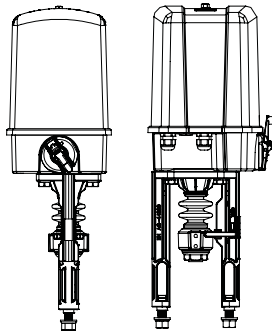




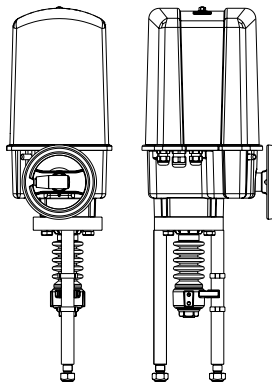
Electric thrust actuator ARI-PREMIO®-Plus 2G

Electric thrust actuator
ARI-PREMIO®-Plus 2G
2,2 - 5 kN (495 - 1124 lbf)



Page 2

Electric thrust actuator
ARI-PREMIO®-Plus 2G
12 - 25 kN (2698 - 5620 lbf)



Page 4

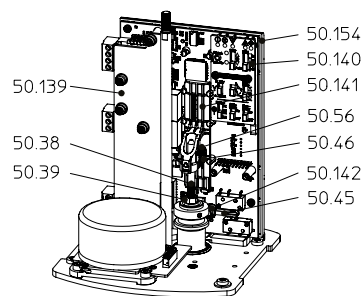
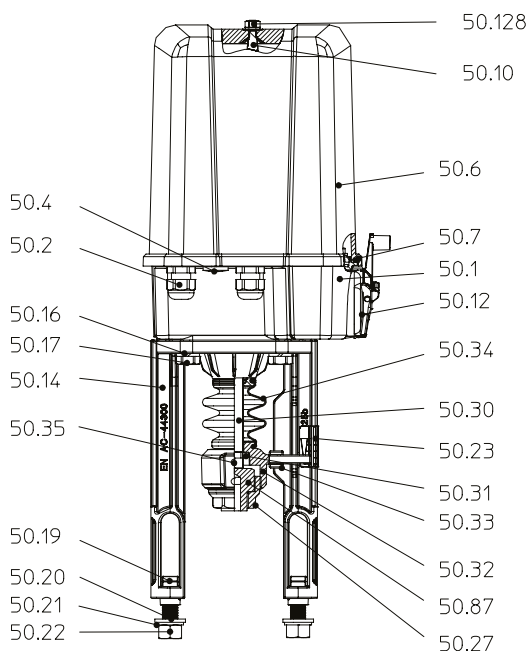
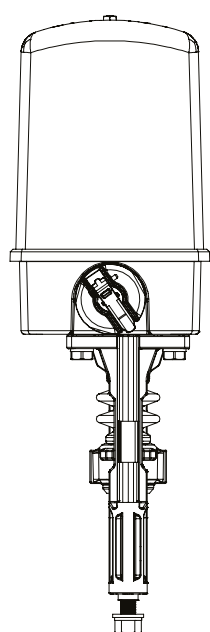


Features

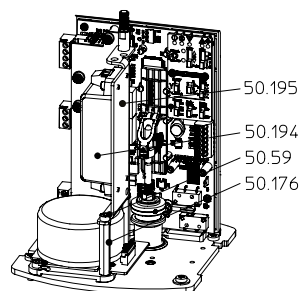
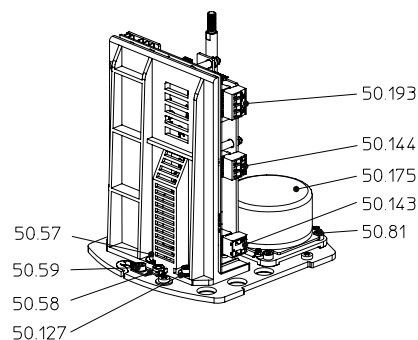
- optional input signal:
 - 3-point from 12 to 250 V AC/DC
 - 0 - 10 V
 - 4 - 20 mA
- automatic valve travel adaption
- economy function for extended lifetime
- emergency manual override handwheel standard
- contactless position determination
- optional thrust or travel switch



Electric thrust actuator ARI-PREMIO®-Plus 2G 2,2 - 5 kN (495 - 1124 lbf)



BLDC-motor
24 V AC/DC



BLDC-Motor
100 - 240 V AC

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
50.33	Slide
50.34	Bellow
50.35	Grub screw DIN ISO 4766 - M6
50.38	Guide spindle

Pos.	Description
50.39	Hexagon nut DIN EN 24034 - M5
50.45	Shift lever
50.46	Spring washer
50.56	Spring
50.57	Cylinder screw DIN EN ISO 4762 - M4x10
50.58	Protective conductor terminal
50.59	Cylinder screw DIN EN ISO 4762 - M4x6
50.81	Cylinder screw DIN EN ISO 4762 - M4x8
50.87	Threaded bush
50.127	Washer ISO 7093-1
50.128	Collar nut with sealing ring 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)
50.154	Board support cpl. (incl. electronic)
50.175	BLDC motor
50.176	Distance bolt M4x45
50.193	Connector, 4-pole (Y in/Y out)
50.194	Power supply, cpl.
50.195	Fixing bracket for power supply

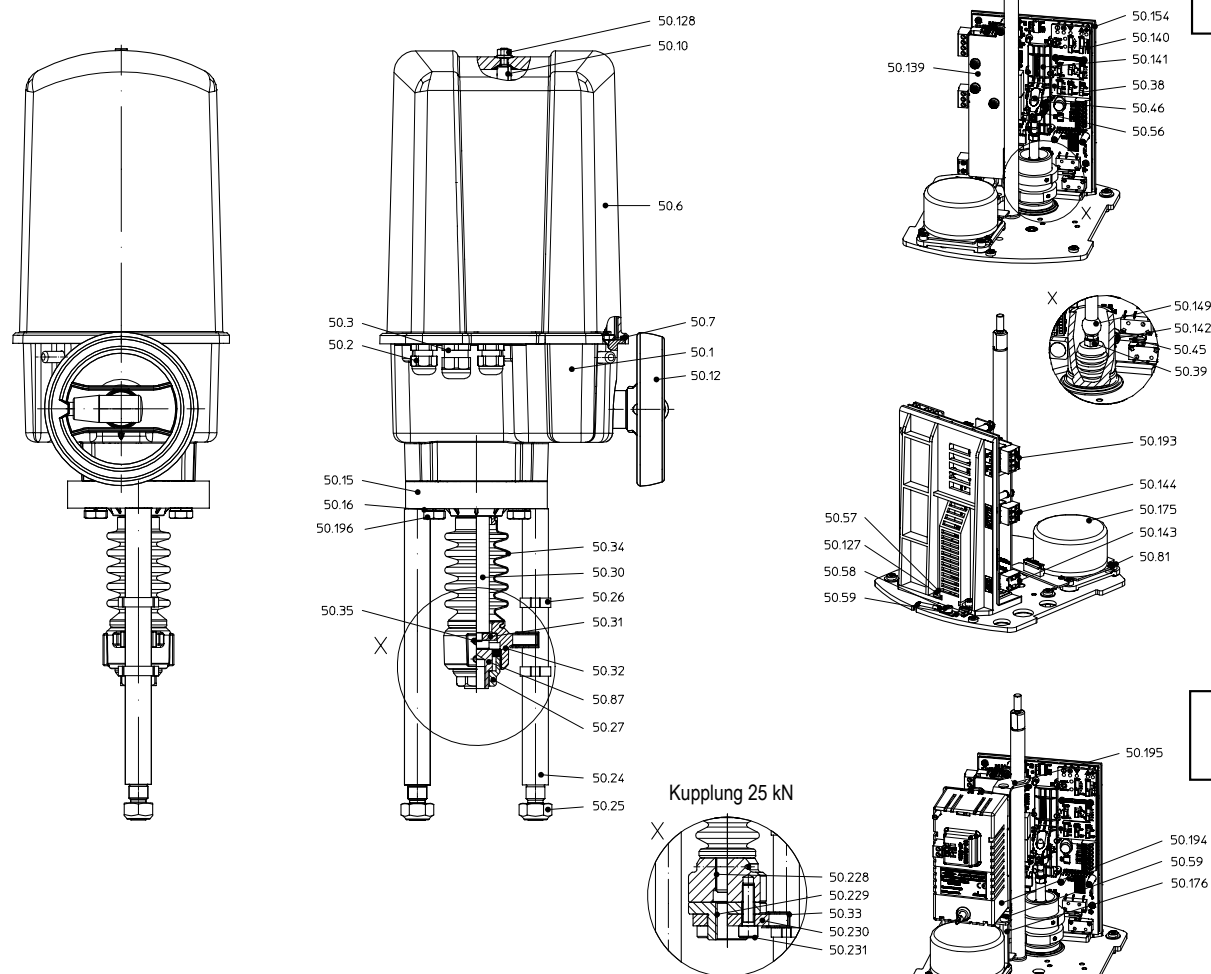


Technical data

Type		ARI-PREMIO®-Plus 2G 2,2 kN (495 lbf)	ARI-PREMIO®-Plus 2G 5 kN (1124 lbf)
Thrust force	lbf	495	1124
Operating speed	in/s	0.01 / 0.015 / 0.019 / 0.039 adjustable	
Travel distance max.	in	1.97	
Duty cycle according to EN ISO 22153		Class C (modulation) @+158 °F	
Supply voltage	V	24 V AC/DC	
Motor type		BLDC (Brushless DC motor)	
Power consumption (depends on the operating speed)	VA	max. 28	max. 30
Torque switch		2 pcs. included internally	
Enclosure EN 60529		IP65	
Corrosion protection class according to DIN EN ISO 12944		C3 (higher protection classes on request - stainless steel version)	
Max. storage temperature	°F	-40 °F ... +185 °F	
Max. permissible ambient temperature	°F	-4 °F ... +158 °F, for UL/CSA version up to max. +140 °F (For outdoor use and sub-zero temperatures, a heating is recommended!)	
Hand operating device		Yes (always running)	
Operation		optional: 3-point: 12 V AC/DC to 250 V AC/DC 0 to 10 V DC load resistance 500 kOhm resolution 12 Bit 4 to 20 mA DC load resistance 125 Ohm resolution 12 Bit	
Max. cable cross section		Supply voltage: 0.0039 in² 3-step input: 0.0039 in² Input signals: 0.0039 in²	
Mounting position		Any, except: motor not hanging downwards	
Cable diameter for cable glands		2 x M16 x 1,5: 0.20 - 0.37 in	
Electrical safety according to DIN EN 61010, part 1		Overvoltage category II Pollution degree 2 Altitude up to 2000 m Rel. humidity ≤ 90 % non-condensing	
Characteristics at control signal failure		adjustable with slide switch: OPEN, STOP, CLOSE	
Gear lubricant		Klüber Isoflex Topas NB152	
Weight	lbs	12	
Additional voltage		refer to page 6	
Accessories		refer to page 6 - 10	



Electric thrust actuator ARI-PREMIO®-Plus 2G 12 - 25 kN (2698 - 5620 lbf)



Pos.	Description
50.1	Gearbox
50.2 / 50.3	Cable gland 2 x M16 x 1,5 / 1 x M20 x 1,5
50.6	Hood
50.7	Hood seal
50.10	Column
50.12	Handwheel (engageable)
50.15	Flange
50.16	Washer DIN 128 - A10
50.24	Distance column
50.25	Hexagon nut DIN EN ISO 4032 - M16
50.26	2-ear clamp (stroke indicator)
50.27	Coupling
50.30	Driving spindle
50.31	Spindle safety feature
50.32	Torsion safety feature
50.33	Slide
50.34	Bellow
50.35	Grub screw DIN ISO 4766 - M6
50.38	Guide spindle
50.39	Hexagon nut DIN EN 24034 - M5
50.45	Shift lever
50.46	Spring washer
50.57	Cylinder screw DIN EN ISO 4762 - M4x10
50.58	Protective conductor terminal

Pos.	Description
50.59	Cylinder screw DIN EN ISO 4762 - M4x6
50.81	Cylinder screw DIN EN ISO 4762 - M4x8
50.87	Threaded bush
50.127	Washer ISO 7093-1
50.128	Collar nut with sealing ring 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)
50.149	Axial joint
50.154	Board support cpl. (incl. electronic)
50.175	BLDC motor
50.176	Distance bolt M4x45
50.193	Connector, 4-pole (Y in/Y out)
50.194	Power supply, cpl.
50.195	Fixing bracket for power supply
50.196	Hexagon bolt DIN EN 24017 - M10x100
50.228	Spindle unit PREMIO® 25kN
50.229	Threaded bush PREMIO®
50.230	Securing flange
50.231	Cylinder screw DIN EN ISO 4762 - M10x35



Technical data

Type		ARI-PREMIO®-Plus 2G 12 kN (2698 lbf)	ARI-PREMIO®-Plus 2G 15 kN (3372 lbf)	ARI-PREMIO®-Plus 2G 25 kN (5620 lbf)
Thrust force	lbf	2698	3372	5620
Operating speed	in/s	0.008 / 0.012 / 0.015 / 0.031 adjustable		
Travel distance max.	in	2.56 *		
Duty cycle according to EN ISO 22153		Class C (modulation) @+158°F		
Supply voltage	V	24 V AC/DC		
Motor type		BLDC (Brushless DC motor)		
Power consumption (depends on the operating speed)	VA	max. 62	max. 74	max. 137
Torque switch		2 pcs. included internally		
Enclosure EN 60529		IP65		
Corrosion protection class according to DIN EN ISO 12944		C3 (higher protection classes on request - stainless steel version)		
Max. storage temperature	°F	-40 °F ... +185 °F		
Max. permissible ambient temperature	°F	-4 °F ... +158 °F, for UL/CSA version up to max. +140 °F (For outdoor use and sub-zero temperatures, a heating is recommended!)		
Hand operating device		Yes (engageable)		
Operation		optional: 3-point: 12 V AC/DC to 250 V AC/DC 0 to 10 V DC load resistance 500 kOhm resolution 12 Bit 4 to 20 mA DC load resistance 125 Ohm resolution 12 Bit		
Max. cable cross section		Supply voltage: 0.0039 in² 3-step input: 0.0039 in² Input signals: 0.0039 in²		
Mounting position		Any, except: motor not hanging downwards		
Cable diameter for cable glands		2 x M16 x 1,5: 0.20 - 0.37 in 1 x M20 x 0.31 - 0.51 in		
Electrical safety according to DIN EN 61010, part 1		Overvoltage category II Pollution degree 2 Altitude up to 2000 m Rel. humidity ≤ 90 % non-condensing		
Characteristics at control signal failure		adjustable with slide switch: OPEN, STOP, CLOSE		
Gear lubricant		Klübersynth G34-130		
Weight	lbs	21		24
Additional voltage		refer to page 6		
Accessories		refer to page 6 - 10		

*other strokes on request

Additional voltage

Switching power supply for ARI-PREMIO®-Plus 2G		2,2 kN (495 lbf)	5 kN (1124 lbf)	12 kN (2698 lbf)	15 kN (3372 lbf)	25 kN (5620 lbf)
Voltage	V - Hz	100 - 240 V AC 50/60 Hz				
Power consumption	VA	max. 40,1	max. 45,8	max. 88		max. 166

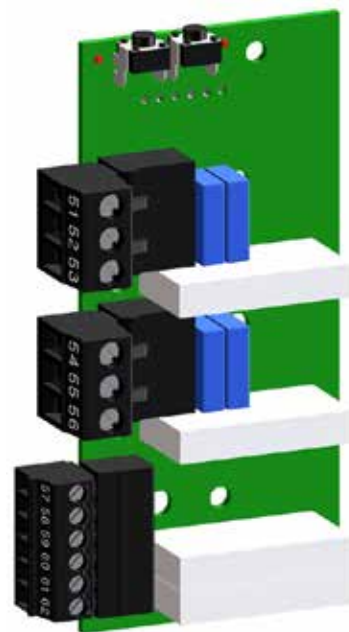
Transformer for ARI-PREMIO®-Plus 2G		2,2 kN (495 lbf)	5 kN (1124 lbf)	12 kN (2698 lbf)	15 kN (3372 lbf)	25 kN (5620 lbf)
Voltage	V - Hz	3~ 400 V 50/60 Hz				
Power consumption	VA	max. 36	max. 43	max. 72	max. 82	max. 154

100 - 240 V AC			3~ 400 V
2,2 - 5 kN (495 - 1124 lbf)	12 - 15 kN (2698 - 3372 lbf)	25 kN (5620 lbf)	2,2 - 25 kN (495 - 5620 lbf)
			

Accessories

Type	ARI-PREMIO®-Plus 2G 2,2 - 25 kN (495 - 5620 lbf)	
Binary feedback	Type Relay board	• 2 intermediate positions, - To set by switch, - Changeover contacts 250 V, 6 A ohm resistive load, 3 A inductive load • 1 failure signal and 1 warning signal, - Changeover contacts 30 V AC/DC, 2A
Electronic position indicator	Type Analog output card	• Analogue output for position feedback, • 4-20 mA switchable to 0-10V • Invertable • Galvanic isolation between the mains voltage and feedback signal • Active
Heating	Heating resistor	• 230 V AC, 115 V AC, 24 V AC/DC; 15 W • Automatic switching circuit
Potentiometer	Conductive (max. 2 Stück)	• 1000, 2000, 5000 Ohm, 1 Watt (bei +158 °F)) • Wiper current max. 0,01 mA / recommended 0,002 mA
	Wire (max. 2 Stück)	• 100, 200 Ohm, 0,5 Watt (bei +158 °F)) • Wiper current max. 35 mA / recommended 0,02 mA
LED – Status Indicator	2,2/5 kN (495/1124 lbf)	• From the outside on the visible display of the drive status; • Green= OK.; red=error; yellow= warning; blue=maintenance; • Intermediate upgrade modules available starting with SW version 3.3.X
	12/15/25 kN (2698/3372/5620 lbf)	
Communications package	2,2/5 kN (495/1124 lbf)	• Features: - Bluetooth interface for communication of "myPREMIO" App - Electronic position indicator: 4 - 20 mA switchable to 0 - 10 V - LED-Status indicator
	12/15/25 kN (2698/3372/5620 lbf)	
(Process-) controller	Type Processcontroller dTRON 316	• Mounted in the actuator • 4-20 mA output for operation of PREMIO®-Plus 2G • For resistance thermometers and thermocouples (provided by the customer) or standard signals, • Pre-configured for temperature control: - Control range from -328°F up to +1562°F (resistance thermometer)
Fieldbus interface	Profibus DP Anybus® Communication interface	• Control command: - 3-point: OPEN, Stop, Close - Nominal position value 0-100 - Reset - initialization • Feedback signals: - Actual position value: 0 - 100 - Failures, warning messages, end position switches, etc.
	Modbus RTU Anybus® Communication interface	
Uninterruptible power supply for electrical failsafe position	UPS-Module IPU 2405-N2.2	• Selectable fail-safe position on power failure • Power supply via NiMH maintained for 30 minutes after power failure • Charge level indicator • Relay signal on power failure and state of charge

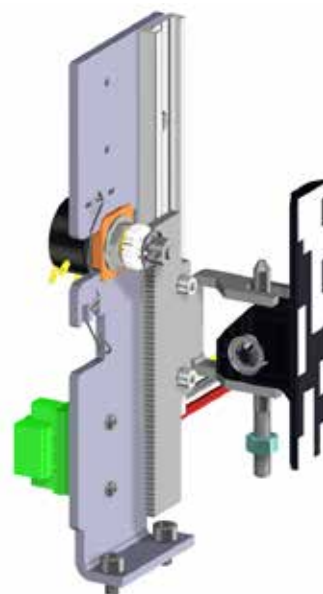
Relay board					
Relay (zero-potential changeover contacts)		1 (open)	1 (close)	3 warning	4 failure
Switching capacity	U _B max.	250 V AC, 6 A ohm resistive load, 3 A inductive load		30 V AC/DC, 2 A	
Max. cable cross section		0.0039 in²		0.0023 in²	
Contact material		Gold			
Storage temperature		-40 °F ... +185 °F			
Operating temperature		-40 °F ... +185 °F (Note temperature range for the entire actuator!)			
Features:					
• Setting of the switching points over push buttons • Zero-potential changeover contacts • 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 - too small travel during initialization					



Analog output card			
Output control signal	Y _U	0 - 10V DC Measuring resistance (load resistance)	max. 2 kOhm load resistance
Output control signal	Y _I	4 - 20 mA DC, active Measuring resistance (load resistance)	max. 500 Ohm
Features:			
- For position transmitter - Output signal configurable with solder jumper			



Potentiometer		
Type	MP21 (Standard)	RP19
Resistance values	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	0.0039 in²	
Durability	10 Mio. turns	1 Mio. turns

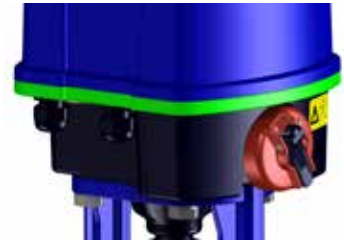




LED – Status indicator

Features:

- From the outside on the visible display of the drive status:
 - Green = OK
 - Red = Error
 - Yellow = Warning
 - Blue = Maintenance
- Intermediate upgrade modules available – SW-Version 3.3.0 or higher on the actuator is required



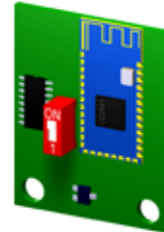
Communications package

Consisting of:

- BT-Module incl. myPREMIO® App and electronic positioner
- LED-Status indicator

2,2 - 25 kN
(495 - 5620 lbf)

Interface for communication using the Bluetooth function of the mobile device



Fieldbus interface

Profibus DP

Anybus®
Communication module

Modbus RTU

Anybus®
Communication module

2,2 - 25 kN
(495 - 5620 lbf)

- Control command:
 - 3-point: OPEN, Stop, Close,
 - Nominal position value 0 - 100,
 - Reset - Initialization
- Feedback signals:
 - Actual position value 0 - 100;
 - Failures, warning messages, end position switches, etc.



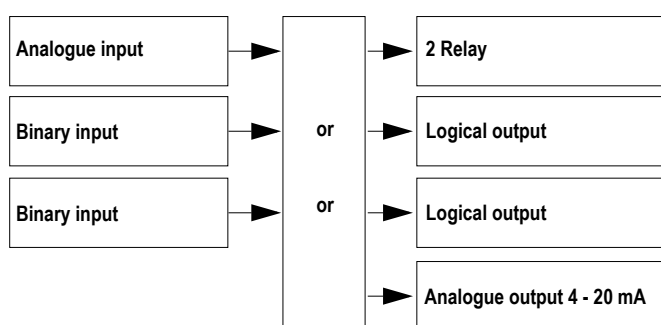
Integrated (Process-) controller dTRON 316

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 230 V / 3 A (shutter)
- 4 - 20 mA Output for operation of PREMIO®-Plus 2G
- 2 Combinable binary inputs / binary outputs



Blockstruktur



Input thermocouples	
Description	Measuring range
Fe-CuNi „L“	-328 ... +1652°F
Fe-CuNi „J“ DIN EN 60584	-328 ... +2192°F
Cu-CuNi „U“	-328 ... +1112°F
Cu-CuNi „T“ DIN EN 60584	-328 ... +752°F
NiCr-Ni „K“ DIN EN 60584	-328 ... +2502°F
NiCr-CuNi „E“ DIN EN 60584	-328 ... +1832°F
NiCrSi-NiSi „N“ DIN EN 60584	-148 ... +2372°F
Pt10Rh-Pt „S“ DIN EN 60584	32 +3214°F
Pt13Rh-Pt „R“ DIN EN 60584	32 +3214°F
Pt30Rh-Pt6Rh „B“ DIN EN 60584	32 +3308°F
W5Re-W26Re „C“	32 +4208°F
W3Re-W25Re „D“	32 +4523°F
W3Re-W26Re	32 +4352°F

Input standardized active current or voltage signals	
Description	Measuring range
Voltage	0 (2) ... 10 V, input resistance $R_e > 100 \text{ k}\Omega$
Current	0 (4) ... 20 mA, voltage drop $\leq 1,5 \text{ V}$

Input resistance thermometer		
Description	Type of connection	Measuring range
Pt 100 (standard)	2-wire / 3-wire / 4-wire	-328...+1562°F
Pt 500	2-wire / 3-wire / 4-wire	-328...+1562°F
Pt 1000	2-wire / 3-wire / 4-wire	-328...+1562°F
KTY11-6	2-wire	-58...+302°F
Sensor output resistance: max. 30 Ohm 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.		



UPS-Module IPU 2405-N2,2

Features:

- Power supply maintained for 30 minutes after power failure
- Selectable fail-safe setting
(Retracting / extending actuator stem, no fail-safe position approached)
- Potential-free relay signal on power failure
- Potential-free relay signal if state of charge low / standby mode ends (> 30 min)
- High power reserves (several fail-safe runs possible depending on the size of the actuator)
- Easy to upgrade
- Suitable for all PREMIO®-Plus 2G actuator sizes
- Max. permissible ambient temperature -4 °F...+158 °F
- Enclosure IP66 (applies only to the UPS)



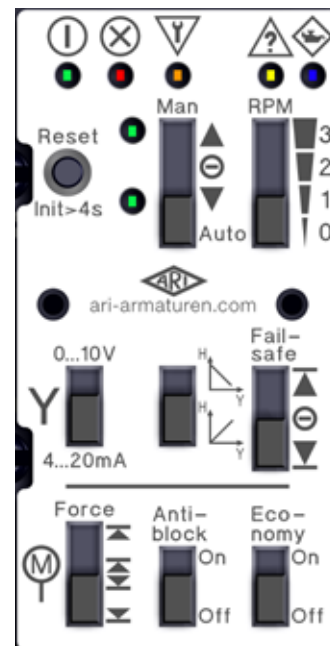
Status LED on the UPS module	
Status	Indication
Assembly de-energised	AN AUS
Grid mode	AN AUS
Standby mode	AN AUS
Warning: Energy storage fault or state of charge low / enable open / 0 V at wire 8	AN AUS

Technical Data

Type	UPS IPU 2405-N2,2
Input voltage U_{in}	23 V DC - 30 V DC
Input current	Typically 5.5 A
Output in grid mode	
Nominal output voltage U_A	Typically $U_{in} - 0.5$ V DC
Nominal output current I_N	5.0 A
Continuous short-circuit protection	Yes
Output in standby mode	
Nominal output voltage U_A	23 V DC $\pm$ 3%
Nominal output current I_N	max. 5 A (in function of output voltage and temperature)
General	
Rated output power	120 W
Efficiency	Typically 96%
Overload protection (Standby mode)	Typically 10 A
Short-circuit protection	Switch-off with automatic restart
Energy storage technologies	NiMH
Energy storage capacity	2.2 Ah
Low state of charge alert threshold	30% (State of charge)
Deep discharge protection	Yes
Switching capacity of signalling contacts	30 V / 1 A / 30 VA
Isolation device	External
Power connection	Sheathed cable 8 x 0,0023 in ² , Cable length 23.62 in, ferrules
Enclosure (Built-in device)	IP66 (applies only to the UPS)
Operating temperature T_a	-4 °F ... +158 °F
Dimensions (W x H x D)	6.3 x 6.3 x 3.58 in
Weight	6.4 lbs
Mounting	Angle plate
Enclosure material	Industrial enclosure – aluminium

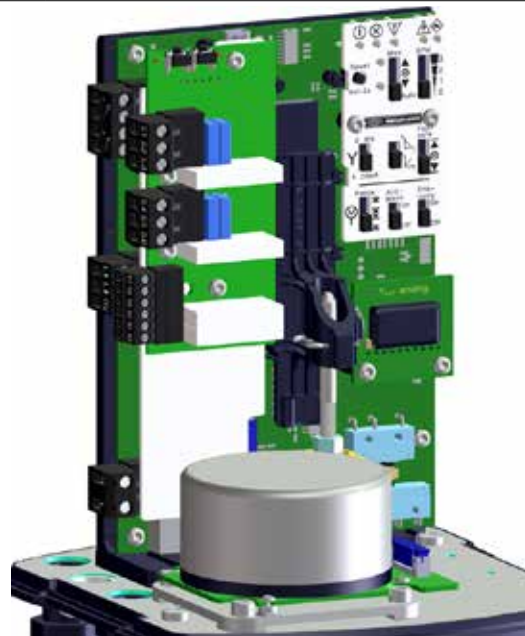
Direct operator panel

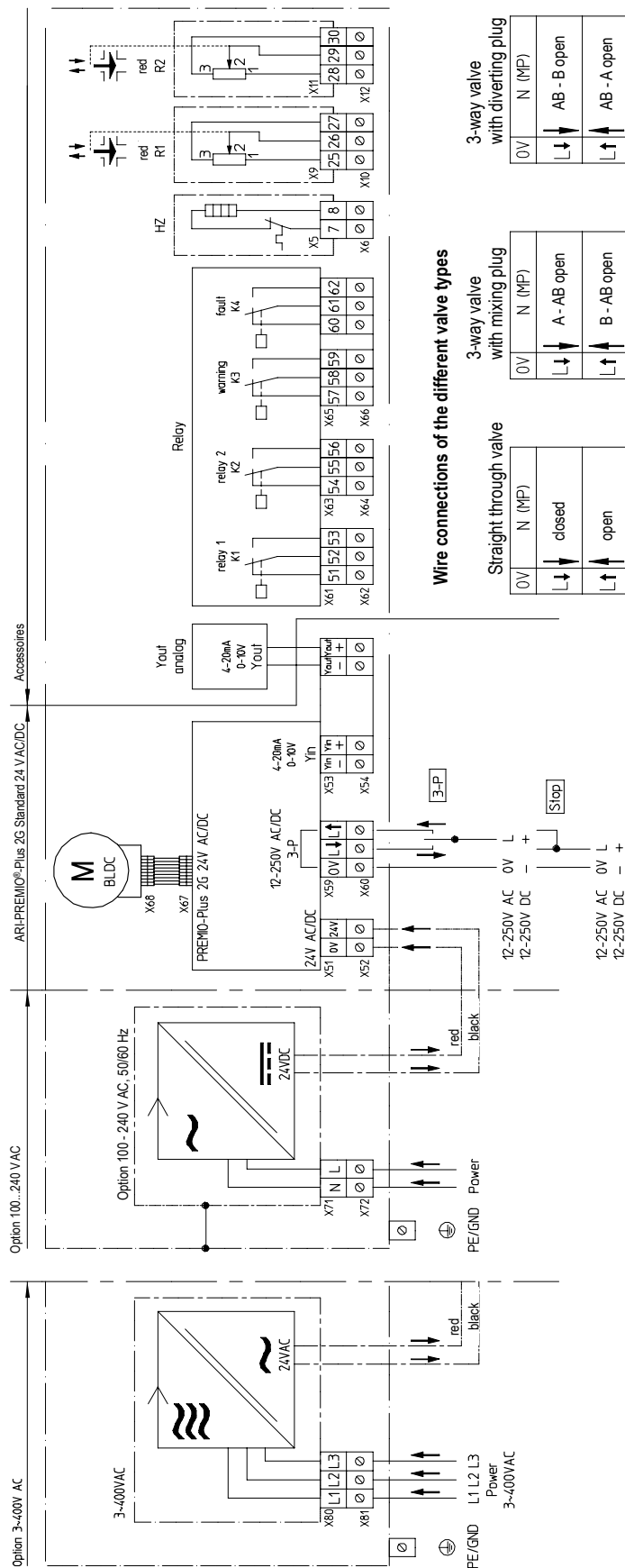
- Setting with switches, without a PC or tools
- Failure signals acc. to Namur 107
- Switchable economy function for extended lifetime
- Local operation
- Anti-block function
- Control signal switch 0-10 V / 4-20 mA
- Control signal invertible
- Adjustable failsafe characteristic at control signal failure
- Adjustable motor speed to adapt the operating speed



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





Wire connections of the different valve types

Straight through valve

0V	N (MP)
↓	closed
↑	open

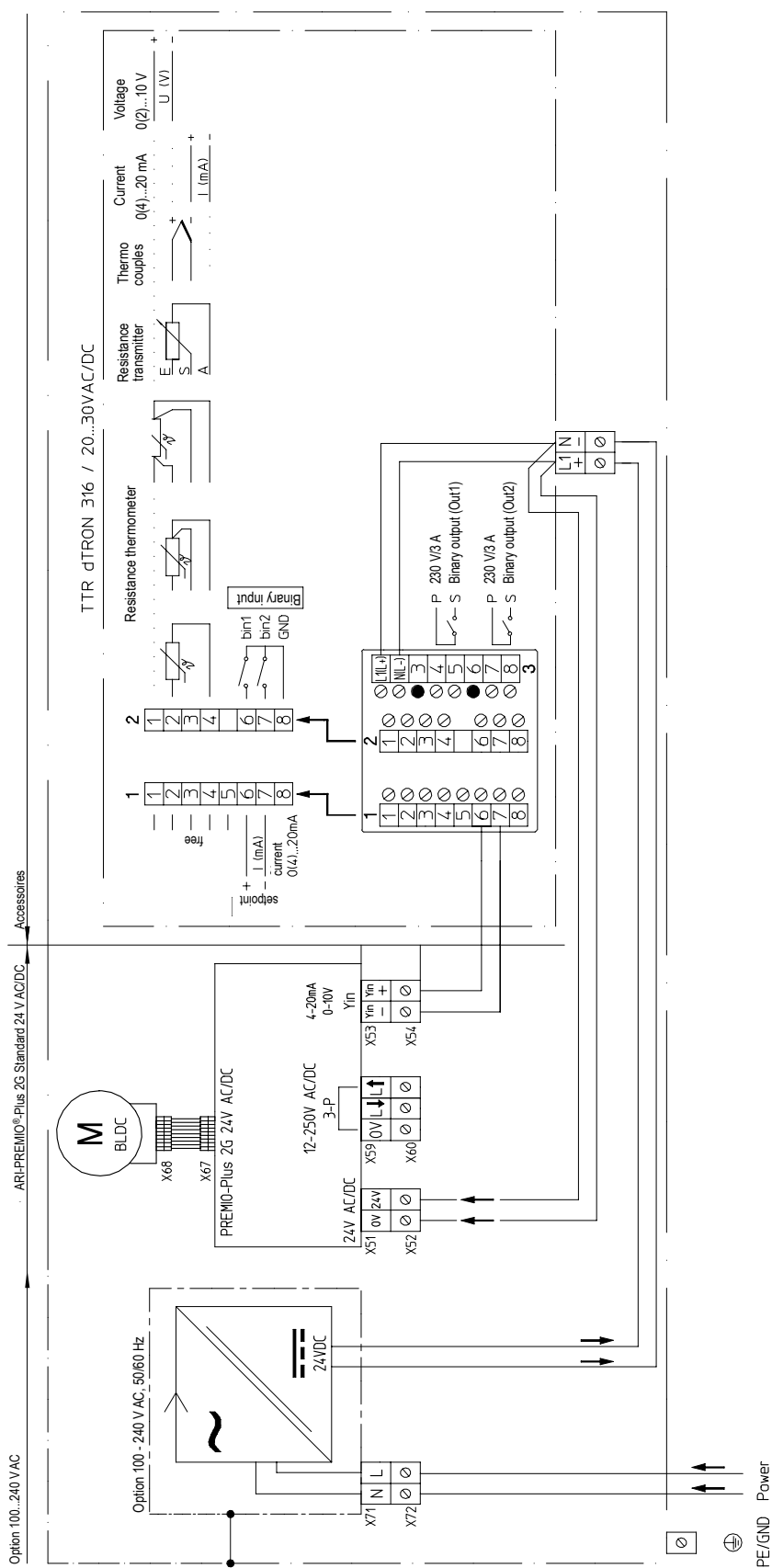
3-way valve with mixing plug

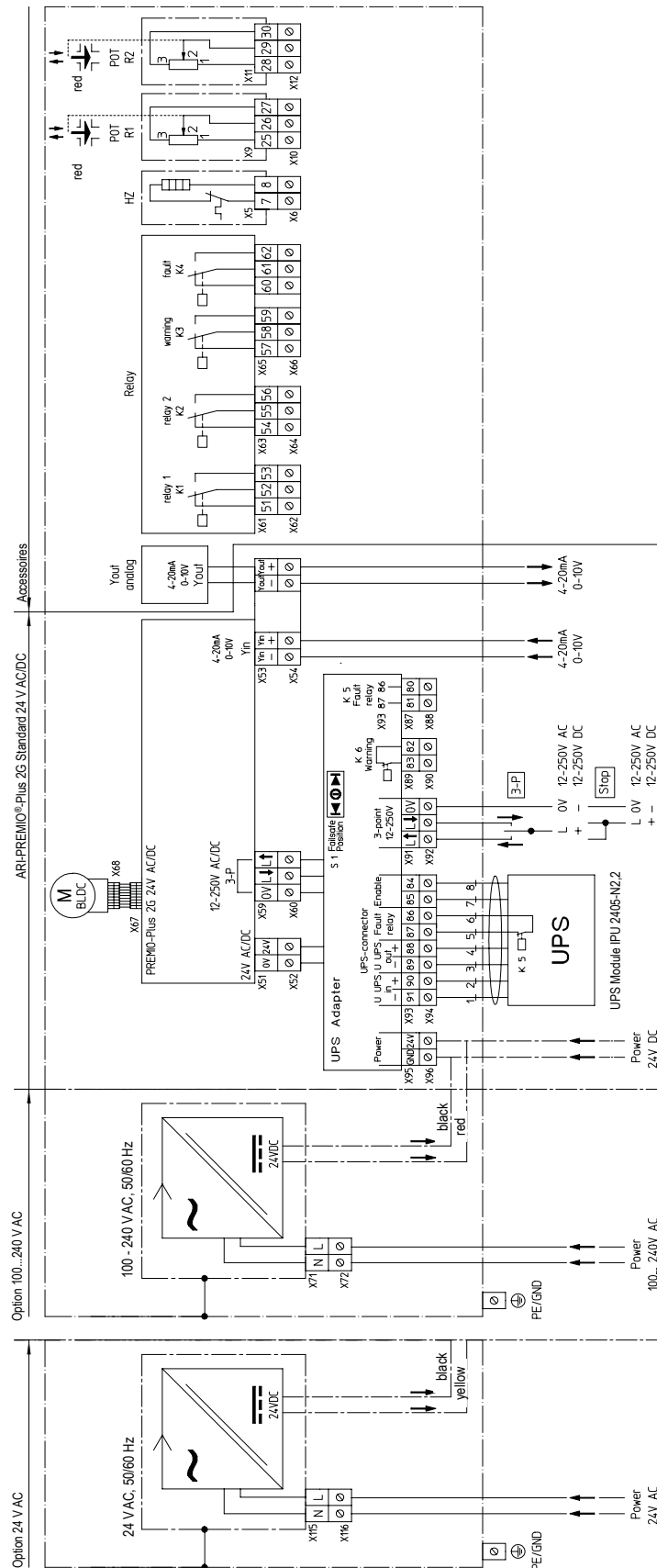
0V	N (MP)
↓	A - AB open
↑	B - AB open

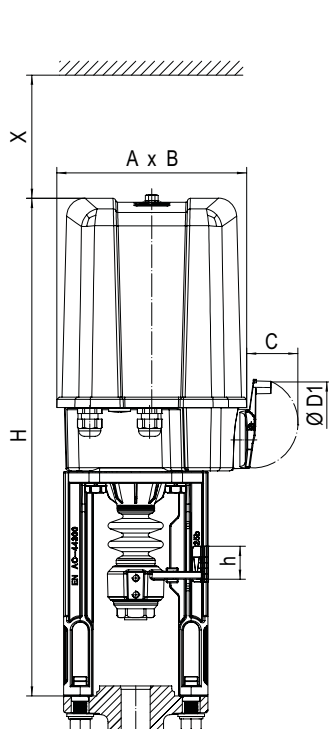
3-way valve with diverting plug

0V	N (MP)
↓	AB - B open
↑	AB - A open

HZ	Heating resistor
TTR	Electronic temperature
Relay	Relay board
Y out	Analog output card
POT	Potentiometer

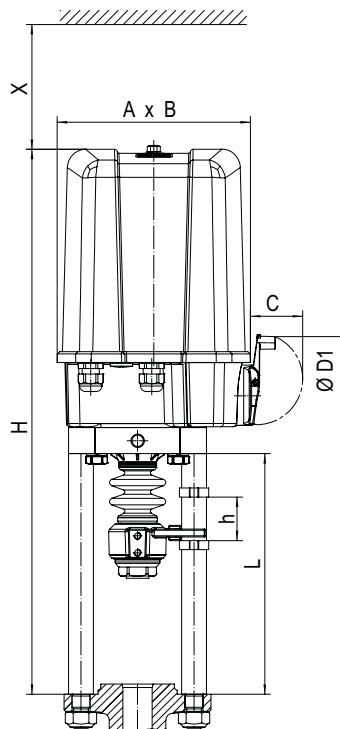






2,2 - 5 kN (495 - 1124 lbf)

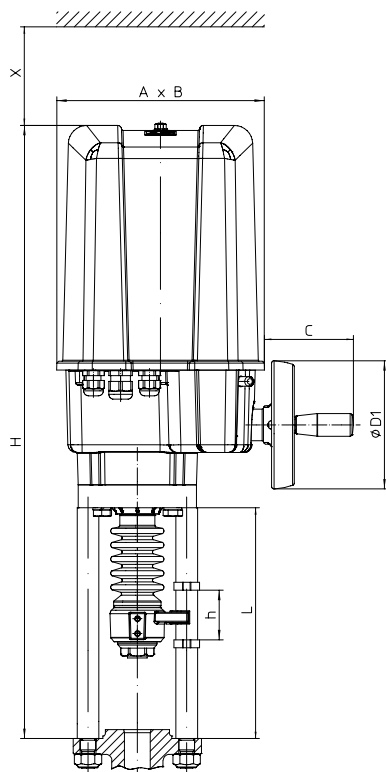
Nominal travel max. 1.18 in



2,2 - 5 kN (495 - 1124 lbf)

Nominal travel > 1.18 in - 1.97 in

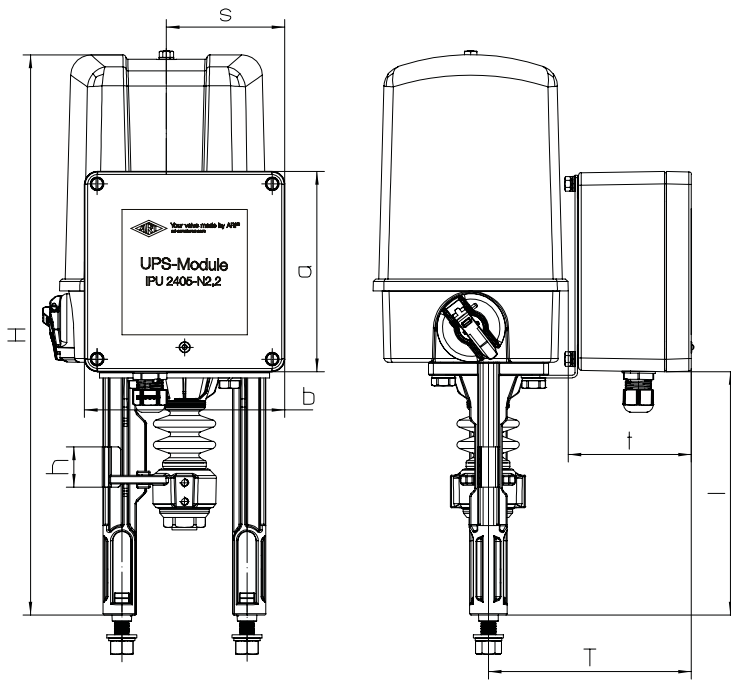
		2,2 - 5 kN (495 - 1124 lbf)	
A	(in)	6.73	
B	(in)	6.14	
C	(in)	1.97	
ØD1	(in)	3.82	
X	(in)	5.91	
H	(in)	17.6	18.9
h (Nominal travel)	(in)	max. 1.18	max. 1.97
L (Column)	(in)	for X=3.27	7.83 for X=3.86 8.39



12 - 25 kN (2698 - 5620 lbf)

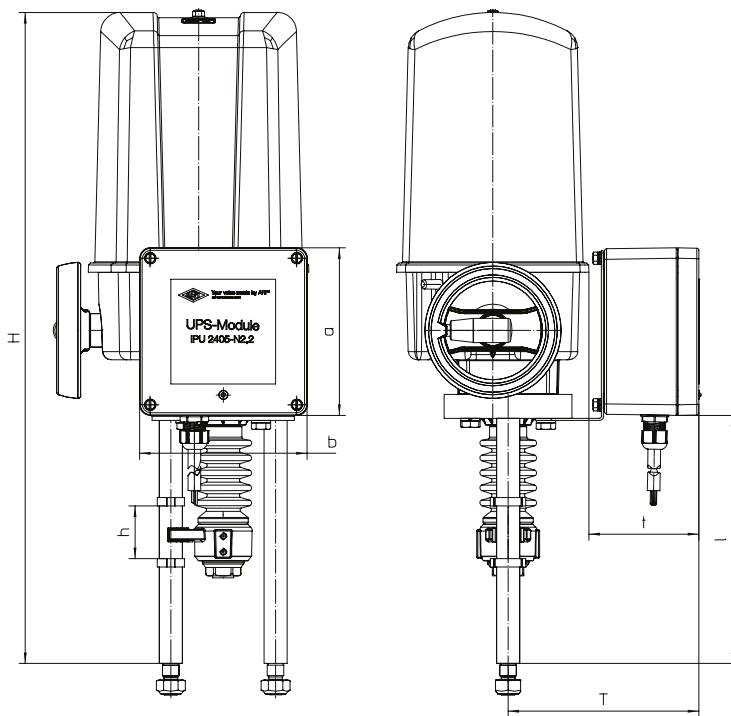
Nominal travel max. 3.15 in

		12 - 25 kN (2698 - 5620 lbf)		
A	(in)	8.27		
B	(in)	7.24		
C	(in)	3.82		
Ø D1	(in)	5.12		
X	(in)	7.87		
H	(in)	24.49	25.08	25.67
h (Nominal travel)	(in)	max. 1.97	max. 2.56	max. 3.15
L (Column)	(in)	9.21	9.80	for X=3.27 9.80 for X=3.86 10.4



2,2 - 5 kN (495 - 1124 lbf)

		2,2 - 5 kN (495 - 1124 lbf)	
a	(in)	6.3	
b	(in)	6.3	
t	(in)	3.9	
T	(in)	6.38	
s	(in)	3.74	
l	(in)	7.68	
H	(in)	17.6	18.9
h	(in)	max. 1.18	max. 1.97



12 - 25 kN (2698 - 5620 lbf)

		12 - 25 kN (2698 - 5620 lbf)		
a	(in)	6.3		
b	(in)	6.3		
t	(in)	4.13		
T	(in)	7.17		
l	(in)	9.33		
H	(in)	24.49	25.08	25.67
h	(in)	max. 1.97	max. 2.565	max. 3.15

If installing the ARI-Premio®-Plus 2G with UPS-Module, a distance of 20 mm must be maintained all around the UPS-Module.