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Operating manual **- Archive document**

Speed Controller NU 125 D

General

Speed controllers of type NU 125 D are devices for monitoring stoppage or correct working speed of plants and machinery. They are used at places where non-respect of the required speed may cause damage to equipment or production goods.
Speed controllers of type NU 125 D can be used as stoppage controllers,overspeed monitors or underspeed monitors depending on their task.
If the required speed is not achieved after a specific response time,the device is switched off.

Typical fields of applications are in escalators, conveyor belts, rotary tubes or elevators as well as in installations in which several drives with coordinated speeds interact.

A 4-digit 7-segment display shows the current speed in normal state. The parameters are shown in the programming mode. The parameters are programmed by the user via buttons at the front.
Wear-resistant proximity switches are used as transmitters. The combination initiator-switching device is absolutely maintenance-free and guarantees a reliable speed monitoring for many years.

- Monitoring range 60 ... 9999 IMP/MIN
- Speed and status display via LED- Display
- Monitoring of stoppage, overspeed and/or underspeed
- Start-up time adjustable (0.1 ... 60 s)
- Hysteresis for both switching points to be programmed separately
- Response delay adjustable (0.1 ... 20 s)
- one relay output each for the upper and the lower limit value
- Closed circuit current or working current version adjustable
- Speed monitoring with inductive two-wire proximity switches according to the NAMUR guidelines as per DIN 19234, for example ZIEHL type IG 1
- Locking code against unauthorised modification of the set values can be activated
- Interlocked switching-off programmable
- Connection for 3-wire initiator (24 V PNP)

Function

If the speed controller is switched on at the same time as the drive to be monitored, monitoring is only active after expiry of the programmed start-up bridging time.

If supply voltage is constantly fed, monitoring can be started via the contact Y1-Y2 (terminals 2/3). Upon opening of this contact, the programmed start-up time starts running. During start-up-time "StA" blinks in the display alternating with the actual measured value.

At under-speed, K1 switches off. "L" blinks alternating with the actual measured value.
At over-speed, K2 switches off. "H" blinks alternating with the actual measured value.

If the speed exceeds maximum (9999), "H" and "EEEE" blink alternating. If the speed exceeds maximum (9999) and alarm for over-speed is de-activated, during start-up time or response delay or with closed contact "Start", the display shows "EEEE".

If interlocked switching is activated, the alarm remains active when the signal returns into the permissible range. "LocL" (Alarm 1, relay K1) respectively "LocH" (alarm 2, K2) blink alternating with the measured value. For Reset push button "Set" >0,5 s.

If the code lock is activated, the settings can only be changed after entering the code. Attempts to change settings result in display "code" (short) followed by "5000". Now the code can be entered wit up/down. Pust "Set" to return to normal display mode.

Installation - Putting into operation

The plug base can be mounted either with

- 35 mm mounting rail according to DIN 50 002 or
- M4 screws
- Wiring directly to plug base
- Connect wires as per wiring scheme
- Plug in electronics and fix with knurled screw

ATTENTION

Before switching on voltage make sure, that the operational voltage Us of the lateral type plate and the mains voltage connected to the relay are the same.

Factory-preset:

- Lower limit: 500 Imp./min., hysteresis: 10 Imp./min., no interlocked switching, relay on, when signal above limit
- Upper limit: 5000 Imp./min., hysteresis: 100 Imp./min., no interlocked switching, relay on, when signal below limit
- Start-up-time: 2 s
- Response delay: 0,5 s
- Display rate: 0,5 s
- Code off

Return to factory-settings by pushing "Set" while in display-mode for 5 s.

Setting the limits

If no button is pushed for 30 s while programming, the relay returns into display mode. The last set value is being stored.
In program mode a LED in the lower right corner of the display lights up.

Upper Limit:

- press up/down until display "H"
- press Set and the actual limit value is displayed, e.g. "5000"
- change value in between 60...9000 IMP/min. When setting "0", monitoring for over-speed is switched off
- "Set" stores the value and display returns to "H"
- push up/down to reach other settings

Hysteresis of upper limit:

- press up/down until display "HH"
- press Set and the actual value is displayed, e.g. "100"
- change value in between 1...9999 IMP/min.
- "Set" stores the value and display returns to "HH"
- press up/down to reach other settings

Lower Limit:

- press up/down until display "L"
- press Set and the actual limit value is displayed, e.g. "500"
- change value in between 60...9000 IMP/min. When setting "0", monitoring for under-speed is switched off
- "Set" stores the value and display returns to "L"
- push up/down to reach other settings

Hysteresis of lower limit:

- press up/down until display "HL"
- press Set and the actual value is displayed, e.g. "10"
- change value in between 1...9999 IMP/min.
- "Set" stores the value and display returns to "HL"
- press up/down to reach other settings

Start-up time

- press up/down until display "StA"
- press Set and the actual value is displayed, e.g. "2.0"
- change value in between 0.1 ... 60.0 s.
- "Set" stores the value and display returns to "StA"
- push up/down to reach other settings

Response-time (Delay):

- press up/down until display "dEL"
- press Set and the actual value is displayed, e.g. "0.5"
- change value in between 0.1 ... 20.0 s.
- "Set" stores the value and display returns to "dEL"
- push up/down to reach other settings

Display rate:

- press up/down until display "rAtE"
- press Set and the actual value is displayed, e.g. "0.5"
- change value (0,1 s; 0,5 s; 1 s).
- "Set" stores the value and display returns to "rAtE"
- push up/down to reach other settings

Interlocked switching off

When activated the relays switch back after an alarm only after a Reset.

- press up/down until display "Loc"
- press Set and the actual setting is displayed, e.g. "H0L0"
- change with up/down as follows:
- "H0L0" upper limit not intlocked / lower limit not interlocked
- "H0L1" upper limit not intlocked / lower limit interlocked
- "H1L0" upper limit intlocked / lower limit not interlocked
- "H0L0" upper limit intlocked / lower limit interlocked
- "Set" stores the setting and display returns to "Loc"
- push up/down to reach other settings

In operation a reset is possible by pressing "Set" for 0,5 s or switching off and on of the supply voltage.

Relay function (closed circuit / operating current mode)

The relays can be operated in closed circuit mode (picked up when signal is between the limits) or operating current mode (picks up when limit is exceeded).

- press up/down until display "rEL"
- press Set and the actual setting is displayed, e.g. "1r2r"
- change with up/down as follows:
- "1r2r" K1 in closed circuit mode / K2 in closed circuit mode
- "1r2Ar" K1 in closed circuit mode / K2 in operating current mode
- "1A2r" K1 in operating current mode / K2 in closed circuit mode
- "1A2A" K1 in operating current mode / K2 in operating current mode
- "Set" stores the setting and display returns to "Loc"
- push up/down to reach other settings

Code on/off

The NU 125 D can be locked by activating a preset code. With active lock, settings can be made 2 minutes after entering the correct code. The code is "5040" (5040 cannot be changed) and can be activated as follows:

- press up/down until display "codE"
- press Set and "5000" is displayed
- change with up/down to "5040"
- "Set" shows the actual setting, e.g. "0"
- change with up/down ("0" = off, "1" = on)
- "Set" stores the setting and display changes to "Code"
- push up/down to reach other settings

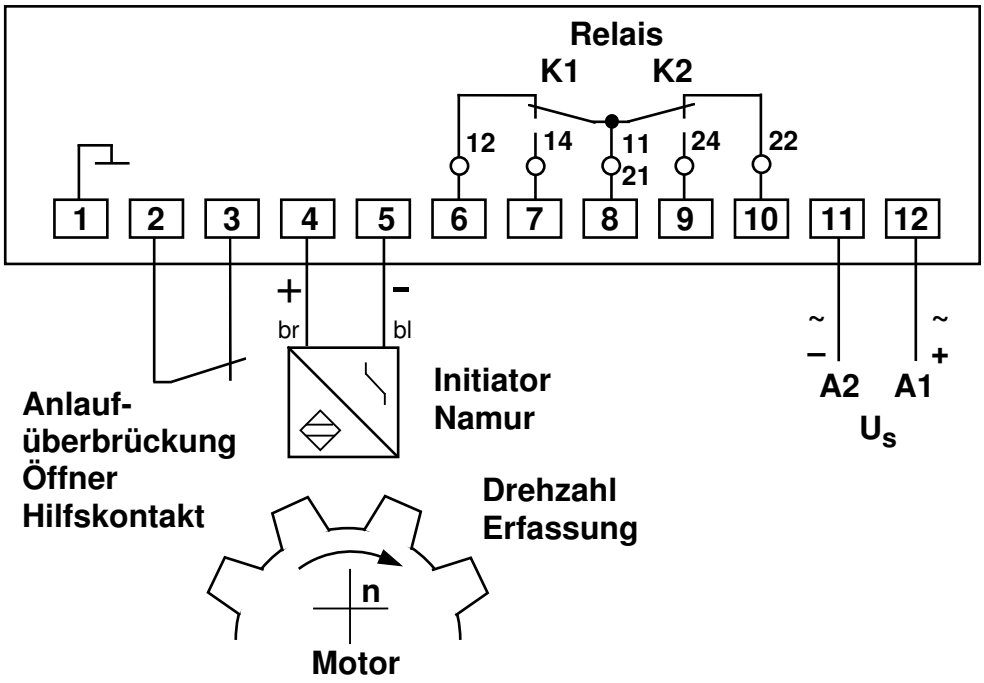
The lock will be active 2 min. after activating the code. When switching off and on the supply voltage, the lock will be active immediatels.

Technical Data

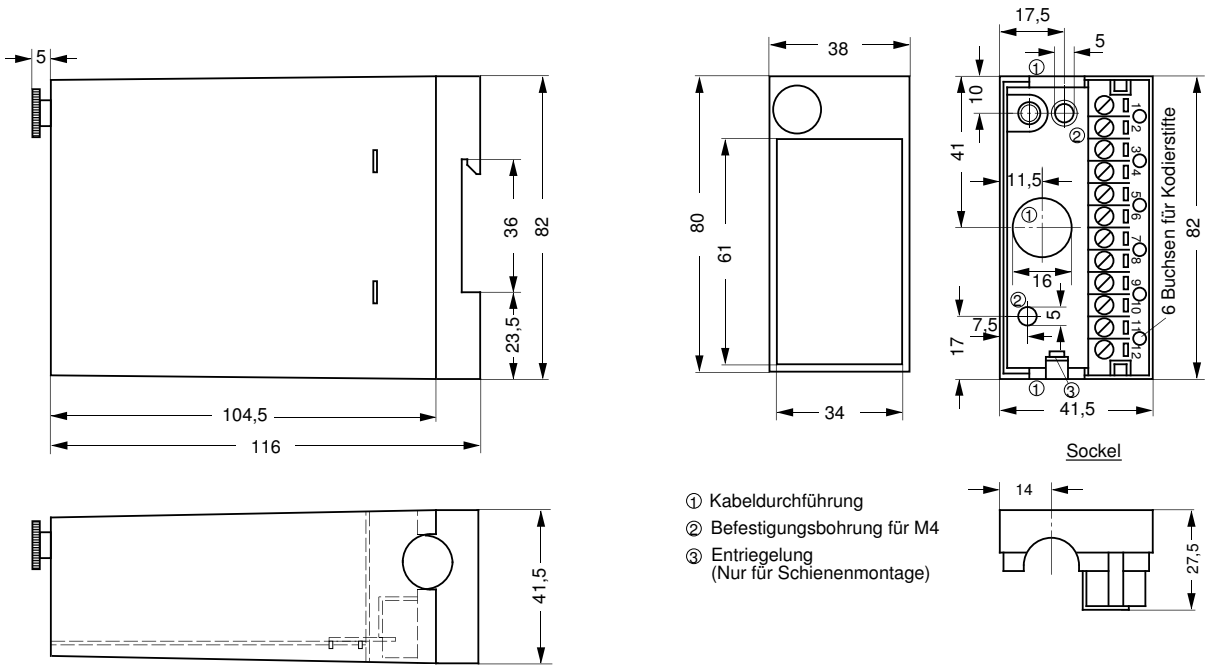
Supply voltage Us	AC 220 - 240 V	DC 24 - 60 V
Tolerance Supply voltage Us	AC - 15 ... + 10 %	DC 19 … 81 V
Other voltages	upon request	
Frequency	50 - 60 Hz	
Tolerance frequency	48 ... 62 Hz	
Power consumption	< 5 VA	
Speed monitoring	inductive two-wire proximity switch according to to the NAMUR guidelines as per DIN 19234 Averaging of 4 periods.	
Tolerance	<1 % of span	
Setting ranges		
Switching points	60 ... 9999 Imp. / minute	
Hysteresis	1 ... 9999 Imp. / minute	
Start-up time	0,1 ... 60 s	
Switching delay	0,1 ... 20 s + max. 4 periods	
Switching function	K1 underspeed, K2 overspeed	
Relais - output	1x U per switching point	
Switching voltage	max. AC 400 V	
Switching current	max. AC 6 A	
Switching performance	max. 2000 VA (ohmic load) max. 48 W at DC 24V	
Nominal operating current I_e	2A AC15 400 V / 2A DC13 24 V 4A AC15 230 V	
Testing conditions	VDE 0660/0160	
Insulation	VDE 0110 AC 400V/I.Gr.C	
Trafo	VDE 0550	
Duty cycle	100 %	
Adm. Ambient temperature range	-20 ... +55 °C	
Housing	Design S-12	
Wire connection	12 - poles, 2 x 1,5 mm^2 per pole	
Protection housing	IP 30 (DIN 40 050)	
Protection terminals	IP 20 (DIN 40 050)	
Fitting position	any	
Fastening	35 mm standard rail as per DIN 50022 or Screw fastening M4	
Weight	approx. 0,3 kg	

Subject to technical modifications

Wiring Scheme:



Housing Design S12:



Subject to technical modifications

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