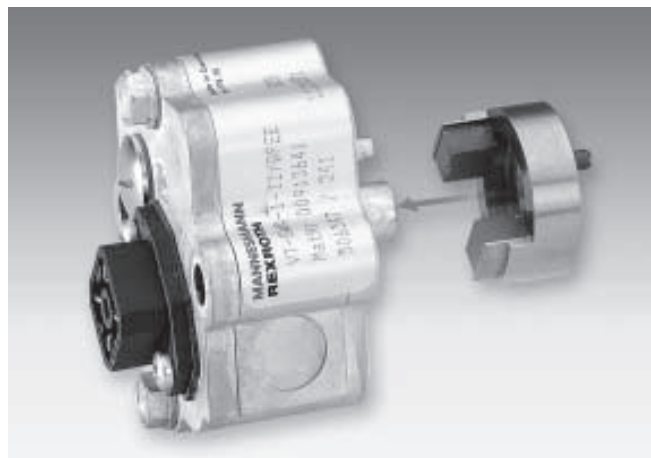


RA 30 268/12.02

**Rotary angle sensor**  
**Model VT-SWA-1**

Series 1X



Model VT-SWA-1-1X... with VT-SWA-1X magnet carrier

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**Page****Features**

- Suitable for use in DFEE and DFEC systems (systems with integrated electronics) for sensing the swivel angle of A10VSO pumps and converting the measured value into an electrical signal
- Floating sensing of a rotary angle using a Hall-effect sensor
- Consisting of magnet carrier and sensor with integral electronics in a housing
- Electronics matched to 167 mV/degree ( $\pm 18^\circ$ )

**Ordering code****Assembly VT-SWA / DFEE / 18...140 \***

Rotary angle sensor for DFE. systems with integral electronics (complete kit with sensor and evaluation electronics, magnet carrier and installed parts)

Further details in clear text  
Suitable for all sizes of pump type  
A10VSO..DFE.

**Material No. R900868651****Ordering code for individual components**

Designation	Model / ordering code	Material No.
Rotary angle sensor with evaluation electronics	VT-SWA-1-1X/DFEE	R900913641
Magnet carrier	Carrier VT-SWA-1X	R900029748
Cable socket	Socket 04POL G4W1F PG7	R900023126

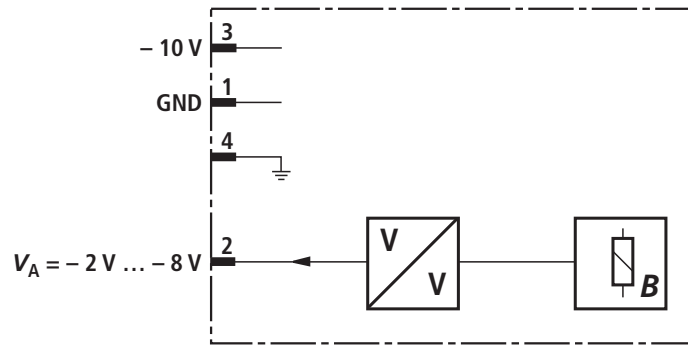


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## Block circuit diagram / pin assignment

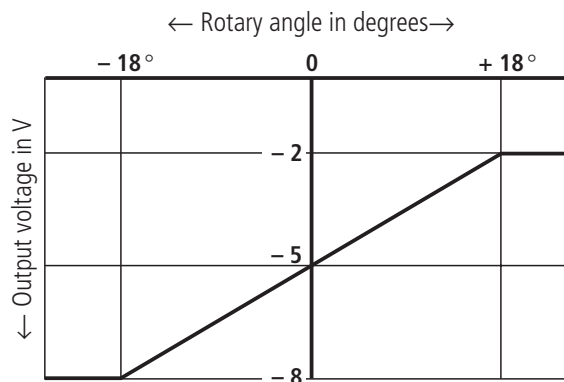


## Technical data (for applications outside these parameters, please consult us!)

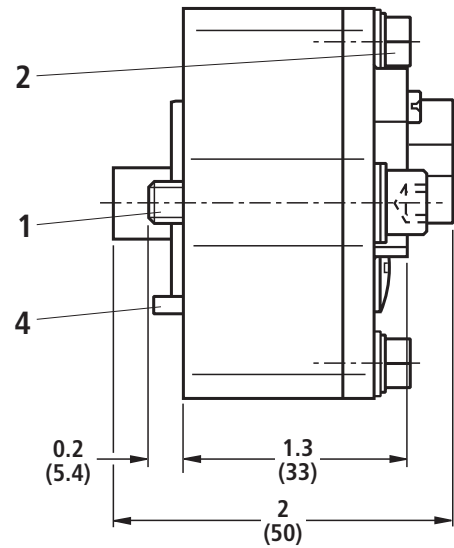
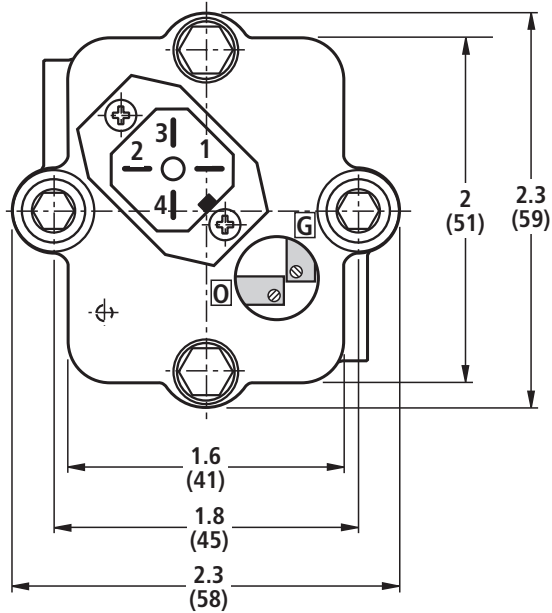
Operating voltage	$V_0$	-10 V (reference voltage)
Current consumption	$I$	ca. 25 mA
Measuring range	$\alpha$	$\pm 18^\circ$
Output signal	$V$	-2 V to -8 V
Temperature drift: – Zero point – Span		< 0.2% / 10K < 0.2% / 10K
Electrical connection		G4A5M component plug with G4W1F cable socket
Type of protection		IP 65 according to DIN 40 050
Housing material		GD-ZnAl4Cu1
Permissible ambient temperature range	$^\circ\text{F}$ ( $^\circ\text{C}$ )	32 to 140 (0 to 60)
Storage temperature range	$^\circ\text{F}$ ( $^\circ\text{C}$ )	32 to 158 (0 to 70)
Weight	lbs (kg)	0.7 lbs (0.3 kg)

**Note:** For details regarding the **environment simulation test** in the field of EMC (electro-magnetic compatibility), climate and mechanical stress, see RE 30 030-U for DFEE systems or RE 30 027-U for DFEC systems (declaration of environmental compatibility).

## Output characteristic curve

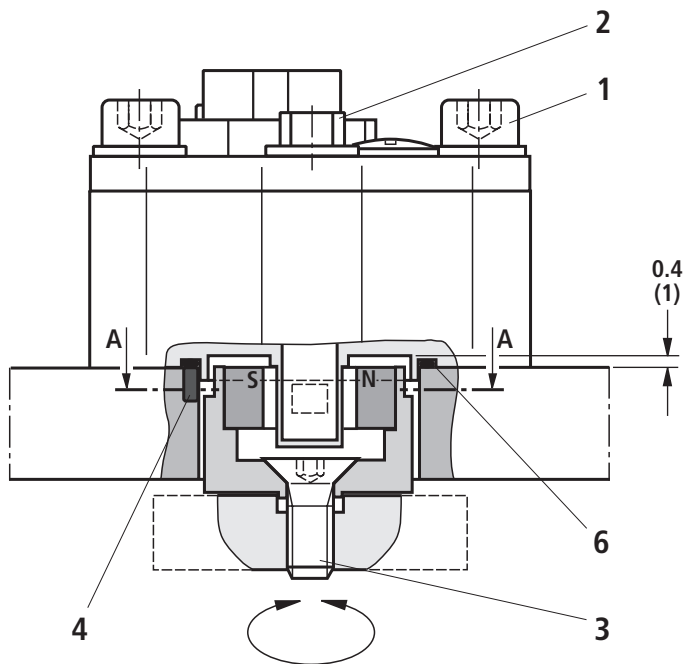


**Unit dimensions:** dimension in inches (millimeters)

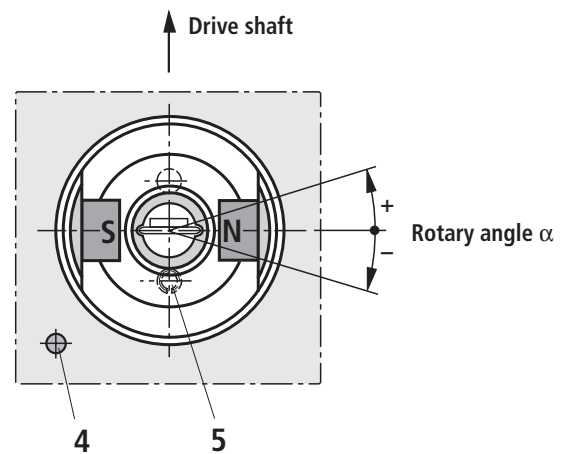


- G** Adjustment of max. swivel angle (-2 V)
- 0** Zero point balancing of swivel angle (-5 V)

**Installation example**



**Installation position of magnet carrier (A - A)**



- 1** Socket head cap screw M6x35 with washer (fixing screws, 2 off; included in the scope of supply)
- 2** Hexagon head cap screw A/F 8 (cover fasteners, 2 off)
- 3** Countersunk socket head cap screw M6x12 (included in the scope of supply)
- 4** Guide pin for housing
- 5** Locating pin for magnet carrier (for clockwise rotating pump)
- 6** O-ring 31.47x1.78-N-FKM80 (included in the scope of supply)

## Notes on the installation and matching to DFE. systems with integral electronics

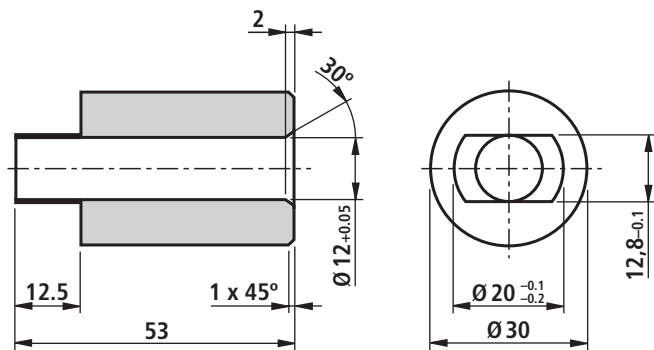
### General

The magnet carrier is a sensitive component and must, therefore, be handled with care. In particular with regard to the magnetic properties, the magnet carrier must not be subjected to hard impacts and must be kept away from metal parts! Keep the magnet carrier in its original packaging until it is installed in the pump housing.

In the case of pump assemblies that were manufactured before 10/97 a washer may have to be inserted under the magnet carrier for leveling reasons. This must be re-installed when the "old" swashplate is used; if new parts are installed, the washer is no longer required.

### Installation of the magnet carrier

- Installation on a clockwise rotating pump:  
Locating pin [5] of the magnet carrier points toward the subplate of the pump (away from the drive motor); the bore for the locating pin on the magnet carrier is identified by a color point.
- Insert the magnet carrier in the mounting cavity provided for this purpose on the housing of the A10 pump.  
A special tool (plastic assembly sleeve; material no. R900846331) is required for inserting and tightening the countersunk screw!  
If this assembly sleeve is not available, a suitable tool (see sketch) made of non-magnetic material must be used in order to insert the fixing screws and position the screw driver between the poles of the magnet. (Dimensions in millimeters)



- Tighten countersunk screw M6x12 [3] at 7.76 ft-lbs (10.5 Nm)

**Be careful when installing the magnet carrier! The glued-on magnets are very susceptible to impact loads. Once the magnet carrier is installed, check with your fingers whether the magnets adhere positively to the carrier.**

### Installation of rotary angle sensor type VT-SWA-1-1X

- Place o-ring [6] of the kit into the groove using some grease.
- Tighten fixing screws M6x35 [1] with washer at 11.4 ft-lbs (15.5 Nm)

### Adjustment of the "zero stroke" swivel angle

- Isolate the actuators hydraulically; preselect a pressure command value of approximately 290 psi (20 bar) (if impossible for technical reasons, select 0 V)  
Caution: In the case of external supply a pressure command between 40–145 psi (3–10 bar) must not exceed 10 minutes!
- Switch on the hydraulic system; let the pump warm up (approximately 5 minutes)
- Measure the actual swivel angle value (central plug on the pilot valve with integral electronics, pin 6, violet) and adjust it to 0 V (+ 0.01 V) (corresponds to zero stroke) using potentiometer "0".

### Adjustment of the "+ 100%" swivel angle

- Switch off the hydraulic system and wait for approximately 5 minutes until the pump has mechanically swivelled out (wait until pressure is completely reduced).
- Measure the actual swivel angle and adjust it to 10.05 V +0.01 V (corresponds to maximum stroke) using potentiometer "G".
- Some pumps will not swivel out to the limit stop. For this reason, switch on the motor briefly, switch it off again and wait until the pump has swivelled out completely. Measure the actual swivel angle. If a **higher** voltage is measured, correct the value. Repeat this procedure several times.

### Miscellaneous

- If the magnet carrier must be removed, you have to use a suitable assembly sleeve also for loosening the countersunk screw (see note "installation of the magnet carrier").
- A device failure may lead to malfunction!

[ ] = Assignment to the illustrations on page 3

For further notes on matching, see commissioning instructions RE 30 030-02-B (for SYDFEE) or RE 30 027-02-B (for SYDFEC).

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