

- **Model OD15 : Oscillator and Demodulator, VDC-output**
- **Model OV 15 : Oscillator, Demodulator and Amplifier, VDC-output**
- **Model OE 30 : Oscillator, Demodulator and Voltage Current Converter, 0 (4) to 20 mA output**



General description

The above modules have been designed to excite TWK Inductive Transducers with a 10 kHz carrier frequency and to demodulate the measuring signal in order to obtain a DC-output signal proportional to the measuring stroke or angle of the transducer.

The circuit is accommodated in a nickel plated metal housing and is hermetically encapsulated. Humidity, shock, vibration and corrosive gases have no effect on operation. Solder pins at the bottom are provided for mounting and electrical connection.

When using the OV- and the OE-modules the sensitivity (gain) and/or the zero-point can be adjusted by means of external trimming potentiometers.

The module UN 15 power supply is available both for 220 V 50 or 60 Hz and 110 V 50 or 60 Hz input and for ± 15 VDC output.

All modules can be supplied either as single units or on EN-case for snap-on mounting or on Eurocards with mounting frame.

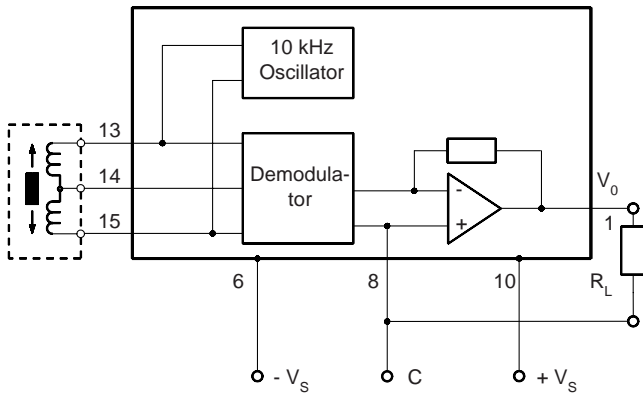
Technical data of excitation and demodulation modules

Type of Module ▶	OD 15-2	OV 15-2	OE 30
Supply voltage V_s	$\pm 11.5 \dots \pm 16$ VDC symmetrical		$\pm 11.5 \dots \pm 16$ VDC or $+ 21.5 \dots + 32$ VDC
Supply current I_s	~ 30 mA	~ 30 mA	≤ 45 mA at $I_o = 20$ mA
Oscillator frequency	10 kHz nominal		
Oscillator voltage	10 V _{rms}		
Output signal $V_o(I_o)$	$\pm 2 \dots \pm 5$ VDC depending on type of transducer	up to ± 10 VDC	0 \dots 20 mA (4 \dots 20 mA)
Sensitivity	not adjustable	adjustable *	adjustable*
Zero-point	not adjustable	adjustable *	optional
Ripple	≤ 10 mV _{p-p}	≤ 5 mV _{p-p}	≤ 0.01 mA _{p-p}
Attenuation	1% of V_o at measuring frequency 100 Hz		
Load resistance R_L	≥ 2 k Ω	≥ 2 k Ω	500 Ω max.
Temperatur drift of $V_o(I_o)$	0.005% / °C		
Switch-on drift of $V_o(I_o)$	2 mV / 15 min. (typ.)	1 mV / 15 min. (typ.)	2 μ A / 15 min. (typ.)
Dependence of $V_o(I_o)$ on V_s	at $\Delta V_s \pm 1V \Delta V_o \pm 0.05\%$		at $\Delta V_s \pm 1V \Delta I_o \pm 0.05\%$
Operating temperature range	$- 10^\circ \dots + 80^\circ$ C		

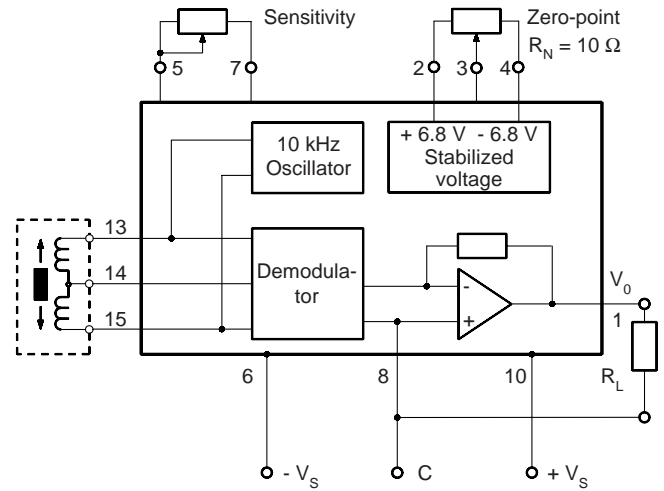
* Notes for the connecting are supplied with each module.

Basic block diagrams

OD 15-2 Oscillator / Demodulator



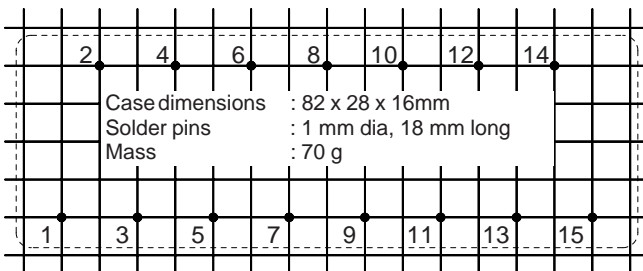
OV 15-2 Oscillator / Demodulator / Amplifier



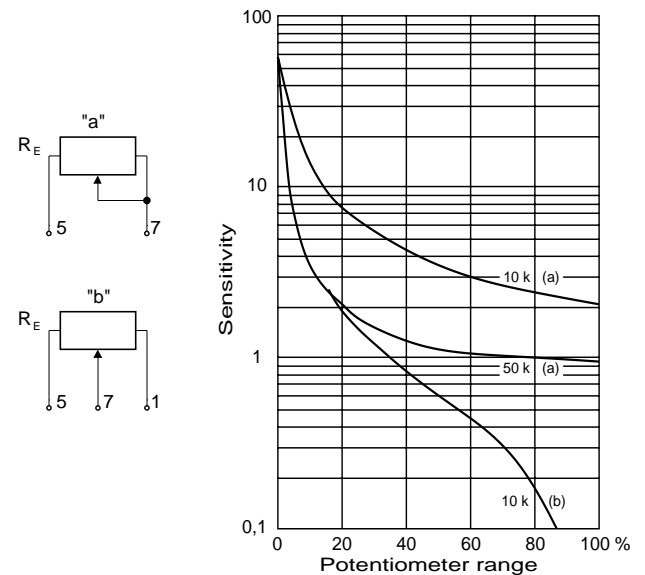
Mounting grid and dimensions in mm

for OD 15-2, OV 15-2 and OE 30

5 mm pitch / view of mounting face



Sensitivity chart



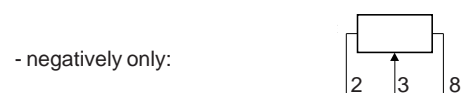
Notes relating to OV15

- Pin No. 5 permits to check the center position of the transducer with a high-impedance instrument, independently of the zero shift device. It is recommended to use this point as a reference when fixing the transducer armature in its final position and in order to find its effective linear measuring range.
- If the trimmer potentiometers R_E and/or R_N are not required, the related contact pins must not be connected.
- There are three possibilities to shift the zero point :

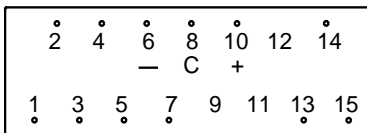
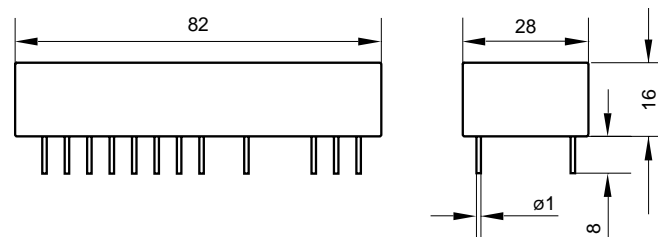
- positively and negatively by using the wiring diagram as shown in the basic circuitry left side middle.



- positively only:



- negatively only:

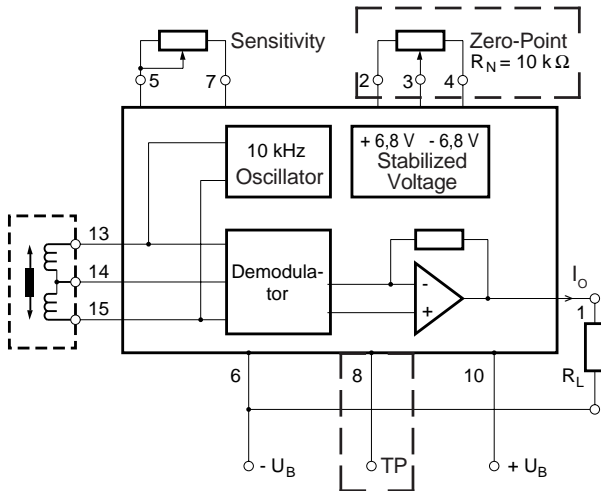


Note

The transmission line between the transducer and the electronic module may measure up to 100 meters. Screened cables should be used to avoid the interference of outside noise.

- In order to obtain the optimal sensitivity the resistance value of the trimming potentiometer R_E must be chosen according to the diagram above.

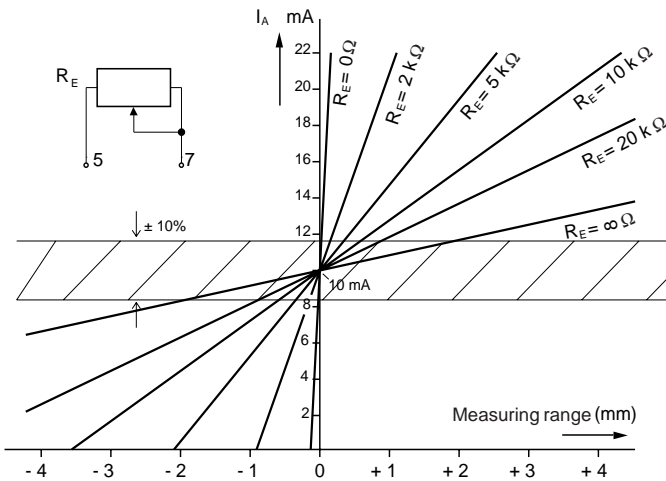
Block diagram and connections



Variants and order codes

Variant	Output Signal	Zero-point-adjustment	Line monitoring
OE30-1	0 - 20 mA	-	-
OE30-2	4 - 20 mA	-	-
OE30-3	0 - 20 mA	●	-
OE30-4	4 - 20 mA	●	-
OE30-6	4 - 20 mA	-	●
OE30-8	4 - 20 mA	●	●

Sensitivity chart



Zero-point adjustment

The option "zero-point adjustment" permits to adjust the zero-point within the range of $\pm 10\%$.

Line monitoring

At the option "Line monitoring" the lines between transducer and electronic module are monitored. If a line break of one or more lines happens, the output signal will shift to a constant signal of 2 mA.

Notes relating the variants OE 30-3/4/8

The zero or central position of the transducer can be checked independently of the position of the zero-point potentiometer. A high-impedance voltage meter should be connected between Pins No. 5 and 8.

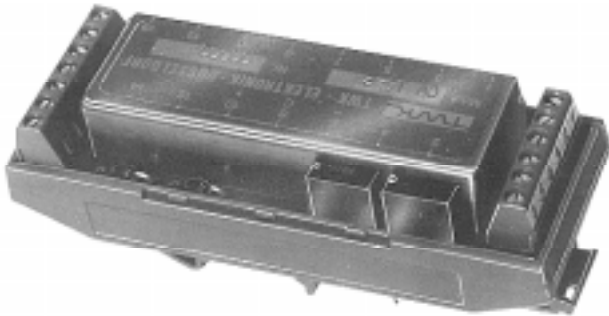
(Pin No. 8 is **only** used for connecting a voltage meter!)

At the mechanical midpoint of the transducer the output value between Pin No. 5 and No. 8 is 0 VDC.

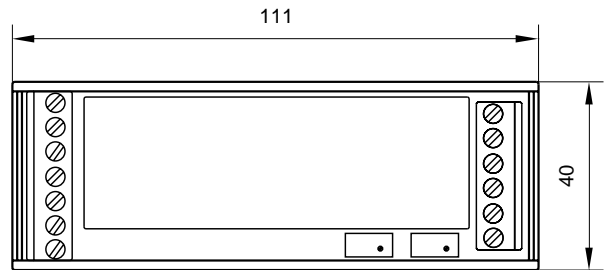
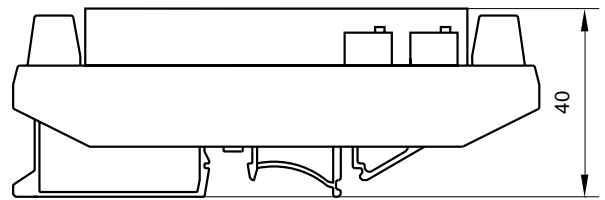
EN-case for snap-on mounting

The electronic modules can be supplied on EN-case for easy snap-on mounting on rails, along with trimming potentiometers for sensitivity and zero-point adjustment, if applicable. Electrical connections are made via screw terminals.

Ordering code : Type of module + "UM.", e.g. OV 15-2/UM



Dimensions in mm



Eurocards with mounting frame

Up to four modules or two modules and one power supply as well as up to six trimming potentiometers can be supplied on Eurocards with plug-in mounting frame. Details must be specified when asking for quotation.



Dimensions in mm

