

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

8685 / 8686

- Compact stainless steel design
- Contactless valve position registration
- Fieldbus AS- Interface (optional)
- Version for NAMUR circuits (optional)



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

As a compact unit the devices provide the complete automation functionality for the two 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 intrinsic safety acc. to ATEX.

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

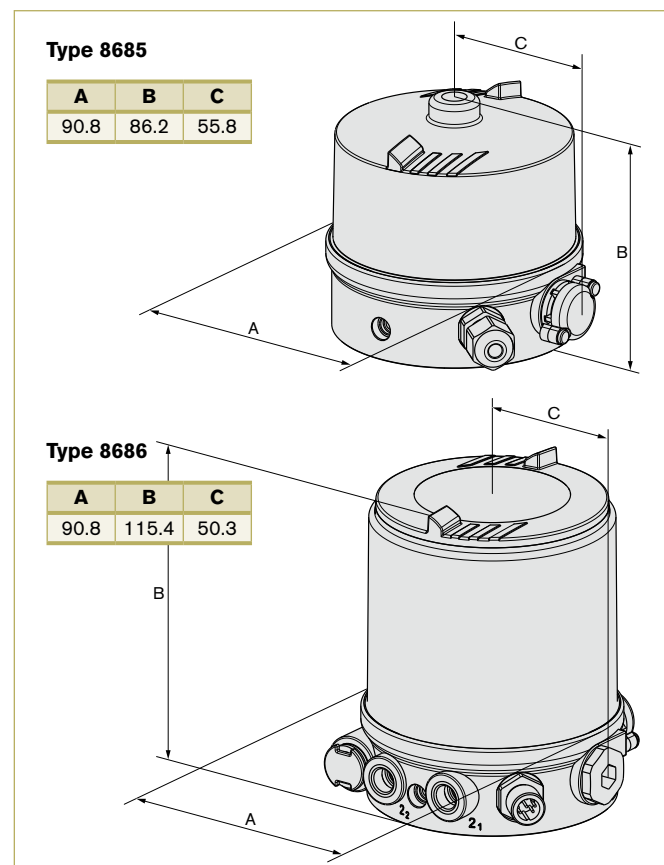
The compact body is especially distinguished by its hygienic design, with resistance to cleaning agents and a proven electrical IP protection.

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	PPS, stainless steel
Cover	PC
Seal	EPDM
Power supply	
Limit switches	24V DC +/- 10% 8.2V DC (Ex-i-NAMUR switch amplifier) U < 12V, Ii < 20 mA, Pi < 60 mW (Ex-Barrier)
Pilot valve	24V DC +/- 10% max. voltage see note ²⁾
Pilot valve	
	Residual ripple 10%; Power consumption 0,8 W every valve for Ex i-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 (<40 µm particle size)
Particle density	Class 5 (<10 mg/m ³)
Pressure dew point	Class 3 (<-20 °C)
Oil concentration	Class 5 (<25 mg/ m ³)
Supply pressure	
	3-7 bar ¹⁾
Air supply filter	
Mesh aperture	Exchangeable ~0.1 mm
Pilot air ports	
	Threaded ports G 1/8"
Position feedback	
	Reed sensors (no contact)
Stroke range valve spindle	
	RV50 = 6.0 mm, RV70 = 9.5 mm, RV110 = 13.5 mm

Dimensions [mm] (see datasheet for more details)



Technical data (cont.)

Ambient temperature	0 °C to +55 °C
Installation	As required, preferably with actuator in upright position
Type of protection	IP65/67 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 1 m cable (AS-Interface)
Cable gland	M16x1.5 (Cable Ø 6.5 mm), 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 (continued)

Without Fieldbus communication	
Power supply	24 VDC
Residual ripple with DC	10%
Voltage tolerance	±10 %
Power consumption	< 2 W
Output	Max. 100 mA per output/ short-circuit protected
Electrical connection	
Multipole	M12 (8-pin)
Cable gland	M12x1.5 (cable Ø6.5 mm), screw terminals (1.0 mm ² / max. port cross-section 0.25 mm ²)

Type 8685 / 8686 2G II Ex ia IIC T4 Gb	
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: 8.2V DC Operates with Ex barrier ¹⁾ : max. input voltage U _i < 12V DC
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: < 1.2 mA (terminal position reached) > 2.1 mA (terminal position not reached) Operates with Ex barrier ¹⁾ : max. input voltage U _i < 50 mA
Electrical connection	Cable gland M12x1.5 (cable- 6.5 mm), screw terminals 1.0 mm ² /max. port cross-section: 8685: 0.25 mm ² ; 8686; 0.14 mm ²

¹⁾ Electrical feed-in through intrinsically safe electric circuit of type of protection Ex ia IIC
Each circuit (end position) has the following safety related max data:
Max. input voltage U_i = 12V DC / max. input circuit I_i = 50 mA
Max. input power P_i = 60 mW
Internal capacity and inductance negligible

²⁾ Feed-in valves
Max. input power P_i = 1.1 mW
Max input voltage and max. input circuit acc. following table:

U _i [V]	15	18	20	22	25	28	30	35
I _i [mA]	900	440	309	224	158	120	101	73

Internal capacity and inductance negligible

With Fieldbus communication; AS- Interface Type 8685	
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 (2 terminal position reached)	35 mA
Electrical connection	M12 4-pin with 1 m cable on flat cable clip
Programming data	See operating manual

With Fieldbus communication; AS- Interface Type 8686	
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	≤ 2x0.8 W (above AS- Interface)
Watch-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-pin with 1 m cable on flat cable clip
Programming data	See operating instruction

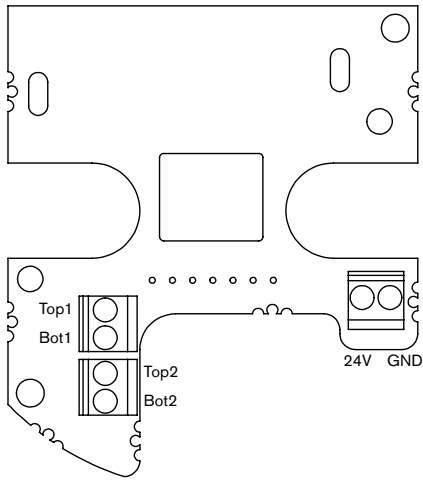
Options

- Type 8686 ASI version with external power supply
- Type 8686 24 V DC version with cable gland

Connection options Type 8685

Without field bus communication

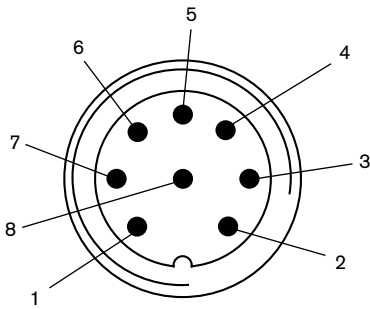
Cable gland



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
Bot2	End positions below- Bot actuator2

24 V DC

Multipole connection M12, 8-pin

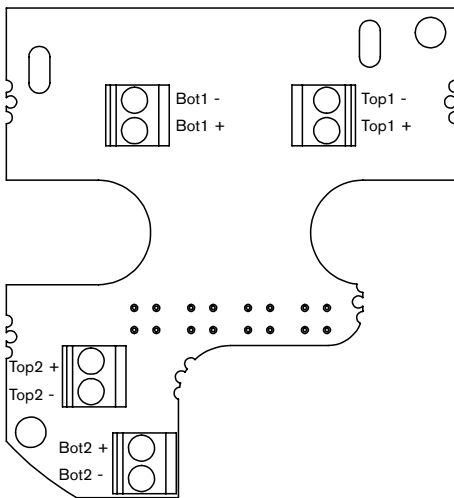


Pin	Description	Configuration
1	Limit Switch 3	End positions below- Bot actuator2
2	Limit Switch 4	End positions above- Top actuator2
3	Limit Switch 1	End positions below- Bot actuator1
4	Limit Switch 2	End positions above- Top actuator1
5	Valve 2	Valve control Y2+
6	Valve1	Valve control Y1+
7	GND	Power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

Note: Use only straight cable sockets

Ex i (NAMUR)

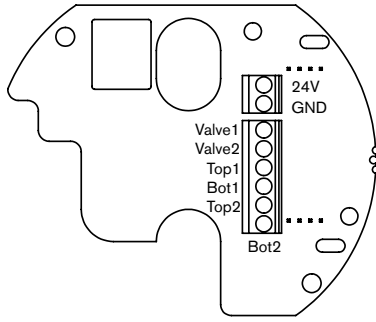
Cable gland



Description on circuit board	Description
Top1+	End positions above- actuator1
Top1-	End positions above- actuator1
Bot1 +	End positions below+ actuator1
Bot1-	End positions below- actuator1
Top2+	End positions above+ actuator2
Top2-	End positions above- actuator2
Bot2+	End positions below+ actuator2
Bot2-	End positions below- actuator2

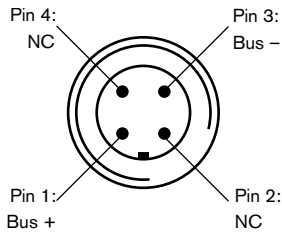
Connection options Type 8686

24V DC Cable gland



Description on circuit board	Configuration
Bot2	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
24VDC	Operating voltages +

AS-Interface - Type 8685 and 8686

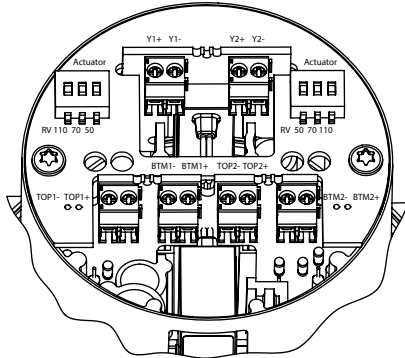


Control head Type 8686



Feedback head Type 8685

Ex i (NAMUR)



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