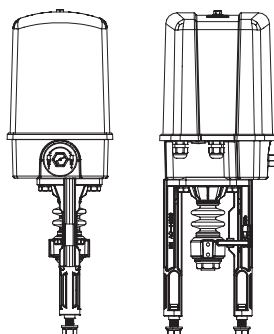


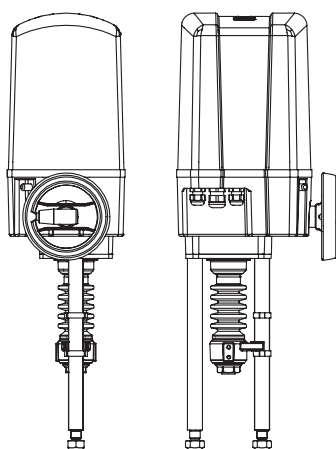
Electric thrust actuator ARI-PREMIO®-Plus

Electric thrust actuator
ARI-PREMIO®-Plus
2,2 - 5 kN

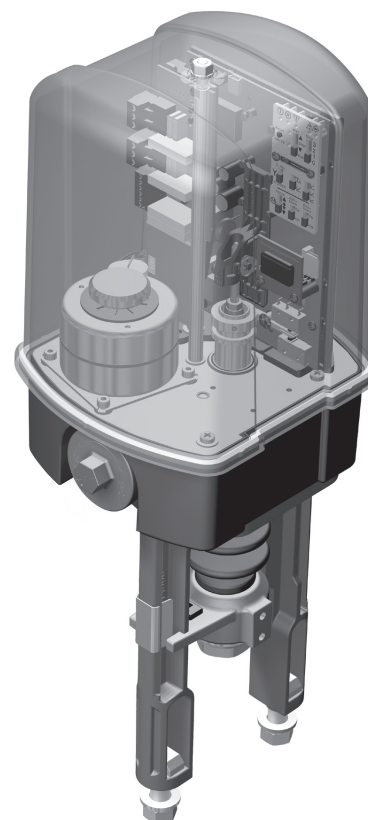


Page 2

Electric thrust actuator
ARI-PREMIO®-Plus
12 - 15 kN



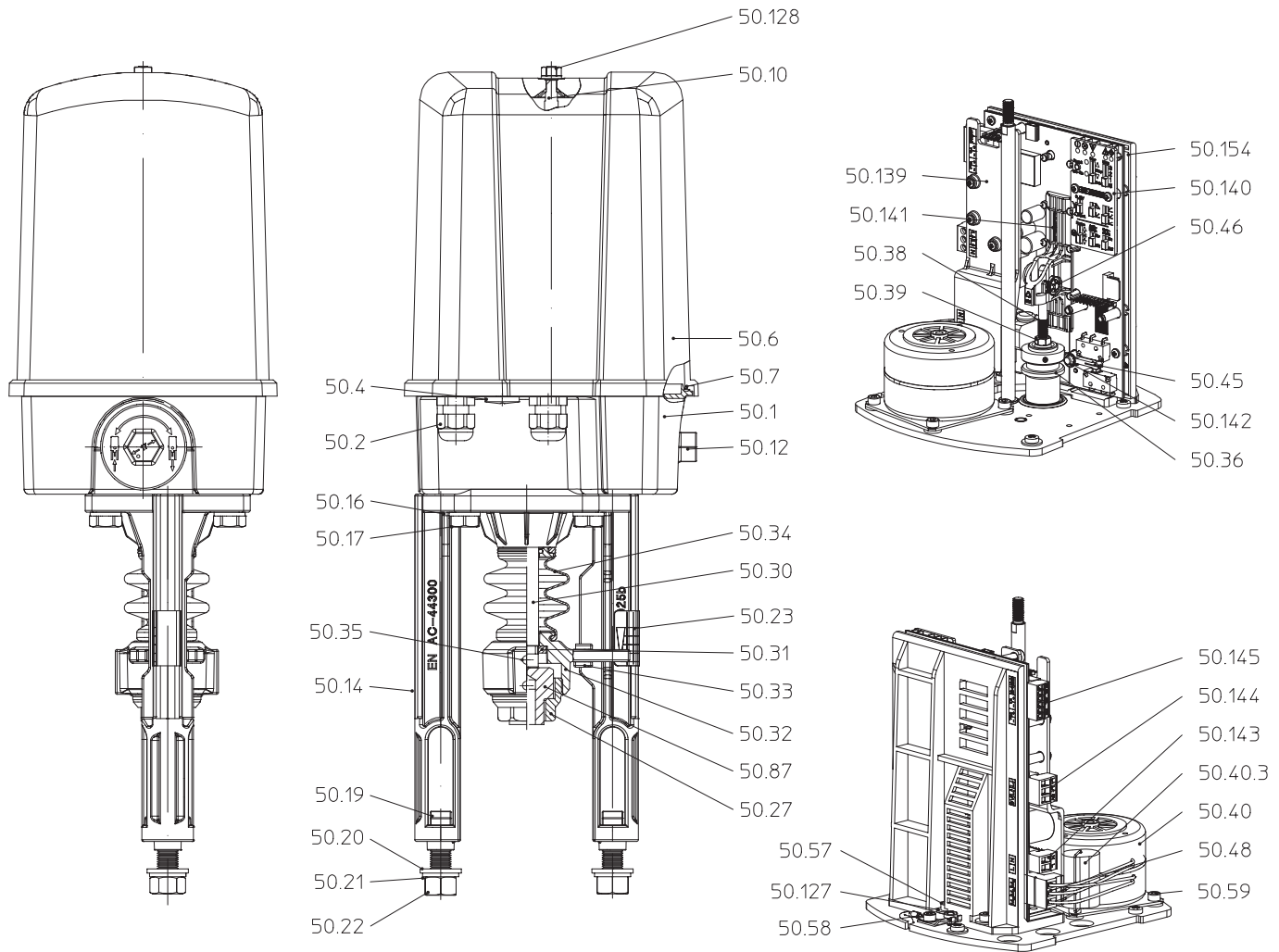
Page 4



Features

- optional input signal:
 - 3-point from 12 to 250VAC/DC
 - 0-10V
 - 4-20mA
- automatic valve travel adaption
- free choice of flow characteristics
- economy function for extended lifetime
- emergency manual override handwheel standard
- contactless position determination
- optional thrust or travel switch

Electric thrust actuator ARI-PREMIO®-Plus 2,2 - 5 kN



Pos.	Description
50.1	Gearbox
50.2	Cable gland 2 x M16x1,5
50.4	Sealing plug 1 x M16x1,5
50.6	Hood
50.7	Hood seal
50.10	Column
50.12	Handwheel
50.14	Yoke
50.16	Washer DIN 128-A10
50.17	Hexagon bolt DIN EN ISO 4017 - M10x40
50.19	T-head bolt DIN 261-M12x40
50.20	Washer DIN EN ISO 7089
50.21	Washer DIN 128 - A12
50.22	Hexagon nut DIN EN ISO 4032 - M12
50.23	Lift dial
50.27	Coupling
50.30	Driving spindle
50.31	Spindle safety feature
50.32	Torsion safety feature
50.34	Bellow
50.35	Grub screw DIN ISO 4766 - M6

Pos.	Description
50.38	Guide spindle
50.39	Hexagon nut DIN EN 24034 - M5
50.40	Synchronous motor, complete
50.40.3	Capacitor
50.45	Shift lever
50.46	Spring washer
50.48	Connector, 3-pole
50.57	Cylinder screw DIN EN ISO 4762 - M4x10
50.59	Cylinder screw DIN EN ISO 4762 - M4x6
50.58	Protective conductor terminal
50.87	Threaded bush
50.127	Washer ISO 7093-1
50.128	Flange nut Seal lock M6
50.139	Protective cover
50.140	Switch cover
50.141	Trip slide
50.142	Shakeproof washer
50.143	Connector, 2-pole (N/L)
50.144	Connector, 3-pole (L↑/L↓/0V)
50.145	Connector, 6-pole (63/64/Y in/Y out)
50.154	Board support cpl. (incl. electronic)

Technical data

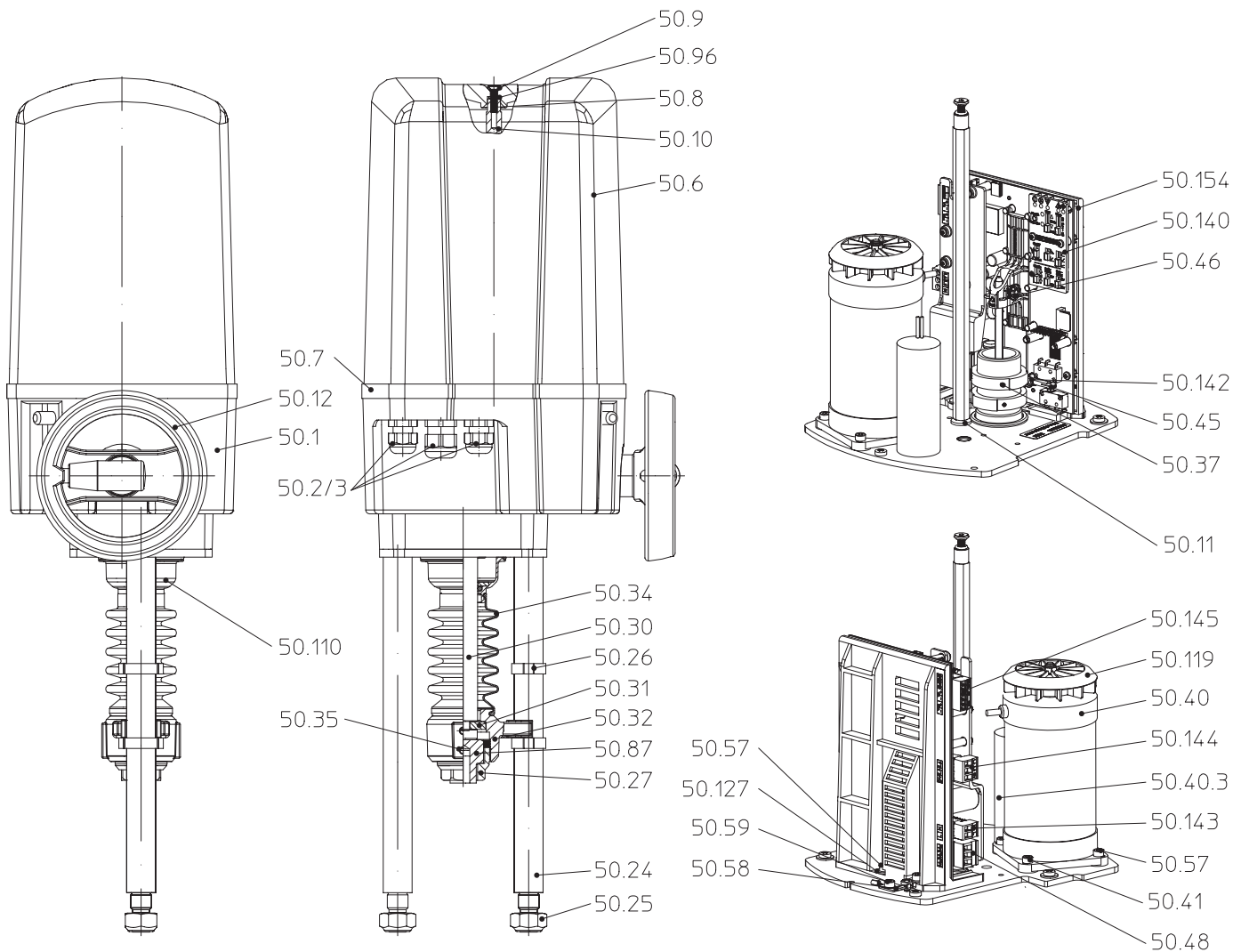
Type		ARI-PREMIO-Plus 2,2 kN	ARI-PREMIO-Plus 5 kN	
Thrust force	kN	2,2 kN	5,0 kN	
Operating speed	mm/s	0,38 mm/s	0,38 mm/s	1,0 mm/s
Travel distance max.	mm	50 mm		
Duty classification acc. to EN 60034-1		S3 80% ED / max. 1200 c/h		S3 50% ED / max. 1200 c/h
Motor voltage	V - Hz	230V - 50Hz / 60Hz ¹⁾		
Motor type		Synchronous motor		
Power consumption	VA	24	36	78
Torque switch		2 pcs., fixed wiring switching capacity 10 A, 250 V~		
Enclosure EN 60529		IP 65		
Max. storage temperature	°C	-40 °C ... +85 °C		
Max. permissible ambient temperature	°C	-20 °C ... +70 °C (For outdoor use and sub-zero temperatures, a heating is recommended!)		
Hand operating device		Yes (always running)		
Operation		optional: · 3-point: 12 V DC/AC to 250 V DC/AC · 0 to 10 V DC load resistance 470 kOhm resolution 10Bit 4 to 20 mA DC load resistance 125 Ohm resolution 10Bit		
Switching current		max. 4A Triac-Output		
Max. cable cross section		Supply voltage: 2,5 mm² 3-step input: 2,5 mm² Input signals: 1,5 mm²		
Mounting position		Any, except: motor not hanging downwards		
Gear lubricant		Klüber / Isoflex Topas NB152		
Weight	kg	5,4 kg	6,0 kg	6,5 kg
Characteristics at control signal failure		Default: Stop; Factory setting 0....100% configurable		
Accessories		refer to page 6 - 8		

Additional voltage / frequencies

Type		ARI-PREMIO-Plus 2,2 kN	ARI-PREMIO-Plus 5 kN	
Thrust force	kN	2,2 kN	5,0 kN	
Operating speed	mm/s	0,38 mm/s	0,38 mm/s	1,0 mm/s
Motor voltage	V - Hz	24V - 50/60 Hz ¹⁾ 115V - 50/60 Hz ¹⁾		24 V - 50 Hz 24 V - 60 Hz ¹⁾ 115 V - 50/60 Hz ¹⁾
		3~400V - 50/60Hz ¹⁾ (Only in addition with integrated reversing contactor!)		
Duty classification acc. to EN 60034-1		400 V : S3 50% ED / max. 1200 c/h		
Power consumption	VA	24	36	78
		Power rating of the other voltages and frequencies on the type plate or on request.		

¹⁾ Control speed and power consumption are 20% higher at frequency of 60 Hz.

Electric thrust actuator ARI-PREMIO®-Plus 12 - 15 kN



Pos.	Description
50.1	Gearbox
50.2	Cable gland 2 x M16 x 1,5 / 1 x M20 x 1,5
50.6	Hood
50.7	Hood seal
50.8	Counter-sunk screw DIN EN ISO 10642 - M5x20
50.9	Gasket DIN EN ISO 7089 - 5,3
50.10	Column
50.12	Handwheel (engageable)
50.24	Distance column
50.25	Hexagon nut DIN EN ISO 4032 - M12
50.26	2-ear clamp
50.27	Coupling
50.30	Driving spindle
50.31	Spindle safety feature
50.32	Torsion safety feature
50.34	Bellow
50.35	Grub screw DIN ISO 4766 - M6
50.40	Synchronous motor, complete
50.40.3	Capacitor

Pos.	Description
50.41	Cylinder screw DIN EN ISO 4762 - M4 - 18
50.45	Shift lever
50.48	Connector, 3-pole
50.57	Cylinder screw DIN EN ISO 4762 - M4x10
50.58	Protective conductor terminal
50.59	Cylinder screw DIN EN ISO 4762 - M4x6
50.87	Threaded bush
50.110	Gear cap
50.119	Fan wheel
50.127	Washer ISO 7093-1
50.139	Protective cover
50.140	Switch cover
50.141	Trip slide
50.142	Shakeproof washer
50.143	Connector, 2-pole (N/L)
50.144	Connector, 3-pole (L↑/ L↓/ 0V)
50.145	Connector, 6-pole (63/64/Y in/Y out)
50.154	Board support cpl. (incl. electronic)

Technical data

Type		ARI-PREMIO-Plus 12 kN		ARI-PREMIO-Plus 15 kN
Thrust force	kN	12,0 kN		15,0 kN
Operating speed	mm/s	0,38 mm/s	0,79 mm/s	0,38 mm/s
Travel distance max.	mm	65 mm		
Duty classification acc. to EN 60034-1		S3 50% ED / max.1200 c/h		
Motor voltage	V - Hz	230V - 50Hz		
Motor type		Synchronous motor		
Power consumption	VA	72	88	72
Torque switch		2 pcs., fixed wiring switching capacity 10 A, 250 V~		
Enclosure EN 60529		IP 65		
Max. storage temperature	°C	-40 °C ... +85 °C		
Max. permissible ambient temperature	°C	-20 °C ... +70 °C (For outdoor use and sub-zero temperatures, a heating is recommended!)		
Hand operating device		Yes (engageable)		
Operation		optional: · 3-point : 12 V DC/AC to 250 V DC/AC · 0 to 10 V DC load resistance 470 kOhm resolution 10Bit · 4 to 20 mA DC load resistance 125 Ohm resolution 10Bit		
Switching current		max. 4A Triac-Output		
Max. cable cross section		Supply voltage: 2,5 mm² 3-step input: 2,5 mm² Input signals: 1,5 mm²		
Mounting position		Any, except: motor not hanging downwards		
Gear lubricant		Molyduval Valencia H2		
Weight	kg	10,5 kg		
Characteristics at control signal failure		Default: Stop; Factory setting 0....100% configurable		
Accessories		refer to page 6 - 8		

Additional voltage / frequencies

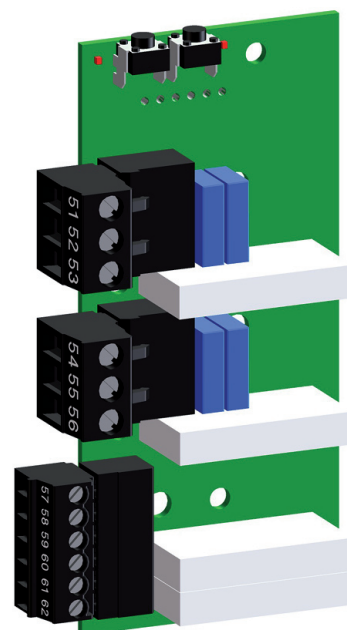
Type		ARI-PREMIO-Plus 12 kN		ARI-PREMIO-Plus 15 kN
Thrust force	kN	12,0 kN		15,0 kN
Operating speed	mm/s	0,38 mm/s	0,79 mm/s	0,38 mm/s
Motor voltage	V - Hz	24V - 50Hz / 24V - 60Hz ¹⁾ 115V - 50Hz / 115V - 60Hz ¹⁾ 230V - 60Hz ¹⁾ 3~400V - 50Hz / 3~400V - 60Hz ¹⁾ (Only in addition with integrated reversing contactor!)		
Power consumption	VA	72	88	72

¹⁾ Control speed and power consumption are 20% higher at frequency of 60 Hz.

Accessories

Type	ARI-PREMIO-Plus 2,2 - 15 kN	
Relay board	- 2 intermediate positions, to set by switch, change-over contact 230V AC 6A/3A, - 1 failure signal and 1 warning signal, changeover contacts 30V DC / 2A	
Electronic position indicator	Analog output card	analog output 0/4-20 mA, switchable to 0-10V, invertable, active
Potentiometer	Conductive (max. 2 only)	- Different resistance-values: 500, 1000, 2000, 5000 Ohm, 1 Watt (at +70 °C) - Wiper current max. 0,01 mA / recommended 0,002 mA
	Wire (max. 2 only)	- Different resistance-values: 100, 200 Ohm, 0,5 Watt (at +70 °C) - Wiper current max. 35 mA / recommended 0,02 mA
Heating	Heating resistor	230 V AC, 115 V AC, 24 V AC, 15 W (automatic switching circuit)
Integrated temperature controller	dTRON 316	Temperature controller in microprocessor technology. Control range von -200°C to +850°C input resistance thermometer 24, 115 or 230V 50/60Hz for resistance thermometers and thermocouples (provided by the customer) or standard signals.
	dTRON 316 / PROFIBUS-DP	Controller incl. PROFIBUS-DP-interface and analogue inlet card, 24 V, 115 V or 230 V 50/60 Hz. Controlling via Bus line (provided by customer).
Control	PROFIBUS-DP	Controlling command: Open, Close, Stop, Position set value Feedback signal: - Actual position value (electronic position indicator necessary) - 2 binary signals (relay card necessary) optional: Travel switch (2x), failure signal, warning signal

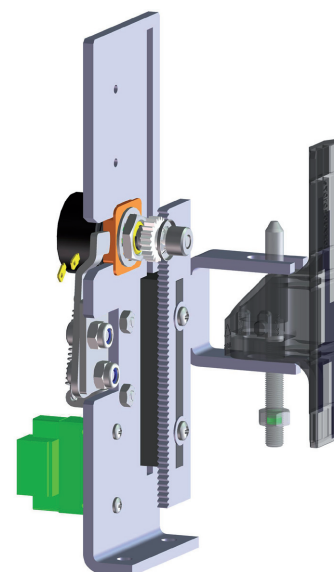
Relay board					
Relais (potential-free changeover contact)		1 (open)	1 (close)	3 warning	4 failure
switching capacity	U _B	6 A - 250 V		2A - 30 V AC/DC	
max. cable cross section		2,5 mm ²		1,5 mm ²	
Contact material		Gold			
Storage temperature		-40 °C ... +85 °C			
Operating temperature		-40 °C ... +85 °C (Note temperature range for the entire actuator!)			
Features:					
• Setting of the switching points over push buttons • 2 intermediate positions or end positions • 1 Collective failure message: - Control signal failure - Position can not be reached (Motor-/gear failure) - Blocking (actual) - Actuator is not initialised - Voltage failure • 1 Collective warning message: - Hand operating device - Blockage (identified) - Position can not be reached - Maintenance - Internal temperature exceeded - ED management active - Silent running - to small travel during initialization					



Analog output card			
Output control signal	Y_U	0 -10V DC Measuring resistance (load resistance) Signal resolution 8 Bit	max. 2 kOhm load resistance ·
Output control signal	Y_I	4 -20mA DC, active Measuring resistance (load resistance) Signal resolution 8 Bit	max. 500 Ohm ·
Features:			
for position transmitter			



Potentiometer		
Type	MP21 (Standard)	RP19
Resistance values	500, 1000, 2000, 5000 Ohm	100, 200 Ohm
Element technology	Conductive plastic	Wire
Resistance tolerance	±15 %	±3 %
Independent linearity tolerance	±1 %	±0,5 %
Loading capacity at +70°C (0 W at 105°C)	1 Watt	0,5 Watt
Max. / recommended contact current	0,01 mA / 0,002 mA	35 mA / 0,02 mA
Max. cable cross section	2,5 mm ²	
Durability	10 Mio. turns	1 Mio. turns



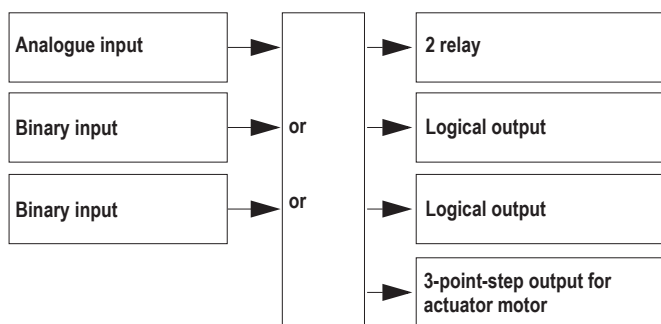
Integrated temperature controller dTRON 316

Features

- programmable analogue input
- 2 auto-tune methods
- Program function with 8 program sections or slope-function
- 2 Timer functions
- 4 limit-comparators
- Interlock for keyboard and level
- 4 programmable setpoints, two parameter sets
- 4 digit resolution (max. 2 decimal places)
- Controller characteristic P, PD, PI or PID
- Actual value input by usual temperature sensors (see in table)
- 2 relay outputs 230V/3A (shutter)
- 1 three-step output for actuator motor (by solid state relay 4A)
- 2 combinable binary inputs / binary outputs



Block structure



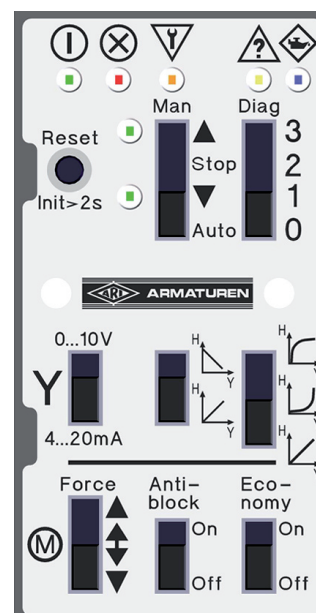
Input thermocouples	
Description	Measuring range
Fe-CuNi „L“	-200 ...+900°C
Fe-CuNi „J“ DIN EN 60584	-200 ...+1200°C
Cu-CuNi „U“	-200 ...+600°C
Cu-CuNi „T“ DIN EN 60584	-200 ...+400°C
NiCr-Ni „K“ DIN EN 60584	-200 ...+1372°C
NiCr-CuNi „E“ DIN EN 60584	-200 ...+1000°C
NiCrSi-NiSi „N“ DIN EN 60584	-100 ...+1300°C
Pt10Rh-Pt „S“ DIN EN 60584	0+1768°C
Pt13Rh-Pt „R“ DIN EN 60584	0+1768°C
Pt30Rh-Pt6Rh „B“ DIN EN 60584	0+1820°C
W5Re-W26Re „C“	0+2320°C
W3Re-W25Re „D“	0+2495°C
W3Re-W26Re	0+2400°C

Input standardized active current or voltage signals	
Description	Measuring range
Voltage	0 (2) ... 10V, input resistance Re > 100kOhm
Current	0 (4) ... 20mA, voltage drop ≤ 1,5 V

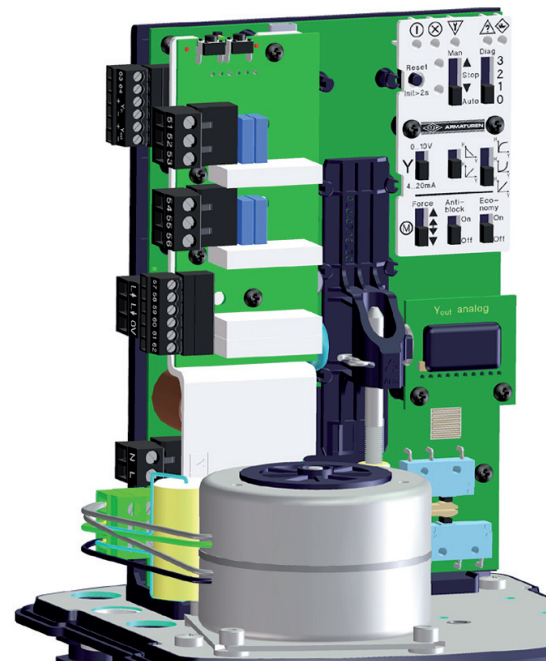
Input resistance thermometer		
Description	Type of connection	Measuring range
Pt 100 (standard)	2-wire / 3-wire / 4-wire	-200...+850°C
Pt 500	2-wire / 3-wire / 4-wire	-200...+850°C
Pt 1000	2-wire / 3-wire / 4-wire	-200...+850°C
KTY11-6	2-wire	-50...+150°C
Sensor output resistance: max. 300hm each circuit at 3- and 4-wire connection		
Measurement current: approx. 250µA		
Circuit adjustment: - at 3- and 4-wire connection not necessary. - at 2-wire connection a circuit adjustment can be done with software by correcting the actual value.		

Direct operator panel

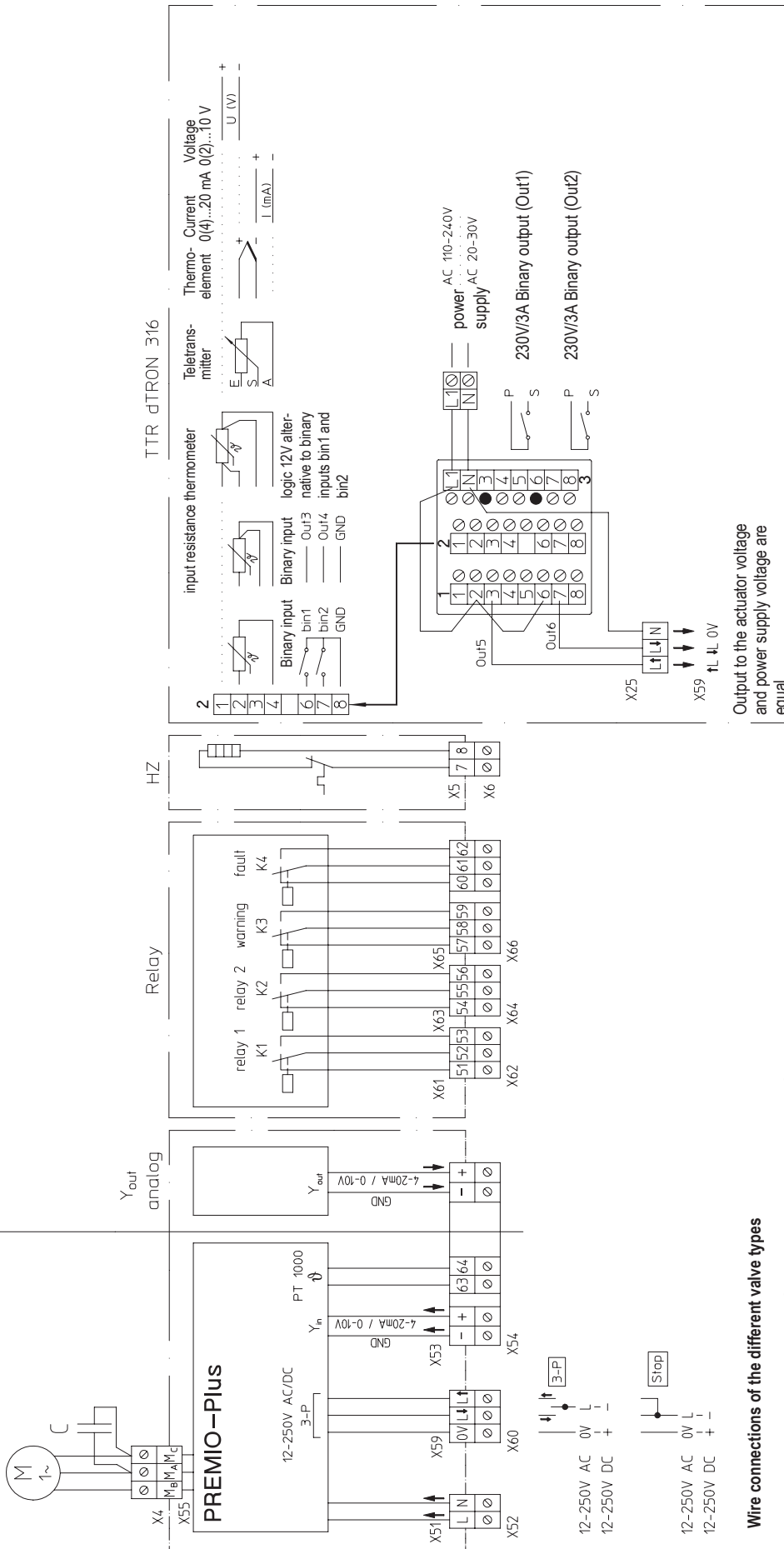
- Setting with switches, without a PC or tools
- Failure signals acc. to Namur 107
- Switchable economy function for extended lifetime
- Local operation
- 3 switchable valve characteristics
- Anti-block function
- Control signal switch 0-10 V / 4-20 mA
- Control signal invertible


Additional features:

- Automatic valve travel adaption
- Priority control for 3-point signals - e.g. for anti-freeze function
- Economy function for extended lifetime
 - Prevents cycling of the valve, reducing wear
 - Control optimisation for 3-point operation
- Tight-closing function
- Detection and suppression of interferences on the signal line
- Automatic fault detection (incl. emergency functionality)
- Temperature duty cycle management and performance adjustment
- Avoid condensation by integrated humidity sensor with heating elements
- Contactless position determination
- Failure and warning signal via relay contact



Accessories



HZ Heating resistor

TTR Electronic temperature controller dTRON316

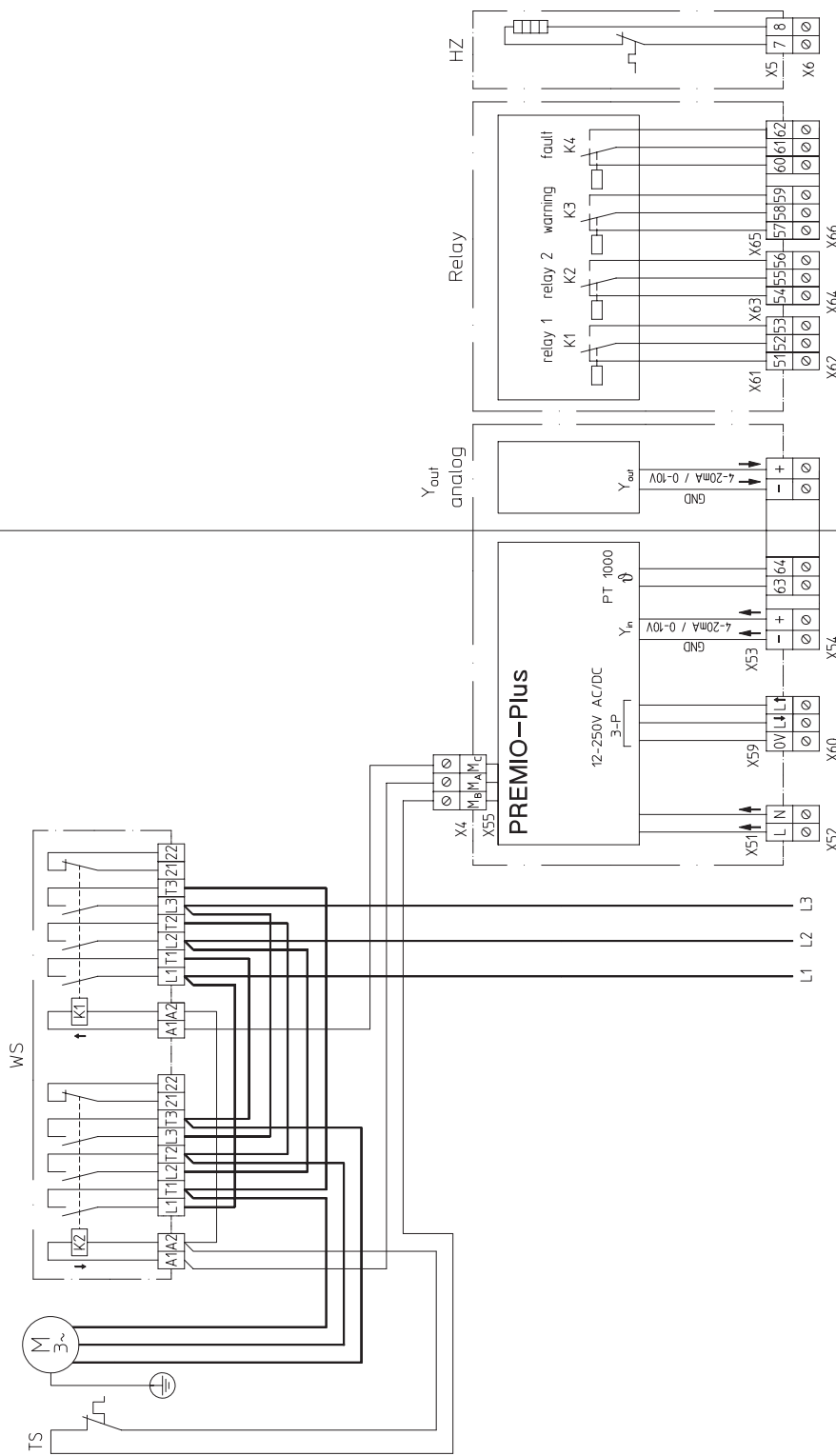
Relay Relay board

Y out Analog output card

Accessories

standard

PREMIO-Plus 2,2-15kN 3Ph~



Wire connections of the different valve types

Straight through valve

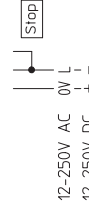
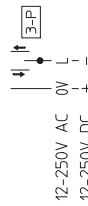
0V	N (MP)
L↓	closed
L↑	open

3-way valve with mixing plug

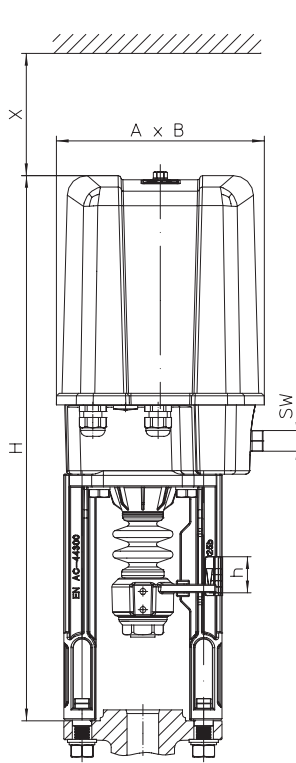
0V	N (MP)
L↓	A - AB open
L↑	B - AB open

3-way valve with diverting plug

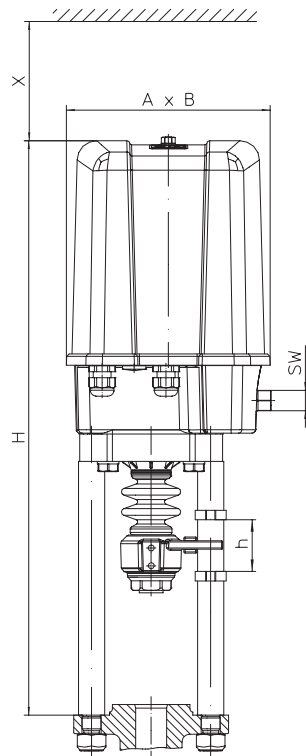
0V	N (MP)
L↓	AB - B open
L↑	AB - A open



WS	Reversing contactor
TS	Temperature switch (motor)
Relay	Relay board
Y out	Analog output card
Hz	Heating resistor

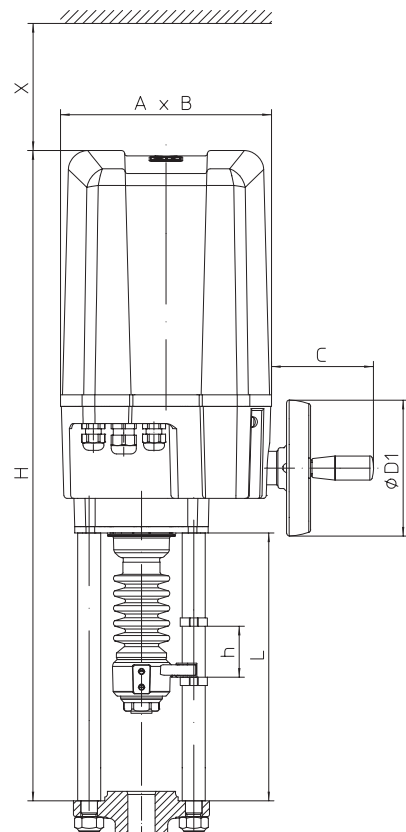


2,2 - 5 kN
 Nominal travel max. 30 mm



2,2 - 5 kN
 Nominal travel > 30 mm - 50 mm

		2,2 - 5 kN	
A	(mm)	171	
B	(mm)	156	
SW	(mm)	17	
X	(mm)	150	
H	(mm)	447	480
h (Nominal travel)	(mm)	max. 30	max. 50



12 - 15 kN
 Nominal travel max. 65 mm

Actuator data		12 - 15 kN		
A	(mm)	202		
B	(mm)	176		
C	(mm)	97		
Ø D1	(mm)	130		
X	(mm)	200		
H	(mm)	602	622	637
h (Nominal travel)	(mm)	max. 30	max. 50	max. 65
L (Column)	(mm)	236	256	271



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