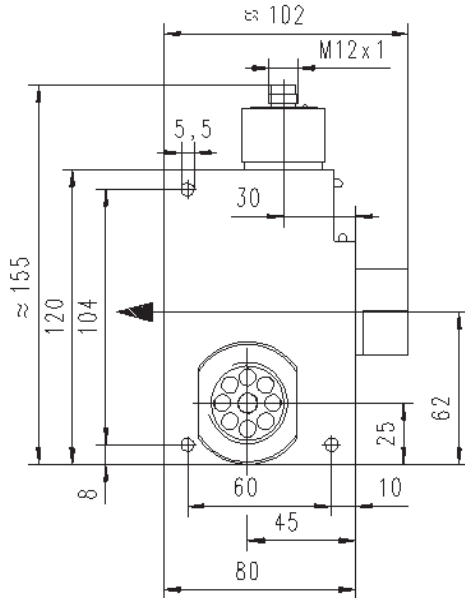
Dimensions



Product Information

Number of valves	1	2	3	4	5	6	7	8	9	10
Length in mm	86	126	166	206	246	286	326	366	406	446

View of the oil connection inflow:



Handling and operation

Programming

The FLEX electronics contain a magnetic contact, with the aid of which different parameters can be programmed. Programming takes place when a magnet clip is applied for a period between 0.5 and 2 seconds to the marking located on the label. If the contact time is longer or shorter than this, no programming takes place (protection against external magnetic fields).



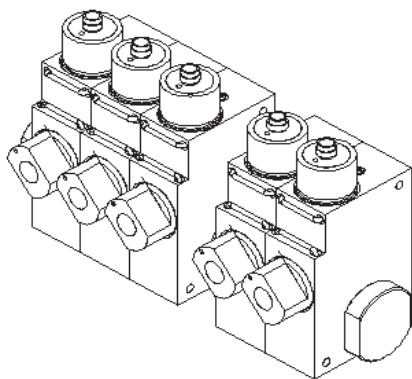
After the programming ("teaching"), the clip can either be left on the device, or removed to protect data.

The device has a yellow LED which flashes during the programming pulse. During operation, the LED serves as a status display for the switching output.

In order to avoid the need to transit to an undesired operating status during "teaching", the device can be provided ex-works with a "teach-offset". The "teach-offset" value is added to the currently measured value before saving (or is subtracted if a negative value is entered).

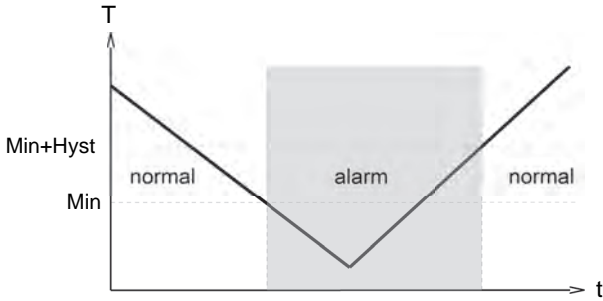
Example: The switching value is to be set to 70 % of the measurement range, because at this flow rate a critical process status is to be notified. However, only 50% can be achieved without danger. In this case, the device would be ordered with a "teach offset" of +20 %. At 50 % in the process, a switching value of 70 % would then be stored during "teaching".

Normally, programming is used to set the limit value switch. However, if desired, other parameters such as the end value of the analog or frequency output may also be set.

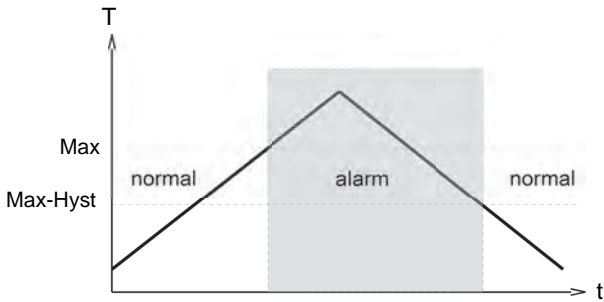


Product Information

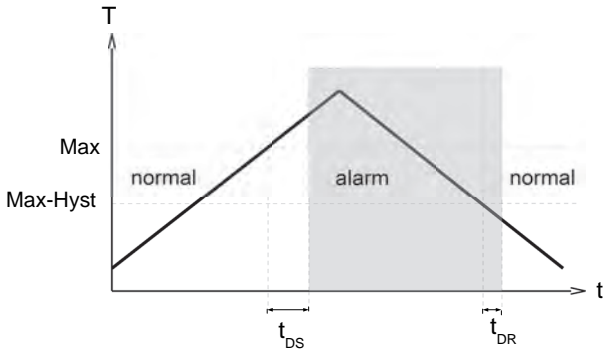
The limit switch can be used to monitor minima or maxima.
 With a minimum-switch, falling below the limit value causes a switchover to the alarm state. Return to the normal state occurs when the limit value plus the set hysteresis is once more exceeded.



With a maximum-switch, exceeding the limit value causes a switchover to the alarm state. Return to the normal state occurs when the measured value once more falls below the limit value minus the set hysteresis.

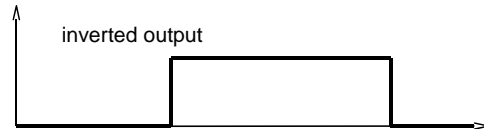
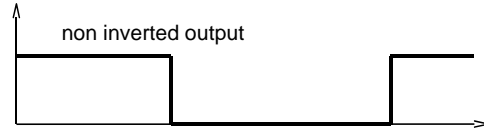


A changeover delay time (t_{DS}) can be applied to switching to the alarm state. One switch-back delay time (t_{DR}) of several can likewise be applied to switching back to the normal state.



In the normal state the integrated LED is on, in the alarm state it is off, and this corresponds to its status when there is no supply voltage.

In the non-inverted (standard) model, while in the normal state the switching output is at the level of the supply voltage; in the alarm state it is at 0 V, so that a wire break would also display as an alarm state at the signal receiver. Optionally, an inverted switching output can also be provided, i.e. in the normal state the output is at 0 V, and in the alarm state it is at the level of the supply voltage.



A PowerOn delay function (ordered as a separate option) makes it possible to maintain the switching output in the normal state for a defined period after application of the supply voltage.

Ordering code

The following should be ordered: basic unit, e.g. DIS-xxx with evaluation electronics, e.g. FLEX-DIS-xxx, the VE installation unit, the EV electrical distributor, display for EV electrical distributor and possible the calibration for FLEX- for or OMNI-DIS.

Oil distributor system block

DIS -

○ = Option

1. Nominal width	
010	Output connection G 3/8 female thread
2. Process connection	
J	System connection
3. Housing material	
A	Anodised aluminium housing, POM control valve
4. Connection for	
E	FLEX-DIS evaluation electronics

Other nominal widths available on request

On site electronics for DIS-

FLEX-DIS -

1. Range	
030	Range 0.1..3 l/min
060	Range 0.3..6 l/min
080	Range 0.5..8 l/min
2. Viscosity	
-073	
3. Analogue output	
I	Current output 4..20 mA
U	Voltage output 0..10 V
4. Functioning of the switching output	
L	Minimum switch
H	Maximum switch
R	Frequency output
5. Switching signal	
O	Standard output
I	Inverted output

Product Information

Options

Special range for analogue output: [][][][] l/min
 (not greater than the sensor's working range)

Special range for frequency output: [][][][] l/min
 (not greater than the sensor's working range)

End frequency (max. 2000 Hz) [][][][] Hz

Switching delay [][][] , [][] s
 (from Normal to Alarm)

Switchback delay [][][] , [][] s
 (from Alarm to Normal)

Power-On delay [][] s
 (After connecting the supply, time during which the switching output is not activated)

Switching output fixed [][][][] l/min

Special hysteresis (standard = 2% EW) [][] %

Installation unit connects x channels (spare part)

1. 2. 3. 4.
 VE - [][] G K 10

1. Nominal input width	025	G 1 female thread
		<input type="radio"/> Special connection on request
2. Connection	G	G 1 female thread
3. Connection material	K	stainless steel
4. Number of channels	010	1 to 10 channels

Special versions on request

Electric distributor

1. 2. 3.
 EV - [][] A 1

1. Number of channels	02	
	03	
	04	
	05	
	06	
	07	
	08	
	09	
	10	
2. Material	A	Aluminium
3. Plug connector	1	ITT 19-pin

Display for electric distributor

1. 2.
 OMNI-EV-DIS - [][] S

1. Analogue output	
I	Current output 0/4..20 mA
U	Voltage output 0/2..10 V
2. Electrical connection	
S	Round plug connector M12x1, 5-pin

Can be combined

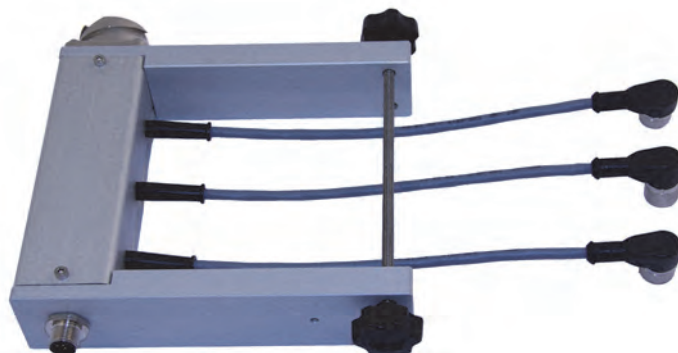
The oil distributor can be combined with the FLEX-DIS electronics.

FLEX electronics:

Provides 4 20 mA or 0 – 10 V linear analogue output and an additional programmable switching point.

The **OMNI-EV-DIS electronics** show the respective l/min value of the channel on the electrical distributor. Is required for the adjustment of the oil quantity / channel

Spare parts



- **EV electrical distributor** links the signals of the individual lubricating channels in an "or-link" to a collecting line and is mounted directly on the manifold.



- **OMNI-EV-DIS** shows the current measured value per channel, simply by means of magnetic attachment at the respective position of the EV electrical distributor.

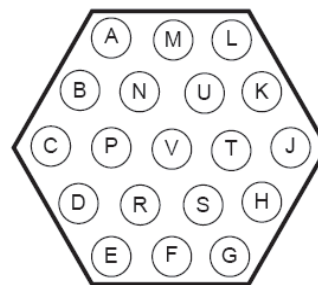
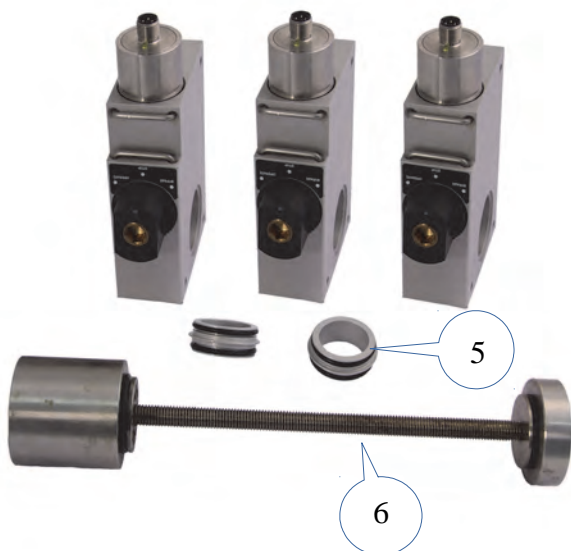
Product Information

1. DIS coaxial valve
2. DIS valve body
3. FLEX-DIS sensor
4. Fastening clamp
5. Valve body connecting material
6. Inlet with fastening



Pin	Function
A	Voltage supply +24 VDC
B	GND
C	Collecting contact
D	Collecting contact
E	Common channel 1-10
F	Channel 1 contact
G	Channel 2 contact
H	Channel 3 contact
J	Channel 4 contact
K	Channel 5 contact
L	Channel 6 contact
M	Channel 7 contact
N	not connected
P	not connected
R	Channel 8 contact
S	not connected
T	not connected
U	Channel 9 contact
V	Channel 10 contact

Disassembled DIS distributor



Bus connections

Connection of the HONSBERG oil lubrication distributor to a Profibus or another bus can be achieved easily with components supplied by Murr.

4 – 20 mA => cube 67 (analogue input) => bus node => reduction from 16 lines to 1.

Accessories

- KAL calibration unit
- Device configurator ECI-1
- Tool: universal Allen key WUS1
- Tool: Bypass socket
- DIS wall mount with oil pan

Pin assignment: