


Electrical Position Indicator Device Version 3E,3S,4E,4S

Construction

The GEMÜ 1235, 1236 programmable, electrical position indicator for linear actuators has a microprocessor controlled intelligent position sensor with an integrated analogue travel sensor system. The optical position feedback is via high visibility LEDs. An integrated IO-Link interface offers additional parameterisation and diagnostic facilities. The housing cover is made of corrosion resistant plastic and the housing base is either PVDF (GEMÜ 1235) or stainless steel (GEMÜ 1236). The protection class is IP 67.

Features

- For linear actuators with max. 75 mm stroke
- Can be used for single or double acting actuators
- Integrated analogue travel sensor system
- External programming input
- Communication interface  IO-Link

Advantages

- Standard OPEN and CLOSED feedback
- **speed^{AP}** function for fast mounting and initialisation
- Quick cable connection
- Simple and fast mounting
- Can be retrofitted to GEMÜ valves or other actuators
- Optical high visibility position indicator
- Adjustable switch point tolerances
- Extensive diagnostic facilities
- Programmable on site or remotely

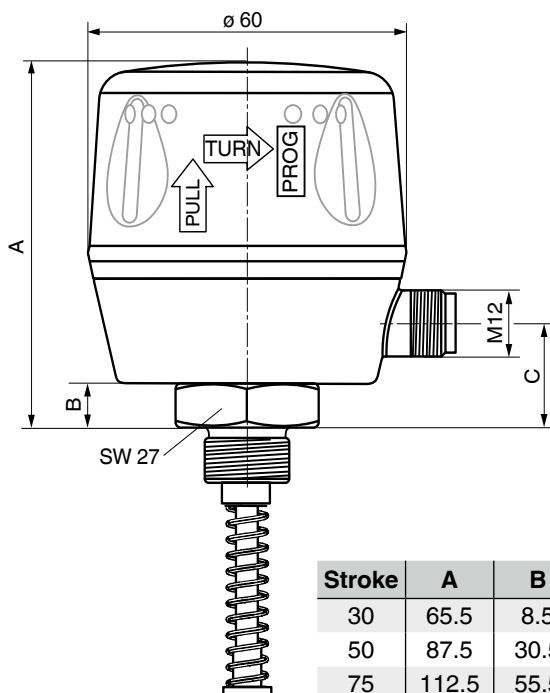


GEMÜ 1235



GEMÜ 1236

Dimensions - GEMÜ 1235, 1236 [mm]



Technical data

General information

Protection class to EN 60529	IP 67
Electrical protection class	III
Mounting position	Optional
Mounting	M16 x 1 thread

Directives

EC low voltage directive	2006/95/EG 2004/108/EG
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Conformities

Interference resistance	DIN EN 61000-6-2 (March 2006) IO-Link Spec Dec 08
Interference emission	DIN EN 61000-6-4 (Sep. 2007) IO-Link Spec Dec 08

Operating conditions

Ambient temperature	-10 °C to +70 °C
Storage temperature	-20 °C to +70 °C

Materials

Housing cover	Transparent PP
Housing base	GEMÜ 1235 - black PVDF GEMÜ 1236 - St.st. (1.4301)
M16 thread	GEMÜ 1235 - PEEK GEMÜ 1236 - St.st. (1.4301)
Seals	EPDM

Electrical data

Power supply

Power supply U_v	24 V DC (18 V – 30 V DC) in accordance with IO-Link specification
Current consumption	typ. 30 mA with high visibility LEDs typ. 10 mA without high visibility LEDs
Power consumption	typ. 0.72 W with high visibility LEDs typ. 0.24 W without high visibility LEDs
Duty cycle	continuously rated
Reverse battery protection	yes
External line fuse	630mA medium time lag (not applicable for operation with IO-Link Master)

Inputs

Programming input	max. 30 V DC
Low-level	< 5 V
High-level	> 18 V
Input impedance	min. 68 k Ω
Pin 5 is highly active. If not used, connect to GND or leave open.	

Outputs

Type of contact	Push-Pull
Switching voltage	+ U_v – V_{drop} - U_v + V_{drop}
V_{drop} max.	2.5V at 100 mA
Switching current	≤ 100 mA
Switching power	≤ 2.4 mA

Signal processing

Signal delay td_1	min. 2 ms max. 30 ms
Signal delay td_2	min. 2 ms max. 30 ms
Signal interval t_a	min. 0 ms max. 30 ms

Electrical connection

Electrical connection	M12 5-pin plug (A-coded)
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IO-Link

IO-Link specification	V1.0
Frame type in Operate	2.5
Transmission rate	38400 baud
Min. cycle time	2.3 ms
Physics	Physics 2 (3-wire design)
Port configuration	Port type A
Vendor-ID	401
Device-ID	123501
SPDU support	no
SIO operation	yes

Travel length	Code 030	Code 050	Code 075
Minimum stroke	2.2 mm	3.5 mm	5 mm
Maximum stroke	30 mm	50.2 mm	74.4 mm
Hysteresis	0.6 mm	0.9 mm	1.3 mm
Accuracy	0.2 % FS	0.2 % FS	0.2 % FS

Switch point CLOSED

Setting range using IO-Link	3 - 97 %	3 - 97 %	3 - 97 %
Setting range using Pin5	6 % / 12 % / 25 %	6 % / 12 % / 25 %	6 % / 12 % / 25 %
Default setting	12 %	12 %	12 %
Min. switch point	0.6 mm	0.9 mm	1.3 mm

Switch point OPEN

Setting range using IO-Link	3 - 97 %	3 - 97 %	3 - 97 %
Setting range using Pin5	6 % / 12 % / 25 %	6 % / 12 % / 25 %	6 % / 12 % / 25 %
Default setting	25 %	25 %	25 %
Min. switch point	0.6 mm	0.9 mm	1.3 mm

If the percentage switch points dependent on the programmed stroke are smaller than the permissible min. switch points, the min. switch points apply automatically

Process data

Input data 1 byte (as seen from the IO-Link Master)

Bit	Function	Logic	
0	Feedback - OPEN position	0 = process valve not in OPEN position	1 = process valve in OPEN position
1	Feedback - CLOSED position	0 = process valve not in CLOSED position	1 = process valve in CLOSED position
2	Indication of operating mode	0 = normal operation	1 = programming mode
3	Status of programming input	0 = switch point setting not active	1 = switch point setting active
4...7	Not used		

Output data 1 byte (as seen from the IO-Link Master)

0	Select operating mode	0 = normal operation	1 = programming mode
1	Location function	0 = location function not active	1 = location function active
2 ... 7	Not used		

Technical data

Parameter data

All index 1 (direct parameter data, device parameters, as seen from the IO-Link Master)

Subindex		Function	Value / Default	Value range	Access	Address	Logic
Byte	Bit						
0	0	Inversion of LED colours	0	0/1	RW	0x10	0 = standard 1 = inversed
	1	Inversion of feedback signals	0	0/1	RW	0x10	0 = standard 1 = inversed
	2,3	Function of high visibility position indicator	1	0..3	RW	0x10	0 = off 1 = on (100%) 2 = on (33%) 3 = on (66%)
	4	On site programming	0	0/1	RW	0x10	0 = enabled 1 = disabled
	5...7	Not used					
1		Switch point OPEN	25%	3..97 %	RW	0x11	
2		Switch point CLOSED	12%	3..97 %	RW	0x12	
3...5		Switching cycle counter	-	0..16777215	R	0x13	
6...8	0...11	Programmed CLOSED position		0..4095	R	0x16	
	12...23	Programmed OPEN position					
9...11	0...11	Current CLOSED position		0..4095	R	0x19	
	12...23	Current OPEN position					

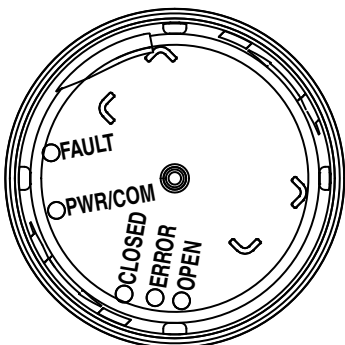
Diagnostic messages

IO-Link event codes

Value (dec)	Value (hex)	Meaning	Occurrence
36004	0x8CA4	Sensor error / position OPEN	Appear / Disappear
36005	0x8CA5	Sensor error / position CLOSED	Appear / Disappear
36006	0x8CA6	Programming error / no stroke	Appear / Disappear
36007	0x8CA7	Programming error / stroke < min. stroke	Appear / Disappear
36008	0x8CA8	Programming error / after sensor error	Appear / Disappear
36002	0x8CA2	Internal error	Appear / Disappear
25376	0x6320	Parameter error* / entered value not permissible	Single Shot

* After a parameter error, operation is continued with the last permissible setting. The new value will not be adopted.

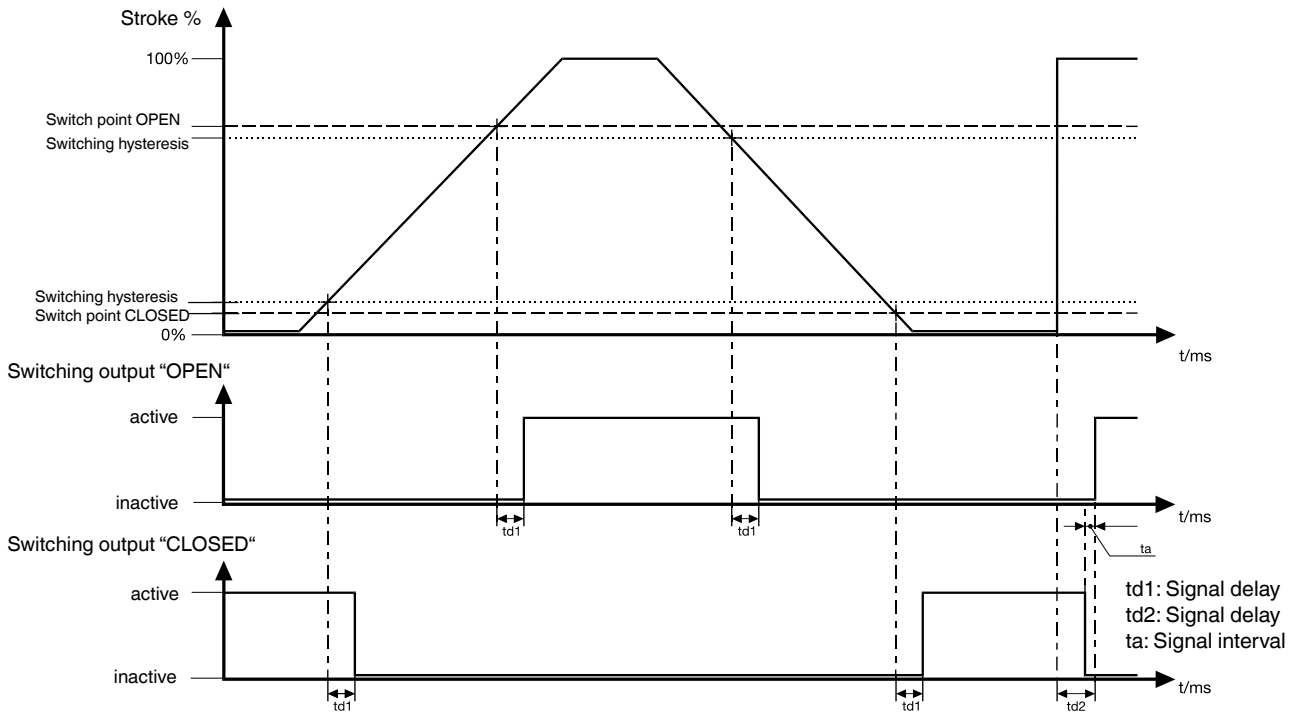
Optical indication



LED	Colour		Function
	Standard (Device version 3E / 3S)	Inversed (Device version 4E / 4S*)	
PWR/COM	green	green	Power / communication
FAULT	red	red	Communication termination / fault
CLOSED	green	orange	Valve in CLOSED position
ERROR	red	red	ERROR
OPEN	orange	green	Valve in OPEN position

* The colours of the OPEN and CLOSED LEDs can be inversed via IO-Link.

Switching characteristic of output signals

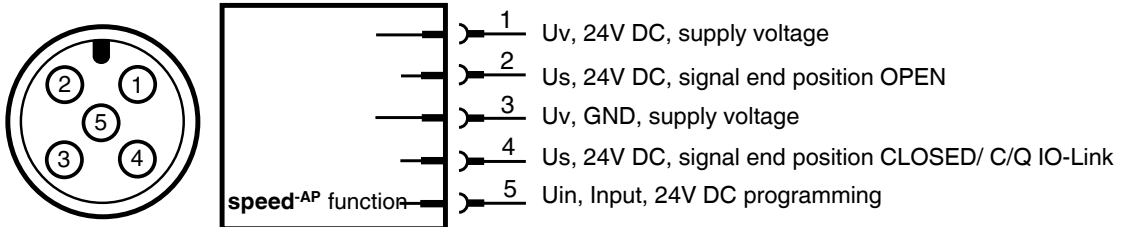


Switch points: The data in percent refer to the programmed travel, before each end position

Connection diagram

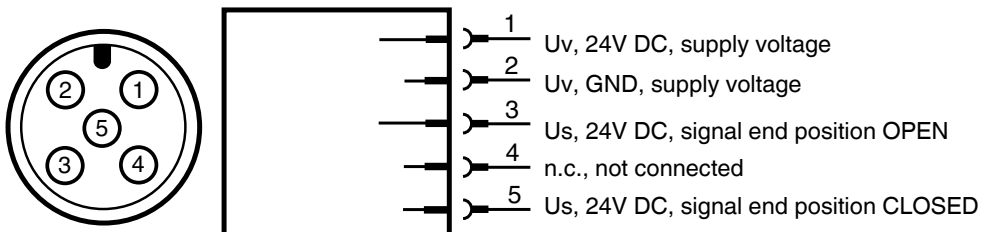
Device version 3E / 4E

5-pin M12 connector



Device version 3S / 4S

5-pin M12 connector



Device version 3S/4S is PIN compatible with the previous version 2SM125, but without potential-free contacts. The device has 24V DC Push-Pull outputs

Order data

Type	Code
GEMÜ 1235 (plastic version)	1235
GEMÜ 1236 (stainless steel version)	1236

Electrical connection	Code
5-pin M12 connector (5 pins assigned)	M125

Field bus	Code
Without	000

Travel length	Code
Length 30 mm	030
Length 50 mm	050
Length 75 mm	075

Device version	Code
2x make contact, programming input, optical high visibility position indicator, IO-Link communication	3E
2x make contact, optical high visibility position indicator	3S*
2x make contact, programming input, optical high visibility position indicator, IO-Link communication (factory inversed LED indication)	4E
2x make contact, optical high visibility position indicator (factory inversed LED indication)	4S*

* Device versions 3S and 4S are PIN compatible with the previous version 2SM125, but without potential-free contacts.

Housing	Code
GEMÜ 1235 PP cover, PVDF base, M16x1 thread PEEK	G10
GEMÜ 1236 PP cover, stainless steel base 1.4301, M16x1 stainless steel thread 1.4305	G70
GEMÜ 1236 PP cover, stainless steel base 1.4301, M16x1 stainless steel thread 1.4305 base with integrated vent hole (Only for use with GEMÜ 650 actuator size 1, 2, 3, 4, control function 1)	G73

Order example	1235	000	Z	3E	M125	030	G10
Type	1235						
Field bus (code)		000					
Accessory (code)			Z				
Device version (code)				3E			
Electrical connection (code)					M125		
Travel length (code)						030	
Housing (code)							G10

Note: Mounting kit 1235 S01 Z... / 1236 S01 Z... dependent on valve type. Please order separately specifying valve type, DN, control function and actuator size. Observe mounting kit travel length (see price list).

Mounting examples



GEMÜ 690 with position indicator GEMÜ 1235



GEMÜ 550 with position indicator GEMÜ 1236

Further electrical position indicators for valves with linear actuator e.g. diaphragm and globe valves

GEMÜ 1215 - Position indicator with microswitch

The GEMÜ 1215 single position indicator is suitable for linear actuated valves where it shows 'open' position only, or on GEMÜ type 667 where it shows 'closed' position only. The unit also has optical indication.

GEMÜ 1234 - Self-learning position indicators

The GEMÜ 1234 electrical position indicators has an automated programme for setting open/closed. In addition the working voltage and the end positions are indicated by light emitting diodes.

GEMÜ 1205 Position indicator with microswitch acc. to ATEX

The GEMÜ 1205 electrical position indicator has one or two microswitches for end position feedback which are mechanically adjustable. The device is suitable for installation in Ex-proof applications acc. to ATEX. GEMÜ 1205 is suitable for mounting to linear actuators with a max. stroke of 70 mm.

GEMÜ 1211 and 1231 Position indicators with proximity switch acc. to ATEX

The GEMÜ 1211 and 1231 electrical position indicators have one or two proximity switches for end position feedback which are mechanically adjustable. The devices are suitable for installation in Ex-proof applications acc. to ATEX. GEMÜ 1211 is suitable for mounting to linear actuators with a max. stroke of 70 mm. GEMÜ 1231 is suitable for mounting to linear actuators with a max. stroke of 20 mm.

GEMÜ 1201 and 1230- Position indicators with microswitch

The GEMÜ 1201 and 1230 electrical position indicators have one or two microswitches for end position feedback which are mechanically adjustable. GEMÜ 1201 is suitable for mounting to linear actuators with a max. stroke of 70 mm. GEMÜ 1230 is suitable for mounting to linear actuators with a max. stroke of 20 mm.

GEMÜ 1214 and 1232- Position indicators with proximity switch

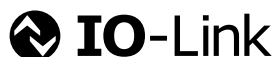
The GEMÜ 1214 and 1232 electrical position indicators have one or two proximity switches for end position feedback which are mechanically adjustable. GEMÜ 1214 is suitable for mounting to linear actuators with a max. stroke of 70 mm. GEMÜ 1232 is suitable for mounting to linear actuators with a max. stroke of 20 mm.

Further electrical position indicators for valves with quarter turn actuator, e.g. butterfly and ball valves

GEMÜ 1225 - Position indicator with microswitch

The GEMÜ 1225 electrical position indicator is suitable for mounting to quarter turn actuators of GEMÜ butterfly valves DN 15-50 mm in PVC-U, brass and stainless steel. In addition to electrical indication of end positions via switches the device has an optical LED position indication as standard.

For further electrical position indicators, accessories and other products please see our Product Range catalogue and Price List. Contact GEMÜ.



GEMÜ® VALVES, MEASUREMENT
AND CONTROL SYSTEMS

