

8685/8686

SIDEXSUMINISTROS
INDUSTRIALES Y NAVALES**bürkert**
FLUID CONTROL SYSTEMS

Control- and feedback head for integrated mounting on Robolux valves Type 2036

Type 8685
can be combined with...

Type 8686

**Type 2036**

Robolux valve

- Compact stainless steel design
- Contactless valve position registration
- Coloured illuminated status display
- Fieldbus AS- Interface (optional)
- Version for ATEX / IECEx

Feedback type 8685 and control head type 8686 are optimized for integrated mounting on pneumatically operated actuators type 2036 Robolux. The adjustment to the individual actuator size is done through DIP-switches.

As compact units the devices contain the complete automation functionality of both individually operated actuator pistons.

Depending on the configuration the electrical and visual position feedback is done by non-contact switches and high-power LEDs. Integrated pilot valves control the actuator pistons and AS-interface communication is available. Using appropriate barriers both types feature intrinsically safety acc. to ATEX.

In this way a complete concept for decentralized automation is feasible.

The compact body is especially distinguished by its hygienic design, materials being chemically resistant against cleaning media and a proven electrical IP protection.

In addition the control head type 8686 features an integrated compressed air filter to protect the pilot valve function against particles through the compressed air supply.

Technical data	
Material:	Body Cover Seal
	PPS, stainless steel PC EPDM
Power supply	
Limit switches	24 VDC +/- 10% 8,2V DC (Ex-i-NAMUR switch amplifier)
Pilot valve	24V DC +/- 10% max. voltage see note ²⁾ on page 2
Pilot valve	Residual ripple 10%; Power consumption 0,8W every valve for Exi- variants: acc datasheet II 2G Ex ia IIC T4 T5 T6 PTB01 ATEX 2048
Control medium	Neutral gases, air DIN ISO 8573-1
Dust content	Class 5 (<40µm particle size)
Particle density	Class 5 (<10mg/m ³)
Pressure dew point	Class 3 (<-20°C)
Oil concentration	Class 5 (<25mg/m ³)
Supply pressure	3 to 7 bar ¹⁾
Air supply filter	Exchangeable
Mesh aperture	~0,1mm
Pilot air ports	Threaded ports G1/8
Position feedback	Reed sensors (no contact)
Stroke range valve spindle	RV50 = 6,0mm, RV70 = 9,5mm, Rv110 = 13,5mm
Ambient temperature	0 to +55 °C
Installation	As required, preferably with actuator in upright position
Protection class	IP 65/67 according to EN 60529
Protection class	3 acc. to VDE 0580
Fieldbus communication	AS- Interface
Conformity	CE acc. to EMV2004/108/EG
Electrical connection	
Multipole	M12 (8-pin), M12 (4-pin) with 1m cable (AS- Interface)
Cable gland	M16x1,5 (cable-Ø6,5mm), screw terminals (1,0 mm ²)

¹⁾ The supply pressure must be 0.5 to 1 bar above the minimum required control pressure of the valve actuator.

Technical Data

Without fieldbus communication

Technical data	
Power supply	24 VDC
Residual ripple with DC	10%
Voltage tolerance	±10 %
Power consumption	< 2 W
Output	Max. 100mA per output/ short-circuit protected
Electrical connection	
Multipole	M12 (8-pin)
Cable gland	M12x1,5 (cable-Ø6,5mm), screw terminals (1,0 mm ² / max. port cross-section 0,25mm ²)

Type 8685/8686 2G II Ex ia IIC T4 Gb

Technical data	
Ignition protection	IIG Ex ia IIC T4 Gb (BVS 13 ATEX E 039 X) Ex ia IIC T4 Gb (IECEx BVS 13.0047 X)
Operating conditions	Medium temperature of adapted process valve type 2036 T(media) : 0... 130°C (safety requirement value)
Power supply	
Limit switches	Operates with Ex i-NAMUR switch amplifier: 8,2VDC Operates with Ex barrier ¹⁾ : max. input voltage U _i < 12VDC
Pilot valve	Control valve component for Ex valve coils ²⁾
Limit switches- Status	Only electrical feedback
Power consumption	Operates with Ex i-NAMUR- switch amplifier: < 1,2mA (terminal position reached) >2,1mA (terminal position not reached) Operates with Ex barrier ¹⁾ : max. input voltage U _i < 50mA
Electrical connection	Cable gland M12x1,5 (cable- 6,5mm), screw terminals 1,0mm ² /max. port cross-section: 8685: 0,25mm ² ; 8686; 0,14mm ²

¹⁾ Electrical feed-in through intrinsically safe electric circuit of type of protection Ex ia IIC ²⁾Feed-in valves
Each circuit (end position) has the following safety related max data: Max. input power P_i = 1,1mW
Max. input voltage U_i = 12VDC / max. input circuit I_i = 50mA Max. input voltage and max. input circuit acc. following table:
Max. input power P_i = 60mW U_i [V] 15 18 20 22 25 28 30 35
Internal capacity und inductance negligible I_i [mA] 900 440 309 224 158 120 101 73
Internal capacity und inductance negligible

With fieldbus communication; AS- Interface Type 8685

Technical data	
Profile	S-O.A.E (A/B slave, max 62 slaves/master)
Power supply	29,5 to 31,6 VDC
via bus lines	Acc. to specification
separated from bus signal	On request
Max. power consumption	35 mA
(2 terminal position reached)	
Electrical connection	M12 4-pin with 1m cable on flat cable clip
Programming data	See operating manual

With fieldbus communication; AS- Interface Type 8686

Technical data	
Profile	S-O.A.E (A/B slave, max 62 slaves/master)
Power supply	29,5 to 31,6 VDC
via bus lines	Acc. to specification
separated from bus signal	On request
Max. power consumption	
Max. power consumption (2 valves activated and 2 feedback active)	≤ 120 mA
outputs	
Contact rating	≤ 2x0,8W (above AS- Interface)
Wach-dog function	Integrated
Inputs	
Sensor operating voltage	24 V ±10% (above AS- Interface)
Acceptable current load	≤ 50 mA short circuit protected
Switching level High	10 V
Input current High	≤ 1,5 mA
Input current Low	≤ 0,1 mA
Electrical connection	M12 4-poilig with 1m cable on flat cable clip
Programming data	See operating instruction

Ordering information for TopControl-valve-systems

A complete process valve system Type 8806 consists of a Control Head Type 8686 or feedback Type 8685, a Control Valve Type 2036 Robolux and a Adapter set.

The following information is necessary for the selection of a complete system:

- Item no. of the desired positioner control head type 8686 or feedback type 8685
- Item no. of the desired control valve type 2036 Robolux

You order two components and receive a complete assembled and certified process valve system.

When you click on the orange box "More info." below, you will come to our website for the resp. product where you can download the datasheet.

Example for process valve systems

Feedback head type 8685



Feedback head type 8685 Ex



Control head Type 8686 Ex



Control head Type 8686

Desired process valve, example



2036 Robolux

More info.

Complete process valve system



Process valve system with feedback On/Off Robolux type 8806-DI-S 2036+8685



Process valve system with control head On/Off Robolux type 8806-DI-T 2036+8686

Ordering chart (further versions on request)

Type	Communication	Electrical connection	Pneumatic function	Position feedback	Pilot air ports	Item no.
8685	without	Cable connection	without	2 switching points	Threaded ports G1/8	231 306
	AS- Interface A/B	cable glands with 1m cable on flat cable clip	without	2 switching points	Threaded ports G1/8	231 307
	Exi (Namur)	Cable connection	without	2 switching points	Threaded ports G1/8	242 249
8686	without	M12 (8-pin)	2x single-acting DN3,0	2 switching points	Threaded ports G1/8	231 292
	AS- Interface A/B	cable glands with 1m cable on flat cable clip	2x single-acting DN3,0	2 switching points	Threaded ports G1/8	231 293
	Exi (Namur)	Cable connection	2x single-acting DN3,0	2 switching points	Threaded ports G1/8	242 250

i Further versions on request

- Type 8686 ASI- variants with external power supply
- Type 8686 24 VDC- variants with Cable gland

Ordering chart for accessories (to be ordered separately)

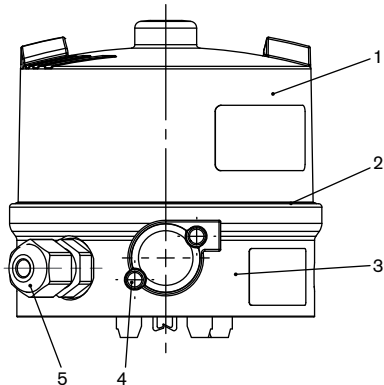
Description	Actuator size	Item no.
Adapter set for Type 8685	RV50, RV70, RV110	684 267
Adapter set for Type 8686	RV50, RV70, RV110	684 268

Ordering chart Accessories

Description	Item no.
M12 socket, 8-pin, 5m assembled cable	919 267
M12 socket, 8-pin, 2m assembled cable	919 061
ASI-flat cable clip with VA-socket M12 (replacement part)	799 646
Silencer G1/8 threaded ports	780 779
Pilot tool for cover mounting	674 077

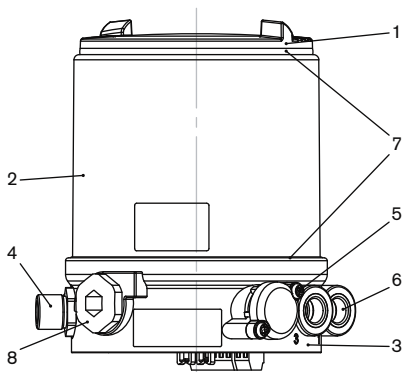
Materials - Type 8686

Type 8685



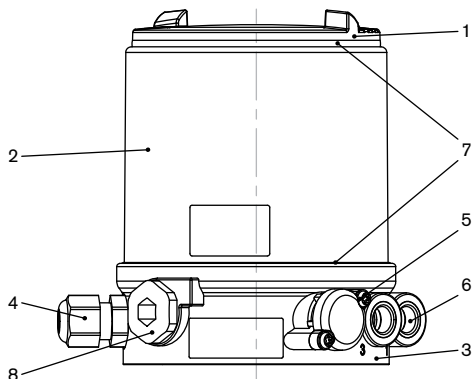
1	Cover	PC
2	Seal	EPDM
3	Basic body	PPS
4	Screws	St. st.
5	Cable gland	PA

Type 8686



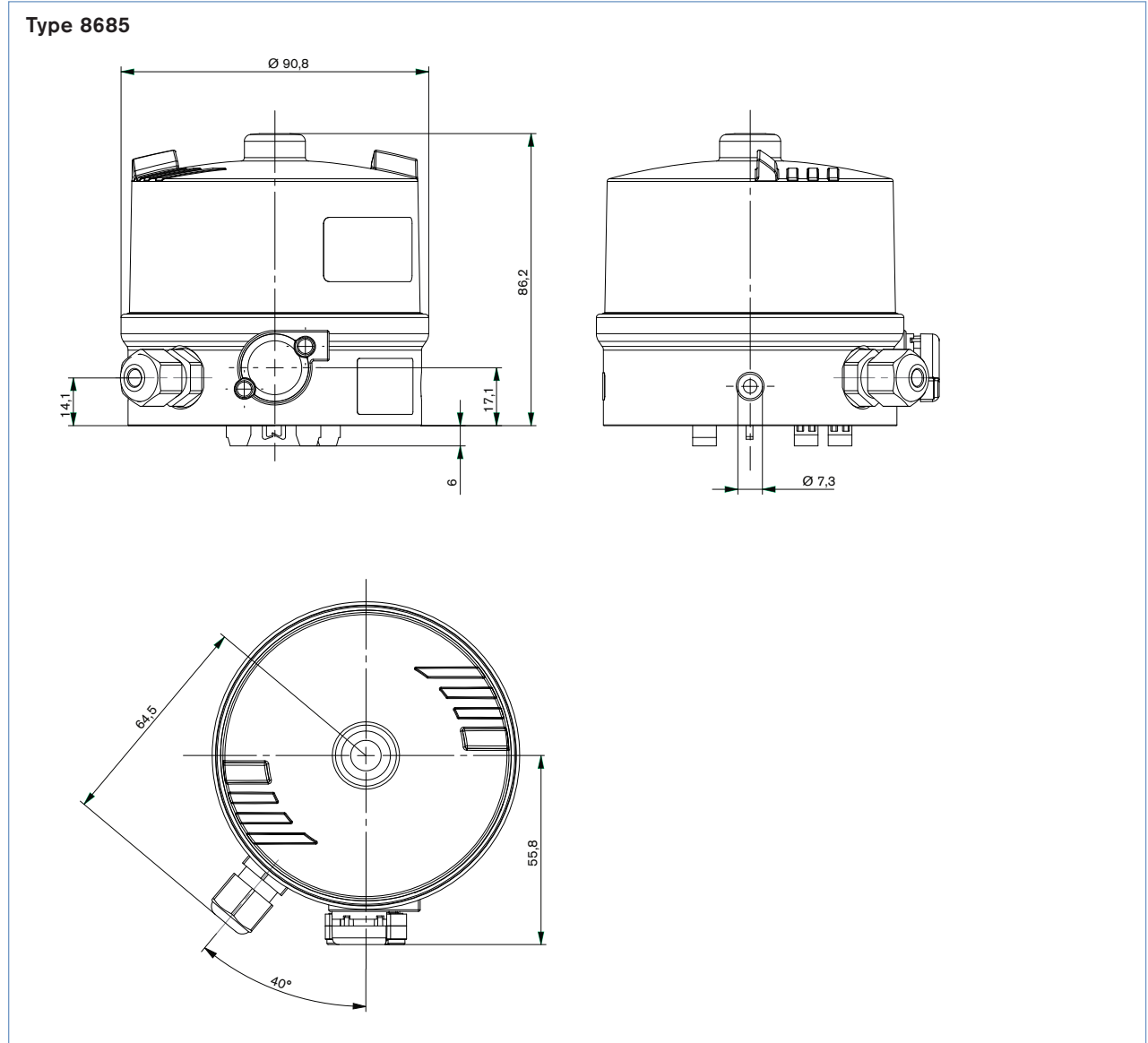
1	Cover	PC
2	Cladding	EPDM
3	Basic body	PPS
4	Plug connector M12	MS nickel-plated
5	Screws	VA
6	Threaded ports G1/8	VA
7	Seal	EPDM
8	Blanking-off plug	PA

Type 8686 Exi (Namur)



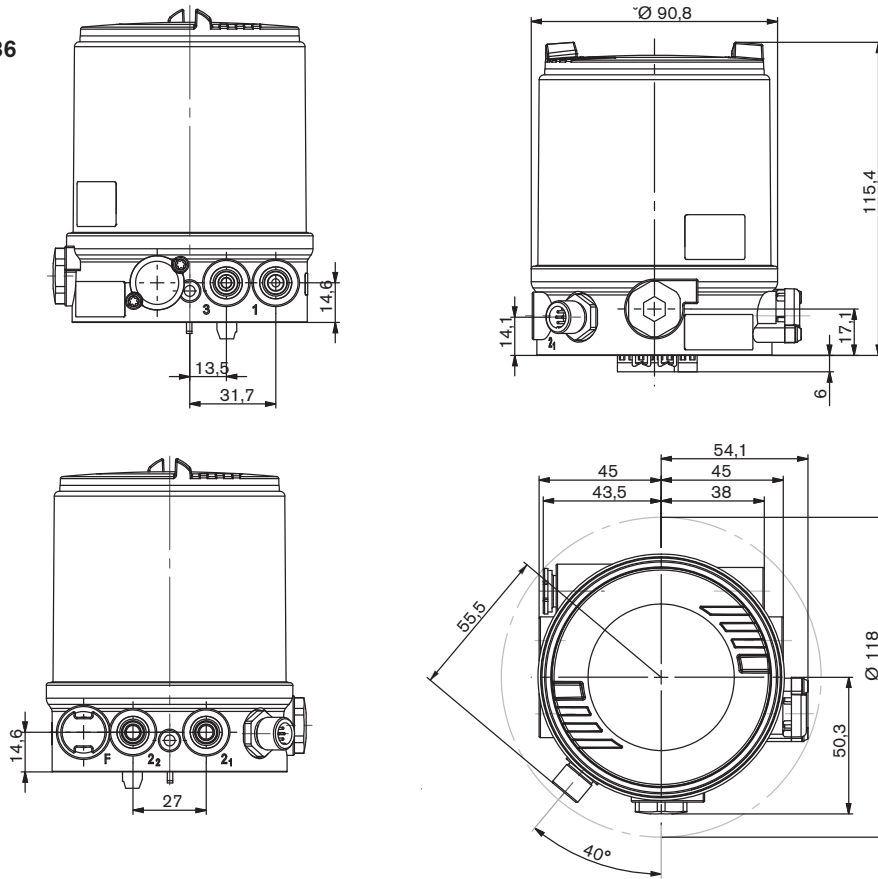
1	Cover	PC
2	Cladding	EPDM
3	Basic body	PPS
4	Cable connection	PA
5	Screws	VA
6	Threaded ports G1/8	VA
7	Seal	EPDM
8	Blanking-off plug	PA

Dimensions [mm]

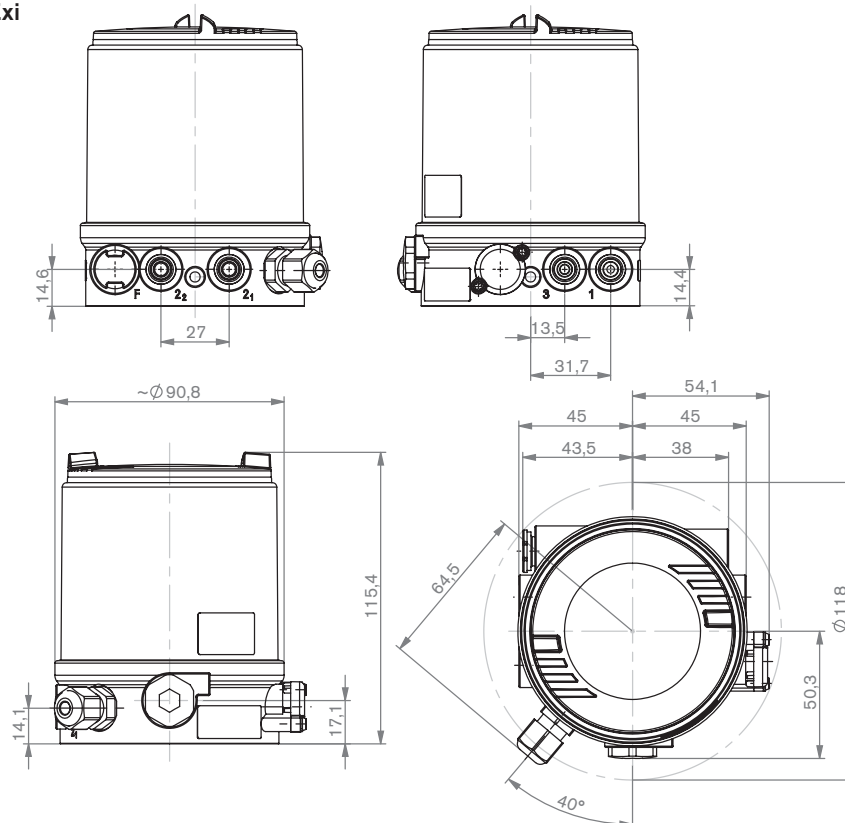


Dimensions [mm]

Type 8686



Type 8686 Exi (Namur)



Connection options

Without field bus communication Cable gland - Type 8685

Description on circuit board	Description
24 V	Operating voltages + (24VDC)
GND	Operating voltages - (GND)
Top1	End positions above- Top actuator1
Bot1	End positions below- Bot actuator1
Top2	End positions above- Top actuator2
Bot1	End positions below- Bot actuator2

24 V DC Multipole connection M12, 8-pin - Type 8686

Pin	Description	Configuration
1	Limit Switch 3	End positions below- Bot actuator2
2	Limit Switch 4	End positions above- Top actuator2
3	Limit Switch 1	End positions below- Bot actuator1
4	Limit Switch 2	End positions above- Top actuator1
5	Valve 2	Valve control Y2+
6	Valve1	Valve control Y1+
7	GND	Power supply
8	24V DC	Operating voltages +

Note: Use only straight cable sockets

Exi (Namur) Cable gland - Type 8685

Description on circuit board	Description
Top1 +	End positions above- actuator1
Top2	End positions above- actuator1
Bot1 +	End positions below+ actuator1
Bot1	End positions below- actuator1
Top1 +	End positions above+ actuator2
Top2	End positions above- actuator2
Bot1 +	End positions below+ actuator2
Bot1	End positions below- actuator2

Connection options

24V DC Cable gland - Type 8686

Description on circuit board	Configuration
Bot1	End positions below- Bot actuator2
Top2	End positions above- Top actuator2
Bot1	End positions below- Bot actuator1
Top1	End positions above- Top actuator1
Valve2	Valve control Y2+ (actuator 2 operated)
Valve1	Valve control Y1+ (actuator 1 operated)
GND	Power supply
24 VDC	Operating voltages +

AS-Interface - Type 8685 and 8686

Control head Type 8686

Feedback head Type 8685

Exi (Namur) - Type 8686

Description on circuit board	Description
TOP1+	End positions above- actuator1
TOP1-	End positions above- actuator1
BTM1+	End positions below+ actuator1
BTM1-	End positions below- actuator1
TOP2+	End positions above+ actuator2
TOP2-	End positions above- actuator2
BTM2+	End positions below+ actuator2
BTM2-	End positions below- actuator2
Y1+	supply line valve1
Y1-	return circuit valve1
Y2+	supply line valve2
Y2-	return circuit valve2

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In case of special application conditions,
please consult for advice

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