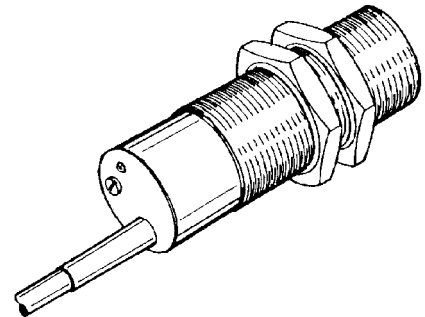


Proximity switch with speed monitoring function in M 30 plastic casing.

For monitoring the operating frequency for control of slip, belt rupture, breakage or overload of conveyor belts, worm drives, mixture plants, pumps etc.

The comfortable TEACH-IN function allows programming of speed and start-up time.

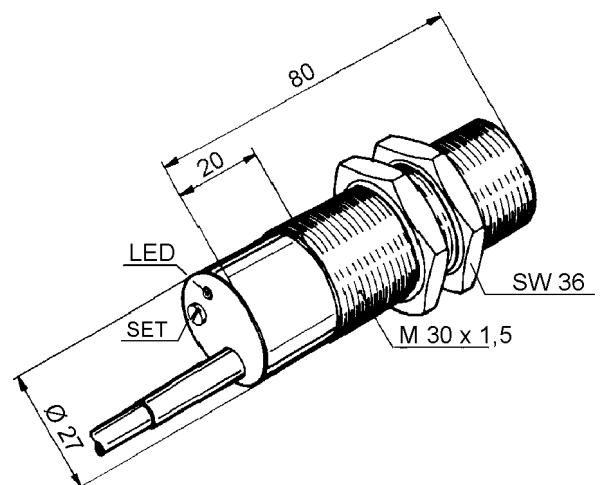
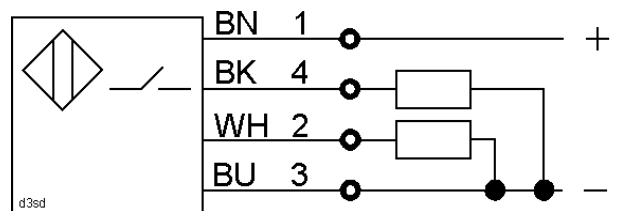


### Technical Data

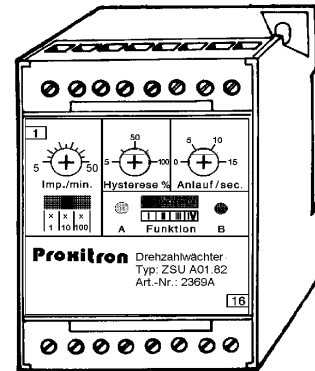
<b>Type</b>	<b>IDL 015.28 G</b>
Art.-No.	2473A
Rated pulse range programmable	5...6000 puls./min.
Rated operating distance (Sn)	15 mm
Output 2 speed controller	PNP Opened if the number of pulses is not reached
Output 4 proximity switch	PNP-normally open closed if the active surface is damped
Target steel St37, 1 mm thick	45 x 45 mm
Location at metal	non flush
Supply voltage (U <sub>B</sub> )	10 - 30 V DC
Ripple voltage	max. 15 %
Load current max.	0 - 200 mA
Short- time load current	0,8 A / 100 ms 2 A / 10 ms
Short circuit protection	yes, pulsing
No-load current (I <sub>0</sub> )	10 mA / 24 V DC
Voltage drop (U <sub>d</sub> )	1,5 V / 50 mA
Start-up time programmable	0 – 120 s
Switching hysteresis (H) proximity switch	3 - 15 %
Switching hysteresis speed controller	10 %
Ambient temperature	-25 ... +70 °C
Protection class	IP 67
Connection	2 m cable
Function display	LED
Housing material	Plastic PBT
<b>Accessories</b> (not included in the scope of supply)	<b>Art.-No.</b>
programming device <b>Proxibox ID1</b>	2477A

When the supply voltage is applied the output closes for 9 s. Thereafter the sensor evaluates the actual operating frequency. Via the TEACH-IN function the pulse existing at the sensor face can be stored as rated value. If the actually existing value falls below the rated value by  $\geq 20\%$ , output 2 blocks.

### Diagram of Connections



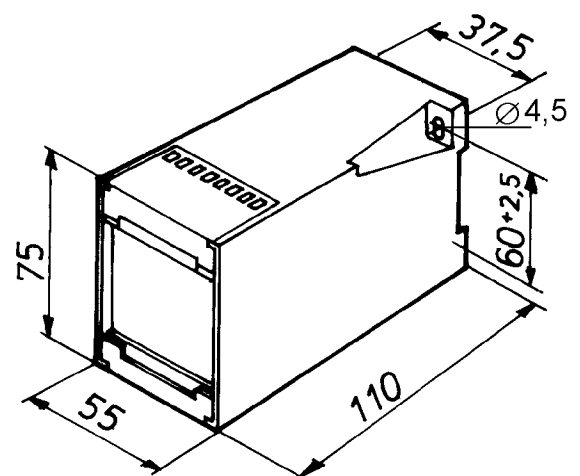
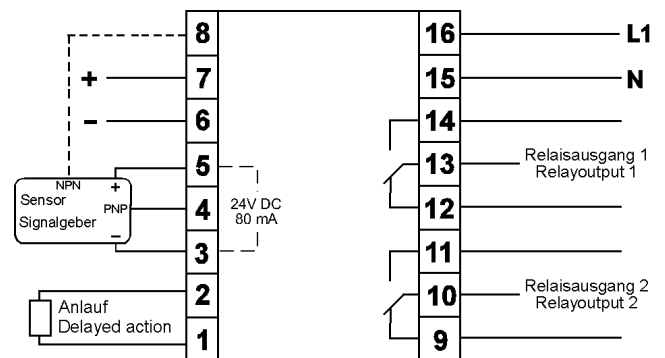
The ZSU speed controller is a monitor of rotating or oscillating machine parts. The speed controller continuously compares the set speed with the actual speed and produces a switching output in the event of excessive variation. The actual speed is monitored by a sensor at the machine in a non-contact method.



## Technical Data

<b>Type</b>	<b>ZSU A01.82</b>
Art.-Nr.	2369A
Range of adjustment	5 - 5000 puls./min.
Supply voltage	230 V AC +/- 10 % or 24 V DC +/- 20 %
Power frequency	45 - 65 Hz (AC)
Power consumption	3,5 VA
Start delay ( adjustable )	0 - 15 sec.
Output	2x potential-free changeover relay
Relay contact load	5 A / 240 V AC
Power voltage for external sensor	24 V DC 80 mA max.
Hysteresis ( adjustable )	5 - 100 %
Ambient temperature	-25 to +70 °C
Protection class	IP40, recessed screw terminals to VDE 0100 / IP 20
Connection	Terminals up to 4 mm <sup>2</sup>
Function display	LED "A" = actual speed below the set speed LED "B" = actual speed above the set speed
Housing	Plastic housing to the regulations of the machine and automotive industry. Mounting to DIN 46121 (2 boreholes) or on a DIN Rail to DIN 46227/EN 50022
<b>Further designs available:</b>	<b>Type:</b>
Supply voltage 110 V AC +/- 10 %	ZSU A01.52

## Diagram of Connections



## Advantages

- Control of speeds which fall below the set speed or exceed the set speed
- 230V AC or 24V DC
- potential free D.P.D.T. relay
- state of operation indicated by LEDs
- start up delay adjustable
- hysteresis adjustable
- programmable working current or static current behaviour

## Usable sensors

- 3 wire, PNP or NPN sensors
- 2 wire, sensors
- magnetic proximity switches
- any type of limit switches
- any type of inductive, magnetic or capacitive proximity sensors
- any type of photoelectric reflex, proximity or through beam sensors

## Pulses/min.

The set speed is adjusted by the potentiometer "*Imp./min.*" and by the three-step slide switch. So in the three steps the speed ranges 5 - 50 (x1), 50 - 500 (x10) and 500 - 5000 (x100) pulses per minute are reached.

## Hysteresis

The hysteresis is defined as the difference in speed between the relay switching on and off. Hysteresis to the low speed switching point can be adjusted by the potentiometer "*Hysterese%*" from 5% to 100% (hysteresis factor 1,05 to 2,0).

## Start Delay

After start up a motor will not be at rated speed for some seconds. To avoid an unwanted alarm this time can be adjusted up to 15 seconds. This delay time is adjusted by a potentiometer "*Anlauf/sec.*" or, alternatively, by an external resistance between the terminals 1 and 2. For external adjustment, the internal potentiometer must be set to 15 seconds.

Start up delay set by external resistance:

Resistance [ohm]	27 K	56 K	120 K	270 K	470 K	1 m	2M2	without
Time [sec.]	1	2	4	6	8	10	12	15

## Modes of operation

By means of the four-step slide switch "*Funktion*" different modes of operation are adjustable in order to guarantee compliance with the safety requirements.

Function	Modes of control	Relay		Contact		LED	
		during start	at rated speed	9 / 10 12 / 13	10 / 11 13 / 14	A	B
I	speed falls below rated speed	off	off	close	open		•
II		on	on	open	close		•
III	rated speed exceeded	off	off	close	open	•	
IV		on	on	open	close	•	
during starting both LED`s lighten within preselected time						•	•