GEMÜ®

Combi switchbox with integrated 3/2-way pilot valve

Construction

The GEMÜ 4242 combi switchbox mounts to pneumatically operated linear actuators and has a range of optional features to suit many processes. It utilises a microprocessor controlled, intelligent position sensor and an analogue travel sensor system to identify valve position. It is designed for safe and high-speed applications with small to medium nominal sizes and strokes ranging from 2 to 30 mm. The travel sensor, pilot valves and status LEDs are integrated into a solid, compact housing with a transparent cover.

It is available as an electrical position indicator (fieldbus) design only, combi switchbox or fieldbus combi switchbox versions. Combi versions have an integrated 3/2-way pilot valve while all units offer detailed diagnostics and indicate valve position and valve status via optical high visibility LED's which make the housing 'glow'. Assembly and commissioning is simplified by a GEMÜ developed **speed**$^{-AP}$ function.

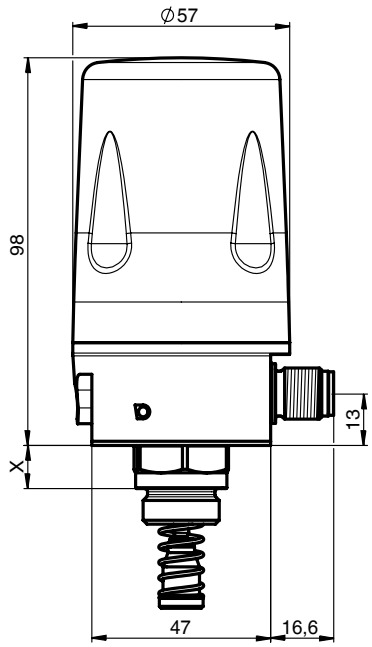
Features

- Programmable with fast initialisation
- Integrated manual override (combi)
- Integrated pilot valve (combi)
- High-visibility LED's
- Remote programming input
- Field bus connection AS-Interface, DeviceNet options
- Communication interface IO-Link option

Advantages

- Standard OPEN and CLOSED feedback
- **speed**$^{-AP}$ function for fast and safe mounting and initialisation
- Optical high visibility position indicator
- Adjustable switch point tolerances
- Extensive diagnostic facilities
- Local or remote programming via programming input
- Simple and fast mounting
- Can be retrofitted to GEMÜ valves or third-party actuators

Dimensional drawing [mm]



GEMÜ® 4242

Contents

Overview of available functions

Function	Version					
	4242000	4242 IO	4242 A2	4242 A3	4242 A4	4242 DN
Optical high visibility position indicator	X	X	X	X	X	X
Deactivation of high visibility position indicator	-	X	-	-	X	X
Manual override	X	X	X	X	X	X
Local programming	X	X	X	X	X	X
Deactivation of local programming	-	X	-	-	X	X
Position feedback OPEN	X	X	X	X	X	X
Position feedback CLOSED	X	X	X	X	X	X
Feedback for operating mode	-	X	X	X	X	X
Location function	-	X	-	-	X	X
Inversion of LED colours	-	X	-	-	X	X
Inversion of feedback signals	-	X	-	-	X	X
Switch point setting (tolerance)	-	X	X	X	X	X
Setting stroke reduction alarm	-	X	-	-	-	X
Feedback stroke reduction alarm	-	X	-	-	X	X
Feedback programmed positions	-	X	-	-	-	X
Feedback current positions	-	X	-	-	-	X
Feedback internal error	-	X	X	X	X	X
Feedback sensor error	-	X	X	X	X	X
Feedback programming error	-	X	X	X	X	X
Setting pneumatic fault time	-	X	-	-	-	X
Feedback pneumatic fault	-	X	X	X	X	X
Feedback overtemperature	-	X	-	-	-	-
Counter Powerfail	-	X	-	-	-	-
Counter Power on	-	X	-	-	-	-
Programming counter	-	X	-	-	-	-
Counter programming error	-	X	-	-	-	-
Counter pneumatic fault	-	X	-	-	-	-
Counter sensor error	-	X	-	-	-	
Counter overtemperature	-	X	-	-	-	-
Cycle counter (on-site)	-	X	-	-	-	X
Total cycle counter	-	X	-	-	-	X
Default	-	X	-	-	-	via DeviceNet

General technical data

General information

Protection class to EN 60529	IP65
Electrical protection class	III
Weight	320 g (aluminium version) 600 g (stainless steel version)
Mounting position	Optional
Directives	
EC EMC directive	2004/108/EC
Interference emission	
24V DC, IO-Link, DeviceNet AS-Interface	EN 61000-6-3, EN 61326-1 acc. to AS-Interface Spec. 3.0
Interference resistance	
24V DC, IO-Link, DeviceNet AS-Interface	EN 61000-6-2, EN 61326-1 acc. to AS-Interface Spec. 3.0
EC low voltage directive	2006/95/EC

Materials

Housing cover	Polycarbonate (UV-stabilized)
Housing base	Anodized aluminium or stainless steel 1.4305
Seals	EPDM and NBR

LED position indication

Valve position		Green LED	Orange LED
OPEN	Standard	-	X
	Inversed	X	-
CLOSED	Standard	X	-
	Inversed	-	X

Operating conditions

Medium	Quality classes to DIN ISO 8573-1
Dust content	Class 3 (max. particle size 5 µm) (max. particle density 5 mg/m^3)
Pressure dew point	Class 3 (max. pressure dew point -20 °C)
Oil concentration	Class 3 (max. oil concentration 1 mg/m^3)
Operating pressure	1 ... 10 bar at 40 °C 1 ... 8 bar at 60 °C
Air output (at 6 bar)	14 Nl/min (standard version) 23 Nl/min (booster version)
Ambient temperature	0 to +60 °C

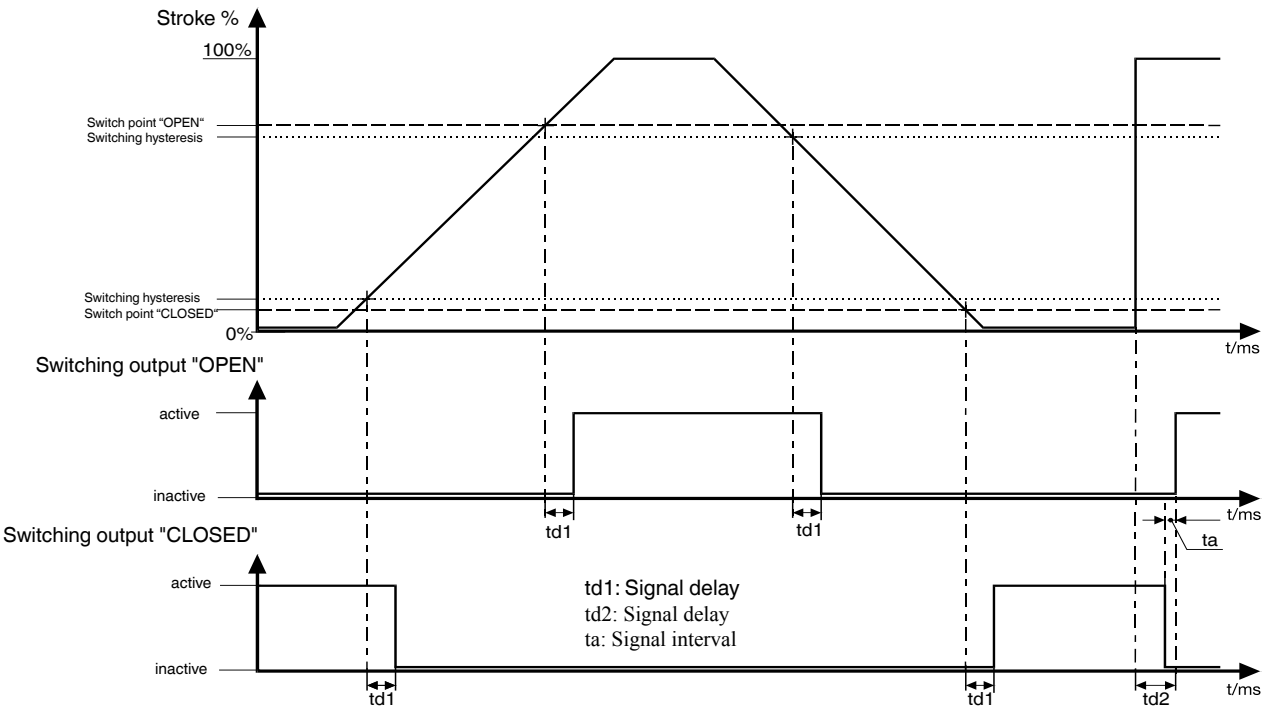
Attention: Note maximum control pressure of valve actuator!

Travel length

Minimum stroke	2 mm
Maximum stroke	30 mm
Hysteresis	0.2 mm
Accuracy	0.2 % FS
Switch point CLOSED	
Factory setting	12 %
Min. switch point	0.8 mm
Switch point OPEN	
Factory setting	25 %
Min. switch point	0.5 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

Switching characteristic of output signals



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

Technical data - 24 V version

Electrical data

Power supply

Power supply Uv	24 V DC (18…30 V DC)
Rating	Continuously rated
Reverse battery protection	yes
External line fuse	1000 mA medium time lag

Current consumption

Function		
Combi switchbox	**Flow rate**	**Current consumption**
Single acting	Standard (14 Nl/min)	typ. 100 mA
	Booster (23 Nl/min)	typ. 150 mA
Double acting	Standard (14 Nl/min)	typ. 100 mA

Electrical connection

Electrical connection	1 x 8-pin M12 plug (A-coded)

Inputs

Programming input	max. 30 V DC
Low-level	< 5 V
High-level	> 18 V
Input impedance	min. 6 kΩ

Pin 5 and Pin 6 are highly active. If not used, connect to GND or leave open.

Error output

Type of contact	Push-Pull
Switching voltage	$+U_V$ - V_{drop} push high $-U_V$ + V_{drop} pull low
V_{drop} max.	3 V at 100 mA
Switching current max.	± 100 mA

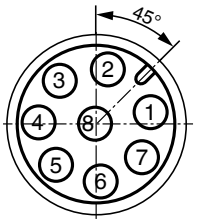
Output OPEN / CLOSED

Type of contact	Push with Pulldown resistance (68 kΩ)
Switching voltage	$+U_V$ - V_{drop} push high $-U_V$ + V_{drop} pull low
V_{drop} max.	3 V at 100 mA
Switching current max.	+100 mA

Signal processing

Signal delay td1	min. 2 ms / max. 30 ms
Signal delay td2	min. 2 ms / max. 30 ms
Signal interval ta	min. 0 ms / max. 30 ms

Electrical connections



Connection	Pin	Signal name
X1 M12 plug, A-coded	1	U, 24 V DC, supply voltage
	2	24 V DC, OPEN end position output
	3	U, GND
	4	24 V DC, CLOSED end position output
	5	24 V DC, programming input
	6	24 V DC, control input
	7	24 V DC, error output
	8	n.c.

Technical data - IO-Link Version

Electrical data

Power supply

Power supply Uv	24 V DC (18…30 V DC)
Rating	Continuously rated
Reverse battery protection	yes

Current consumption

Function		
Combi switchbox	**Flow rate**	**Current consumption**
Single acting	Standard (14 Nl/min)	typ. 100 mA
	Booster (23 Nl/min)	typ. 150 mA
Double acting	Standard (14 Nl/min)	typ. 100 mA

Electrical connection

Electrical connection	1 x 5-pin M12 plug (A-coded)

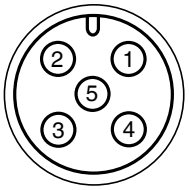
IO-Link

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	424201
IPDU support	Yes
SIO operation	No

Signal processing

Signal delay td1	min. 2 ms max. 30 ms
Signal delay td2	min. 2 ms max. 30 ms
Signal interval ta	min. 0 ms max. 30 ms

Electrical connections



Connection	Pin	Signal name
X1 M12 plug, A-coded	1	U, 24 V DC, supply voltage
	2	n.c.
	3	U, GND
	4	C/Q
	5	n.c.

Note: Download IODD files from www.gemu-group.com

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...7	Not used	

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

Bit	Function	Logic
0	Activation of pneum. outlet 2/4	0 = pneum. outlet 2 vented pneum. outlet 4 pressurized 1 = pneum. outlet 2 pressurized pneum. outlet 4 vented
1	Select operating mode	0 = normal operation 1 = programming mode
2	Location function	0 = location function not active 1 = location function active
3...7	Not used	

Parameter data

Index Hex	Index Dex	Subindex	Length	Type	Parameter	Access	Logic / Values
0x10	16	0		V.-String	Vendor Name	ro	“GEMUE”
0x12	18	0		V.-String	Product Name	ro	“4242 IO-Link”
0x15	21	0		V.-String	Serial Number	ro	00000000 - 4.294.967.296
0x16	22	0		V.-String	Hardware Revision	ro	“Rev. X”
0x17	23	0		V.-String	Firmware Revision	ro	V x.x.x.x
0x50	80	1	1 bit	Bool	Inversion of LED colours	rw	0 = standard 1 = inversed
		2	1 bit	Bool	Inversion of feedback signals	rw	0 = standard 1 = inversed
		3	2 bit	Uint:2	Function of high visibility position indicator	rw	0 = off 1 = on (33 %) 2 = on (66 %) 3 = on (100 %)
		4	1 bit	Bool	Programming mode	rw	0 = automatic 1 = manual
		5	1 bit	Bool	Local programming	rw	0 = enabled 1 = disabled
0x51	81	1	7 bit	Uint:8	Threshold open request	rw	3 … 97 %
		2	7 bit	Uint:8	Threshold close request	rw	3 … 97 %
		3	7 bit	Uint:8	Threshold open real	rw	3 … 97 %
		4	7 bit	Uint:8	Threshold close real	rw	3 … 97 %
0x52	82	1	7 bit	Uint:8	Alarm stroke reduction open	rw	0 = off 1 = 25% Threshold 2 = 50% Threshold 3 = 75% Threshold
		2	7 bit	Uint:8	Alarm stroke reduction closed	rw	0 = off 1 = 25% Threshold 2 = 50% Threshold 3 = 75% Threshold
		3	8 bit	Uint:8	Alarm opening time	rw	0 (deactivated) 1 … 255s
		4	8 bit	Uint:8	Alarm closing time	rw	0 (deactivated) 1 … 255s
0x53	83	1	12 bit	Uint:16	Programmed position open	ro	0 … 4092
		2	12 bit	Uint:16	Programmed position closed	ro	0 … 4092
		3	12 bit	Uint:16	Programmed stroke	ro	0 … 4092
0x54	84	1	12 bit	Uint:16	Last position open	ro	0 … 4092
		2	12 bit	Uint:16	Last position closed	ro	0 … 4092
		3	12 bit	Uint:16	Last stroke	ro	0 … 4092
0x56	86	1	24 bit	Uint:24	Valve cycles user	ro	0 … 16.777.215
		2	24 bit	Uint:24	Valve cycles total	ro	0 … 16.777.215
0x57	87	1	16 bit	Uint:16	Counter Powerfail	ro	0 … 65 535
		2	16 bit	Uint:16	Counter Power on	ro	0 … 65 535
		3	16 bit	Uint:16	Counter Programming	ro	0 … 65 535
		4	16 bit	Uint:16	Counter Sensor calibration	ro	0 … 65 535
		5	16 bit	Uint:16	Counter Prog error no stroke	ro	0 … 65 535
		6	16 bit	Uint:16	Counter Prog error less stroke	ro	0 … 65 535
		7	16 bit	Uint:16	Counter Prog error after sensor error	ro	0 … 65 535
		8	16 bit	Uint:16	Counter Pneumatic fault open	ro	0 … 65 535
		9	16 bit	Uint:16	Counter Pneumatic fault closed	ro	0 … 65 535

Technical data IO-Link Version

Parameter data							
Index		**Subindex**	**Length**	**Type**	**Parameter**	**Access**	**Logic / Values**
Hex	**Dex**						
0x57	87	10	16 bit	Uint:16	Counter Pneumatic fault middle position	ro	0 … 65 535
		11	16 bit	Uint:16	Counter Sensor error open	ro	0 … 65 535
		12	16 bit	Uint:16	Counter Sensor error closed	ro	0 … 65 535
		16	16 bit	Uint:16	Counter Over temperature	ro	0 … 65 535
0x58	88	1	8 bit	Uint:8	Reset to default	wo	83 = reset
		2	8 bit	Uint:8	Reset travel sensor	wo	46 = reset to factory settings 32 = erase user calibration
0x60	96	1	16 bit	Uint:16	Actual AD-value	ro	0 … 4092

Diagnostic messages				
IO-Link event codes				
Value (dec)	**Value (hex)**	**Meaning**	**Occurrence**	**Type**
25424	0x6350	Parameter changed	Single Shot	Message
36016	0x8CB0	Pneumatic fault / position OPEN	Appear / Disappear	Warning
36017	0x8CB1	Pneumatic fault / Position CLOSED	Appear / Disappear	Warning
36018	0x8CB2	Pneumatic fault / Middle position	Appear / Disappear	Warning
36021	0x8CB5	Alarm Stroke reduction OPEN	Appear / Disappear	Warning
36022	0x8CB6	Alarm Stroke reduction CLOSED	Appear / Disappear	Warning
25376	0x6320	Parameter error* / entered value not permissible	Single Shot	Error
36002	0x8CA2	Internal error	Appear / Disappear	Error
36004	0x8CA4	Sensor error / position OPEN	Appear / Disappear	Error
36005	0x8CA5	Sensor error / position CLOSED	Appear / Disappear	Error
36006	0x8CA6	Programming error / no stroke	Appear / Disappear	Error
36007	0x8CA7	Programming error / stroke < min. stroke	Appear / Disappear	Error
36008	0x8CA8	Programming error / after sensor error	Appear / Disappear	Error
36009	0x8CA9	Calibration error	Appear / Disappear	Error
36035	0x8CC3	Over temperature error	Appear / Disappear	Error

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

Technical data - AS-Interface version

Electrical data

Power supply

Power supply Uv	26.5 … 31.6V DC
Rating	Continuously rated
Reverse battery protection	yes

Current consumption

Function	Flow rate	Current consumption
Electrical position indicator	-	typ. 50 mA
Combi switchbox		
Single acting	Standard (14 Nl/min)	typ. 100 mA
	Booster (23 Nl/min)	typ. 150 mA
Double acting	Standard (14 Nl/min)	typ. 100 mA

Electrical connection

Electrical connection: 1x 5-pin M12 plug (A-coded)

Potential equalisation via enclosed grounding kit

Connection via yellow/green wire H07 V-K 4,0

AS-Interface profile

AS-Interface specification

A2 version	3.0; max. 31 slaves
A3 version	3.0; max. 62 slaves
A4 version	3.0; max. 62 slaves

AS-Interface profile

A2 version	S 7.F.E (4E/4A)
A3 version	S 7.A.E (4E/3A)
A4 version	S 7.A.A (8E/8A)

I/O configuration 7

ID code

A2 version	F
A3 version	A
A4 version	A

ID2 code

A2 version	E
A3 version	E
A4 version	A

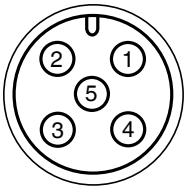
Approval

AS-Interface certificate: No. 96001

Signal processing

Signal delay td1	min. 1 ms / max. 8 ms
Signaldelay td2	min. 1 ms / max. 8 ms
Signal interval ta	min. 0 ms / max. 8 ms

Electrical connections



Connection	Pin	Signal name
X1 M12 plug, A-coded	1	AS-Interface +
	2	n.c.
	3	AS-Interface -
	4	n.c.
	5	n.c.

Inputs / outputs - A2 version

Inputs AS-Interface (as seen from the AS-Interface master)

Bit	Function	Logic
DI0	Indication of Open position	0 = process valve not in Open position 1 = process valve in Open position
DI1	Indication of Closed position	0 = process valve not in Closed position 1 = process valve in Closed position
DI2	Indication of operating mode	0 = normal operation 1 = programming mode
DI3	Error 2	see Error analysis table
FID	Error 1	

Outputs AS-Interface (as seen from the AS-Interface master)

DO0	Activation of pneum. outlet 2 (C.f. 1, 2 and 3)	0 = pneum. outlet 2 vented 1 = pneum. outlet 2 pressurized
DO1	Activation of pneum. outlet 4 (C.f. 3)	0 = pneum. outlet 4 vented 1 = pneum. outlet 4 pressurized
DO2	Setting slave in programming mode	0 = normal operation 1 = programming mode
DO3	Programming mode	0 = manual programming 1 = automatic programming

Technical data - AS-Interface version

Inputs / outputs - A2 version

Parameter outputs		
Bit	**Function**	**Logic**
P0	Setting of switch points	see Switch point table
P1		
P2		
P3		

Switch points - A2 version

Parameters				Switch point Open [%]	Switch point Closed [%]
P3	P2	P1	P0		
0	0	0	0	12	6
0	0	0	1	6	6
0	0	1	0	3	6
0	0	1	1	25	6
0	1	0	0	12	3
0	1	0	1	6	3
0	1	1	0	3	3
0	1	1	1	25	3
1	0	0	0	12	25
1	0	0	1	25	25
1	0	1	0	6	25
1	0	1	1	3	25
1	1	0	0	12	12
1	1	0	1	6	12
1	1	1	0	3	12
1	1	1	1	25	12

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

Inputs / outputs - A3 version

Inputs AS-Interface (as seen from the AS-Interface master)		
Bit	**Function**	**Logic**
DI0	Indication of Open position	0 = process valve not in Open position 1 = process valve in Open position
DI1	Indication of Closed position	0 = process valve not in Closed position 1 = process valve in Closed position
DI2	Indication of operating mode	0 = normal operation 1 = programming mode
DI3	Error 2	see Error analysis table
FID	Error 1	
Outputs AS-Interface (as seen from the AS-Interface master)		
DO0	Activation of pneum. outlet 2/4	0 = pneum. outlet 2 vented = pneum. outlet 4 pressurized 1 = pneum. outlet 2 pressurized pneum. outlet 4 vented
DO1	Programming mode	0 = manual programming 1 = automatic programming
DO2	Setting slave in programming mode	0 = normal operation 1 = programming mode
DO3	not available	
Parameter outputs		
P0	Setting of switch points	see Switch point table
P1		

Technical data - AS-Interface version

Switch points - A3 version

Parameters			Switch point Open [%]	Switch point Closed [%]
P2	P1	P0		
0	0	0	12	25
0	0	1	25	25
0	1	0	6	12
0	1	1	6	6
1	0	0	12	12
1	0	1	12	6
1	1	0	25	6
1	1	1	25	12

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

Error analysis - A2/A3 version

Error function	Error 1	Error 2
Normal operation	0	0
Internal error	1	0
Programming error / Pneumatic fault	0	1
Sensor error	1	1

Inputs / outputs - A4 version

Inputs AS-Interface (as seen from the AS-Interface master)

Bit	Function	Logic
DI0	Indication of Open position	0 = process valve not in Open position 1 = process valve in Open position
DI1	Indication of Closed position	0 = process valve not in Closed position 1 = process valve in Closed position
DI2	Indication of operating mode	0 = normal operation 1 = programming mode
DI3	Error 2	see Error analysis table
DI4	Error 3	
DI5	Error 4	
DI6	Not used	
DI7	Not used	
FID	Error 1	

Outputs AS-Interface (as seen from the AS-Interface master)

DO0	Activation of pneum. outlet 2/4	0 = pneum. outlet 2 vented = pneum. outlet 4 pressurized 1 = pneum. outlet 2 pressurized pneum. outlet 4 vented
DO1	Programming mode	0 = automatic programming 1 = manual programming
DO2	Setting slave in programming mode	0 = normal operation 1 = programming mode
DO3	Function of high visibility position indicator	0 = activated 1 = deactivated
DO4	Inversion of feedback signals	0 = standard 1 = inversed
DO5	Inversion of LED colours	0 = standard 1 = inversed
DO6	Location function	0 = deactivated 1 = activated
DO7	Local programming	0 = enabled 1 = disabled

Parameter outputs

P0	Setting of switch points	see Switch point table
P1		
P2		

Technical data - AS-Interface version

Switch points - A4 version

Parameters			Switch point Open [%]	Switch point Closed [%]
P2	P1	P0		
0	0	0	12	25
0	0	1	25	25
0	1	0	6	12
0	1	1	6	6
1	0	0	12	12
1	0	1	12	6
1	1	0	25	6
1	1	1	25	12

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

Error analysis - A4 version

Error	Error 1	Error 2	Error 3	Error 4
Normal operation	0	0	0	0
Stroke reduction OPEN	0	0	0	1
Stroke reduction CLOSED	0	0	1	0
Pneumatic fault	0	0	1	1
Sensor error	1	1	0	0
Programming error	1	1	0	1
Internal error	1	1	1	0

Technical data - DeviceNet version

Electrical data

Power supply

Power supply Uv	24 V DC (11…25 V DC)
Rating	Continuously rated
Reverse battery protection	yes

Current consumption

Function	Flow rate	Current consumption
Electrical position indicator	-	50 mA @ 24 V DC
Combi switchbox		
Single acting	Standard (14 Nl/min)	100 mA @ 24 V DC
	Booster (23 Nl/min)	150 mA @ 24 V DC
Double acting	Standard (14 Nl/min)	100 mA @ 24 V DC

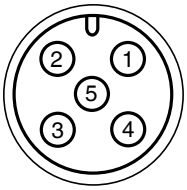
Electrical connection

Electrical connection	1x 5-pin M12 plug (A-coded)

Signal processing

Signal delay td1	min. 0.1 ms / max. 3.8 ms
Signal delay td2	min. 0.1 ms / max. 3.8 ms
Signal interval ta	min. 0.1 ms / max. 3.8 ms

Electrical connections



Connection	Pin	Signal name
X1 M12 plug, A-coded	1	Shield
	2	V+
	3	V-
	4	CAN_H
	5	CAN_L

Note : Download EDS files from www.gemu-group.com

I/O data

Inputs (as seen from the DeviceNet master)

Bit	Value/ Default	Description	Function	Logic
0	0	State Valve 1	Status query pneum. outlet 2 (Status query pilot valve 1)	0 = pneum. outlet 2 vented 1 = pneum. outlet 2 pressurized
1	0	State Valve 2	Status query pneum. outlet 4 (Status query pilot valve 2)	0 = pneum. outlet 4 vented 1 = pneum. outlet 4 pressurized
2	X	Operating mode	Feedback for operating mode	0 = normal operation 1 = programming mode
3	X	Position Closed	Feedback - CLOSED position	0 = process valve not in Closed position 1 = process valve in Closed position
4	X	Position Open	Feedback - OPEN position	0 = process valve not in Open position 1 = process valve in Open position
5	X	Calibration Mode	Feedback calibration mode	0 = normal operation 1 = calibration mode
6	X	Global Warning	General warning	0 = warning not active 1 = warning active
7	X	Global Error	General error	0 = error not active 1 = error active

Outputs (as seen from the DeviceNet master)

0	0	Activate valve 1	Activation of pneum. outlet 2 (activation of pilot valve 1)	0 = pneum. outlet 2 vented 1 = pneum. outlet 2 pressurized
1	0	Activate valve 2	Activation of pneum. outlet 4 (activation of pilot valve 2)	0 = pneum. outlet 4 vented 1 = pneum. outlet 4 pressurized
2	not used			
3	0	Location function	Location function	0 = location function not active 1 = location function active
4	not used			
5	0	Manual programming mode	Manual programming mode:	0 = manual programming mode not active 1 = manual programming mode active
6	0	Auto programming mode	Autom. programming mode	0 = autom. programming mode not active 1 = autom. programming mode active
7	not used			

Parameter - Object

Class	Inst.	Attr.	Service	Value / Default	Value range	Unit	Parameters
Fh	1h	1h	Get/Set	0	0 = standard 1 = inversed		Inversion of LED colours
Fh	2h	1h	Get/Set	0	0 = standard 1 = inversed		Inversion of feedback signals
Fh	3h	1h	Get/Set	3	0 = off 1 = on (33 %) 2 = on (66 %) 3 = on (100 %)		Function of high visibility position indicator
Fh	4h	1h	Get/Set	0	0 = enabled 1 = disabled		Local programming
Fh	5h	1h	Get/Set	25	3 - 97	%	Threshold open request
Fh	6h	1h	Get		0 - 100	%	Threshold open real
Fh	7h	1h	Get/Set	12	3 - 97	%	Threshold closed request
Fh	8h	1h	Get		0 - 100	%	Threshold closed real
Fh	9h	1h	Get/Set	1	0 = off 1 = 25 % 2 = 50 % 3 = 75 %		Alarm stroke reduction open
Fh	Ah	1h	Get/Set	1	0 = off 1 = 25 % 2 = 50 % 3 = 75 %		Alarm stroke reduction closed
Fh	Bh	1h	Get/Set	0	0 - 255 (0 = off)	s	Alarm opening time
Fh	Ch	1h	Get/Set	0	0 - 255 (0 = off)	s	Alarm closing time
Fh	Eh	1h	Get/Set	1	0 = hold 1 = vent 2 = pressurize		Fail state
Fh	Fh	1h	Get		0 - 4092		Programmed position open
Fh	10h	1h	Get		0 - 4092		Programmed position closed
Fh	11h	1h	Get		0 - 4092		Programmed stroke
Fh	12h	1h	Get		0 - 4092		Last position open
Fh	13h	1h	Get		0 - 4092		Last position closed
Fh	14h	1h	Get		0 - 4092		Last stroke
Fh	15h	1h	Get		0 - 4092		Valve position
Fh	16h	1h	Get		0 = sensor ok 1 = sensor error pos. CLOSED 2 = sensor error pos. OPEN		Sensor Error
Fh	17h	1h	Get		0 = prog. ok 1 = not calibrated 2 = no stroke 3 = stroke < min. stroke 4 = sensor error pos. CLOSED 5 = sensor error pos. OPEN 6 = sensor error pos. CLOSED + OPEN		Programming Error
Fh	18h	1h	Get		0 = pneum. ok 1 = pneumatic fault pos. CLOSED 2 = pneumatic fault pos. OPEN 3 = pneumatic fault middle pos.		Pneumatic fault
Fh	19h	1h	Get		0 = device ok 1 = invalid CRC-check 2 = invalid serial number 3 = memory error		Internal error
Fh	1Ah	1h	Get		0 = stroke ok 1 = stroke reduction pos. CLOSED 2 = stroke reduction pos. OPEN 3 = stroke reduction pos. CLOSED + OPEN		Stroke reduction warning
Fh	1Bh	1h	Get/Set		0 - 4294967295		Valve cycles user
Fh	1Ch	1h	Get		0 - 4294967295		Valve cycles total

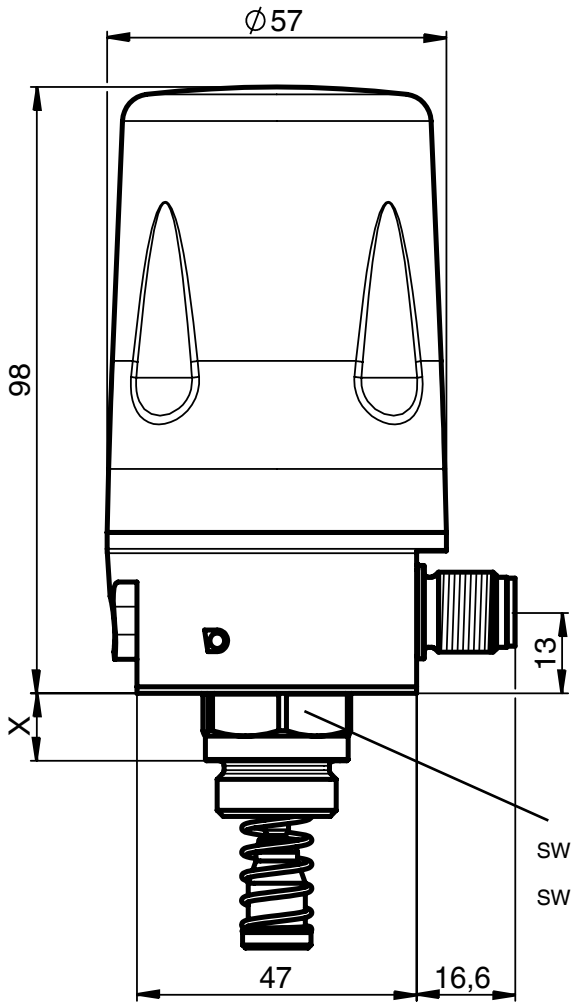
Technical data - DeviceNet version

Communication modes - I/O data
Function
Polling
Change of State
Cyclic
Bit Strobe

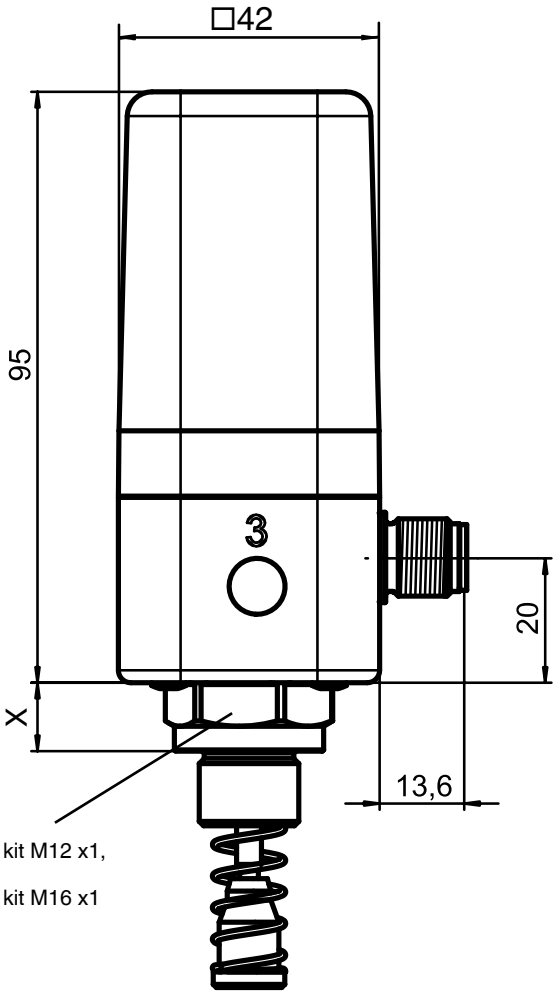
Identity				
Class	**Inst.**	**Attr.**	**Function**	**Value**
1h	1h	1h	Vendor ID	869
		2h	Product Type	0
		3h	Product Code	4242
		4h	Rev.	2.1
		5h	Status	0
		6h	Series No.	Continuous series no.
		7h	Name	4242 DN combi switchbox

Dimensions [mm]

Standard version



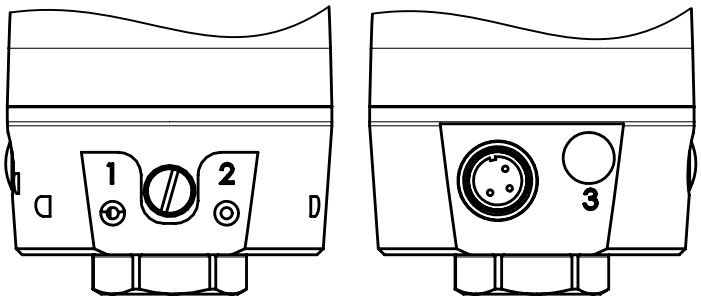
Compact version K1



SW 20 for mounting kit M12 x1,
x = 9 mm
SW 24 for mounting kit M16 x1
x = 11 mm

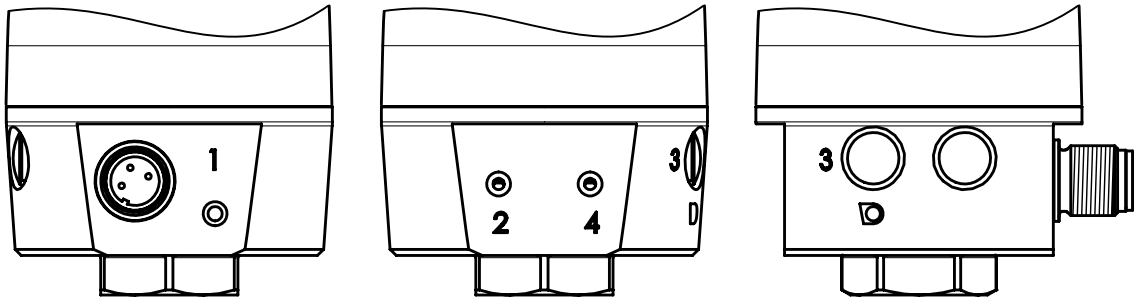
Pneumatic connections

Standard version - single acting



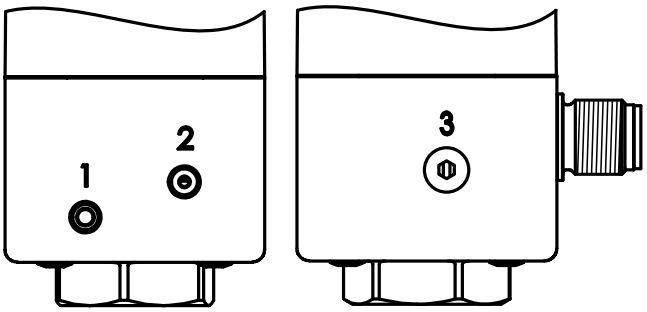
Connection	Description
1	Air supply connection P
2	Working connection for process valve A1
3	Venting connection R

Standard version - double acting



Connection	Description
1	Air supply connection P
2	Working connection for process valve A1
3	Venting connection R
4	Working connection for process valve A2

Compact version K1



Connection	Description
1	Air supply connection P
2	Working connection for process valve A1
3	Venting connection R

Order data - Electrical position indicator (Fieldbus version only - no pilot valves)

Field bus	Code
AS-Interface, 62 slaves, 4E/3A	A3
AS-Interface, 62 slaves, 8E/8A	A4
DeviceNet	DN

Accessory	Code
Accessory	Z

Material	Code
Aluminium base	14
Stainless steel base	07

Function	Code
Without pilot valve, but with OPEN/CLOSED position feedback only	00

Electrical connection	Code
M12 plug, 5-pin	01

Pneumatic connection	Code
Without	00

Option	Code
Without	00
Inversed LED feedback	40

Flow rate	Code
Without	00

Travel sensor version	Code
Potentiometer, 30 mm length	030

Order example	4242	A3	Z	14	00	01	00	00	00	030
Type	4242									
Field bus (code)		A3								
Accessory (code)			Z							
Material (code)				14						
Function (code)					00					
Electrical connection (code)						01				
Pneumatic connection (code)							00			
Option (code)								00		
Flow rate (code)									00	
Travel sensor version (code)										030

Note: Mounting kit 4242S01Z… dependent on valve type.Please order separately specifying valve type, DN, control function and actuator size.

Order data - Combi switchbox

Field bus	Code
Without (24 V version)	000
IO-Link	IOL
AS-Interface, 31 slaves, 4E/4A	A2
AS-Interface, 62 slaves, 4E/3A	A3
AS-Interface, 62 slaves, 8E/8A	A4
DeviceNet	DN

Pneumatic connection	Code
Air supply / outlet via M5 connection thread	01
Air supply, outlet 4 mm angled connection	02
Air supply 4 mm T-connection Outlet 4 mm angled connection	03
Air supply, outlet 6 mm angled connection	04
Air supply 6 mm T-connection Outlet 6 mm angled connection	05

Accessory	Code
Accessory	Z

Material	Code
Aluminium base (not for function K1)	14
Stainless steel base	07

Function	Code
Combi switchbox, single acting	01
Combi switchbox, double acting	02
Combi switchbox compact version, single acting, (for 650 manifold design,actuator size 0)	K1

Electrical connection	Code
M12 plug, 5-pin (IO-Link, AS-Interface, DeviceNet version)	01
M12 plug, 8-pin (24 V DC version)	02

Option	Code
Without (only for function 02, K1)	00
Inversed LED feedback (only for function 02, K1)	40
Manual override (only function 01)	01
Inversed LED feedback, manual override (only function 01)	41

Flow rate	Code
14 Nl/min	01
23 Nl/min (only possible for function 01)	02

Travel sensor version	Code
Potentiometer, 30 mm length	030

Order example	4242	A3	Z	14	01	01	01	01	01	030
Type	4242									
Field bus (code)		A3								
Accessory (code)			Z							
Material (code)				14						
Function (code)					01					
Electrical connection (code)						01				
Pneumatic connection (code)							01			
Option (code)								01		
Flow rate (code)									01	
Travel sensor version (code)										030

Note: Mounting kit 4242S01Z… dependent on valve type.Please order separately specifying valve type, DN, control function and actuator size.

Accessories

GEMÜ 1219
M12 cable socket,
8-pin, without cable, straight

GEMÜ 1219
M12 cable socket,
8-pin, 5 m cable, angle

GEMÜ 4242000ZIOL
IO-Link adapter

Accessories 24V version	Article designation	Article number
M12 cable socket*, 8-pin, without cable, straight	1219000Z0000DG00M0M128A	88304829
M12 cable socket*, 8-pin, 5 m cable, angle	1219000Z0000DW05M0M128A	88374574
IO-Link adapter	4242000ZIOL	88364927
*Version with nickel-plated brass fixing nut. For plastic or stainless steel version see GEMÜ price list type 1219		

#USB-2-IOL-0001
IO-Link USB-Master

Accessories IO-Link version	Article designation	Article number
M12 cable socket*, 5-pin, without cable, angle	1219000Z0000DW00M0M125A	88205545
M12 cable socket*, 5-pin, without cable, straight	1219000Z0000DG00M0M125A	88205544
M12 cable socket*, 5-pin, 2 m cable, angle	1219000Z0000DW02M0M125A	88205534
M12 cable socket*, 5-pin, 2 m cable, straight	1219000Z0000DG02M0M125A	88205542
M12 cable socket*, 5-pin, 5 m cable, angle	1219000Z0000DW05M0M125A	88205540
M12 cable socket*, 5-pin, 5 m cable, straight	1219000Z0000DG05M0M125A	88205543
M12 cable socket*, 5-pin, 10 m cable, angle	1219000Z0000DW10M0M125A	88210911
M12 cable socket*, 5-pin, 10 m cable, straight	1219000Z0000DG10M0M125A	88270972
M12 cable socket*, 5-pin, 15 m cable, angle	1219000Z0000DW15M0M125A	88244667
M12 cable socket*, 5-pin, 15 m cable, straight	1219000Z0000DG15M0M125A	88346791
IO-Link USB-Master	#USB-2-IOL-0001	88348904
*Version with nickel-plated brass fixing nut. For plastic or stainless steel version see GEMÜ price list type 1219		

Accessories

GEMÜ 4160
AS-Interface
manual programming device

GEMÜ 4180
AS-Interface cable socket

GEMÜ 4170
AS-Interface cable

GEMÜ 4150
AS-Interface
extension plug

Accessories AS-Interface version	Article designation	Article number
AS-Interface manual programming device	4160000Z 01	88317542
AS-Interface cable socket (M12 on AS-Interface, flat cable)	4180 AZ010101	88073531
AS-Interface cable 100m yellow	4170 AZ01010100	88073528
AS-Interface extension plug	4150 AZ00	88262994

4242000ZMA
Programming magnet

General	Article designation	Article number
Programming magnet	4242000ZMA	88377537
Connection fitting, 4 mm, plastic, angle	2023000ZAW1A2M5B104K0	88281758
Connection fitting, 6 mm, plastic, angle	2023000ZAW1A2M5B106K0	88215620
Connection fitting, 6 mm, plastic, T piece	2023000ZAW2A2M5B106M0	88215621
M5 adapter for piped air outlet	1434000Z2	88314883
Further connection fittings see GEMÜ type 2023		

Mounting examples

GEMÜ 650
Diaphragm valve, metal

GEMÜ 625
Diaphragm valve, metal

GEMÜ 687
Diaphragm valve, metal

GEMÜ 550
Angle seat globe valve,
metal

GEMÜ 550
Angle seat globe valve,
metal

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

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