



EA Series Electric Actuator
*(Weatherproof, Explosionproof,
Special Options)*



EA Series Electric Actuator
with Proportional Control Unit

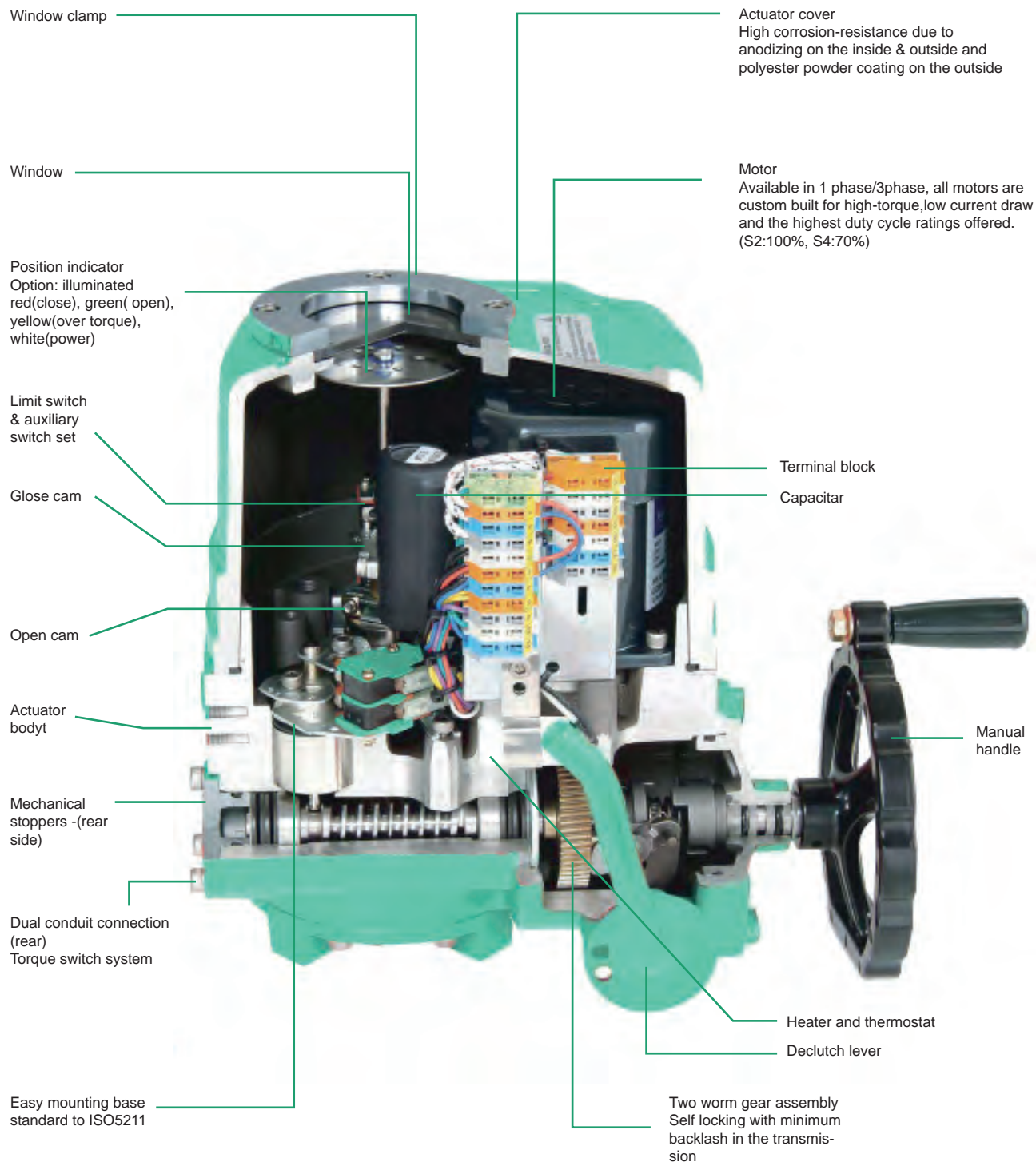
Description

- 1.- EA Series electric actuator is specially designed for quarter turn operating applications such as Ball, Butterfly, Plug valves, Dampers and similar usages. It's variation in wide range of output torque control options fit your specific requirement.
- 2.- EA Series electric actuator provides high reliability and performance for your automation plan.
- 3.- Compact, low weight and robust design due to high grade aluminum alloy for housing.
- 4.- High corrosion resistance due to hard anodizing on inside & outside and polyester coating on external surface.
- 5.- Various output torque from 80Nm to 3000Nm.
- 6.- Wide range of voltage available.
- 7.- Self locking with minimum backlash in the transmission.
- 8.- Rugged construction with o-ring system giving water and explosionproof (optional: explosionproof / Exd IIB T4, IP68).
- 9.- Handwheel for manual operation engaged by a manual / auto lever arranged for power preference.
- 10.- Easy mounting base standard to ISO5211.
- 12.- Std. 4 limit switches: 2 for operation, 2 for extra (dry contacts).
- 13.- Torque switches (except for EA-008).
- 14.- LED lamps on indicator monitoring valve position and operation (option).
- 15.- Space heater with thermostat for preventing overheat.
- 16.- Removable drive bushing with under hung for easy machining and tight connection.



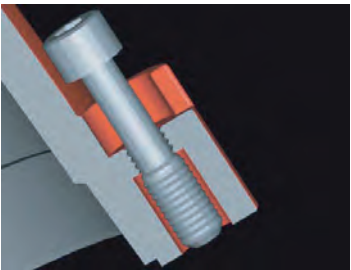

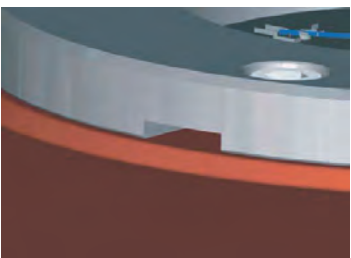
Features / Design

- 1.- Motor Power : DC24V
AC110/220V, 1PH, 50/60Hz ±10%
AC220/380/440/460/480V, 3PH, 50/60Hz ±10%
- 2.- Flexible option : LCU, RBP, PCU, etc.
- 3.- Enclosure : weather proof - IP67, IP68
explosion proof - Ex d IIB T4(IECEX, ATEX ...)
- 4.- 4x limits switches(standard) - except EA-008/010.
2x torque switches(standard) - except EA-008/010.
- 5.- Reversible fan cooling motor.
- 6.- ON/OFF or Modulating.
- 7.- ISO 5211 mounting base.

Construction



Standard Configuration

STANDARD CONFIGURATION	
<p>Terminal block</p> <ul style="list-style-type: none"> ■ Enough number of terminal strips for customer's convenience ■ Proven reliability and tight wiring connection. ■ Stripped length: 8-9 mm/ 0.33 in(2.5mm2) ■ Terminal dimensions: 1 O x 22 x 32mm 	
<p>Heater</p> <ul style="list-style-type: none"> ■ Ceramic housing with thermostat to prevent over heat comparing with set temperatura. ■ No risk of electricity leakage. 	
<p>Captive cover bolt</p> <ul style="list-style-type: none"> ■ Cover bolts are specially designad to prevent losing it during maintenance or installation. ■ All external bolts are stainless steel for rust prevention. 	
<p>Indicator sustained by spring</p> <ul style="list-style-type: none"> ■ Direction of visual indicator is set by factory. ■ In case of changing it's direction, just grip the indicator plate and change the position. ■ Spring beneath indicator plate sustains the set position unchanged. ■ No need to loose screw and tight it again at all ! 	
<p>Slot on window cover for draining rainwater</p> <ul style="list-style-type: none"> ■ Rainwater inside of window cover may affect the sealing of window. ■ To prevent this, drain slot is useful to prevent this effect. 	

EA Series



Performance

EA MODEL	Max. output torque (kgf.m)	Operating time (Sec.) 50/60 Hz (90)	Mounting bore size (Ømm)	Rated current (A), (50/60Hz)									Duty rate S4(%)	No. of handle turn (N)	Weight (kg)
				DC 24	AC, 1 phase, 50/60 Hz				AC, 3 phase, 50/60 Hz						
					100	110	200	220	380	440	460				
EA-008	8	16/13	20	3.7	1.3/1.3	1.2/1.1	0.7/0.6	0.6/0.6	0.2/0.3	0.6/0.4	NA	70	10	7	
EA-010	10	20/17	20	4.0	1.3/1.3	1.2/1.1	0.7/0.7	0.7/0.6	2.3/0.3	0.6/0.4	NA	70	10	7	
EA-015	15	25/21	22	5.3	2.4/2.2	2.1/2.0	1.1/1.1	1.0/1.0	0.6/0.4	0.6/0.4	0.6/0.4	70	11	17	
EA-020	20	25/21	22	6.5	2.5/2.3	2.2/2.1	1.2/1.2	1.1/1.1	0.7/0.5	0.6/0.4	0.6/0.4	70	11	17	
EA-030	30	31/26	35	8.6	2.3/2.7	2.2/2.4	1.1/1.4	1.0/1.3	0.6/0.5	0.4/0.3	0.4/0.3	70	13.5	22	
EA-050	50	31/26	35	12.8	3.6/4.6	3.3/4.2	1.9/2.1	1.7/1.9	0.9/0.8	0.8/0.5	0.7/0.5	70	13.5	23	
EA-060	60	31/26	35	NA	3.8/4.9	3.4/4.4	2.1/2.3	1.9/2.0	1.0/0.9	1.4/0.9	1.3/0.9	70	13.5	23	
EA-080	80	37/31	45	NA	6.0/6.3	5.4/5.7	2.9/3.1	2.6/2.8	1.3/1.0	1.7/0.9	1.6/0.9	70	16.5	29	
EA-120	120	37/31	45	NA	7.2/7.6	6.5/6.9	3.1/3.3	2.8/3.0	1.5/1.1	1.8/1.0	1.7/0.9	70	16.5	29	
EA-200	200	37/31 ⁽¹⁾	65	NA	6.0/6.3	5.4/5.7	3.4/3.3	3.1/3.0	1.4/1.0	1.7/1.0	1.6/0.9	50	49.5	75	
EA-300	300	112/93	65	NA	7.2/7.6	6.5/6.9	3.1/3.3	2.8/3.0	1.5/1.1	1.8/1.0	1.7/0.9	50	49.5	75	

Standard Specification

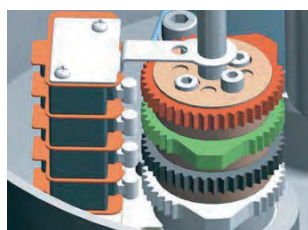
Enclosure	Weatherproof enclosure IP67, NEMA 4, 4X and 6
Power supply	11 O / 220V ac 1 ph, 380 / 440V ac 3ph 50 / 60Hz, ± 10%
Control power supply	110 / 220V ac 1 ph, 50 / 60Hz, ± 10%
Duty cycle(on-off)	S2, 100% Max 30Min
Duty cycle(modulating)	S4, 40~70% Max 300-1600 starUhour (Option :100%)
Motor	Induction motor (Reversible motor)
Limit switches	Open / close, SPDT, 250V ac 16A rating
Additional limit switches	Open / close, SPDT, 250V ac 16A rating (except HQ-008/010)
Torque switches	Open / close, SPDT, 250V ac 16A rating (except HQ-008/010)
Stall protection/operating temp	Built-in thermal protection, open 150°C± 5°C / close 9TC ± 15°C
Travel angle	90° ±10° (0-110°)
Indicator	Continuous position indicator
Manual override	Declutching mechanism
Self locking	Provided by double worm gearing
Mechanical stopper	2 x external adjustable screws
Space heater	10W(110/220V ac) Anti-condensation
Cable entries	General- PF3/4' x2 Explosion proof: NPT 3/4' x2 or M25x2
Lubrication	Grease moly (EP type)
Terminal block	Spring loaded lever push type
Materials	Steel, Aluminium alloy, Al bronze, Polycarbonate
Ambient temperature	-20°C ~+ 7D°C (except option electronic board) (Option :-40°C), Explosion proof: -20~+60°C 90% Max
Ambient humidity	RH.(non-condensing)
Anti vibration	X Y Z 1 Og, 0.2~34Hz, 30minute
External coating	Anodizing treatment before dry powder, Polyester coating

Optional Specification

EXTB	Dust ignition proof -20-60 C (Ex tb filC 135 C Db)	EA-series
EXD	Explosion proof enclosure actuator -20 C - +60 C (Ex d 118 T4 Gb)	EA-series
WTA	Watertight enclosure actuator (IP68 1 Om 72hr)	EA-series
PIU	Potentiometer unit (0-1 Kil)	EA-series
PCU	Proportional control unit (input, output 0-1 OV DC, 4-20mA DC)	EA-series
ATS	Additional torque switches (SPDT x 2ea 250V AC 1 OA rating)	except EA-008/010
LCU-8	Integral control (LCU + IMS + phase protect indicator)	except EA-008/010
LCU-C	Digital display control (LCU + IMS + auto phase discriminator)	except EA-008/010
CPT	Current position transmitter (output 4-20mA DC)	EA-series
EXT	Extension angle 120 , 180 , 270 turn	except EA-200, 300
RBP	Rechargeable battery backup	EA-008/010, 015, 020, 030
DCM	DC motor (24V DC)	EA-008/010, 015, 020, 030
ADCM	Multi AC/DC 24V(integral)	EA-008/010, 015, 020, 030
LPA	Lever plate actuator	except EA-008/010
SLU	Signal lamp unit (white-power on, red-open, green-close, yellow-over torque)	except EA-008/010
FPA1	Fire proofing actuator 1050 ± 5 C / 50min	Engineering consult in advance
FPA2	Fire proofing actuator 250 ± 5 C / 150min	Engineering consult in advance
SPD	Surge protection device (Max1 .5kW)	



(Standard cam)

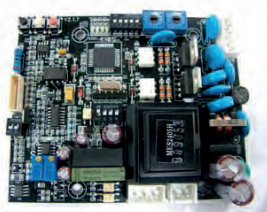


(Cam block)



(D-type cam)

- 2 travel limit switches for operation.
- 2 auxiliary limit switches as dry contact for customer use.
- Easy setting from upside by two screws for tight lockup.
- Each cam be set independently.



(Proportional Control Unit (PCU))



Potentiometer Kit (PIU)



- Input signal range : 0~1 0VDC,
- 1~5VDC, 4~20mA, 20~4mA.
- Output signal range : 4~20mA, 0~10VDC.
- Adjustable range : Zero 8mA, Open 16mA.
- Position conversion accuracy : ± 0.5~1.5% (depends on installation).
- 0~1 k ohm (± 0.5%), high resolution.



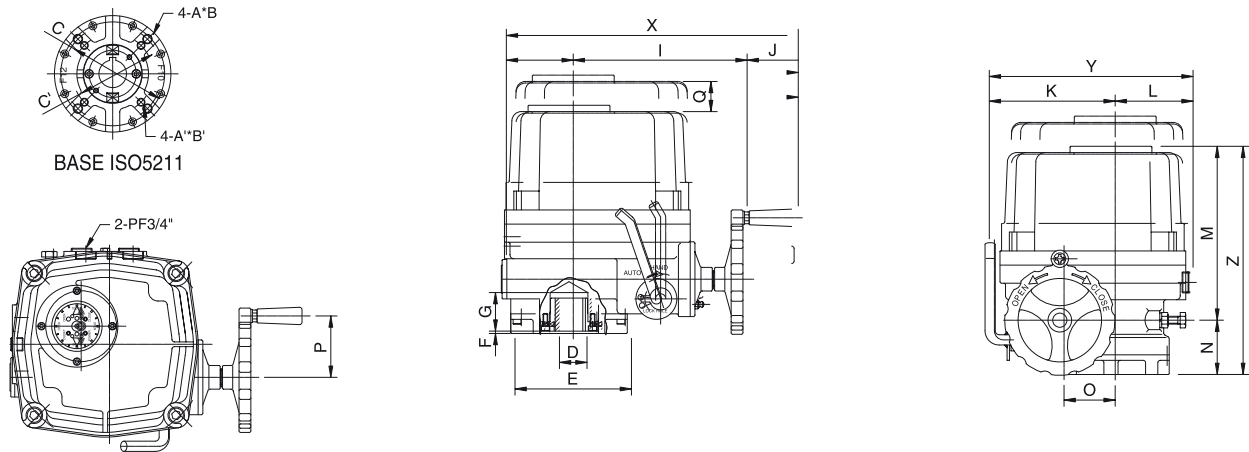
Rechargeable Battery Backup



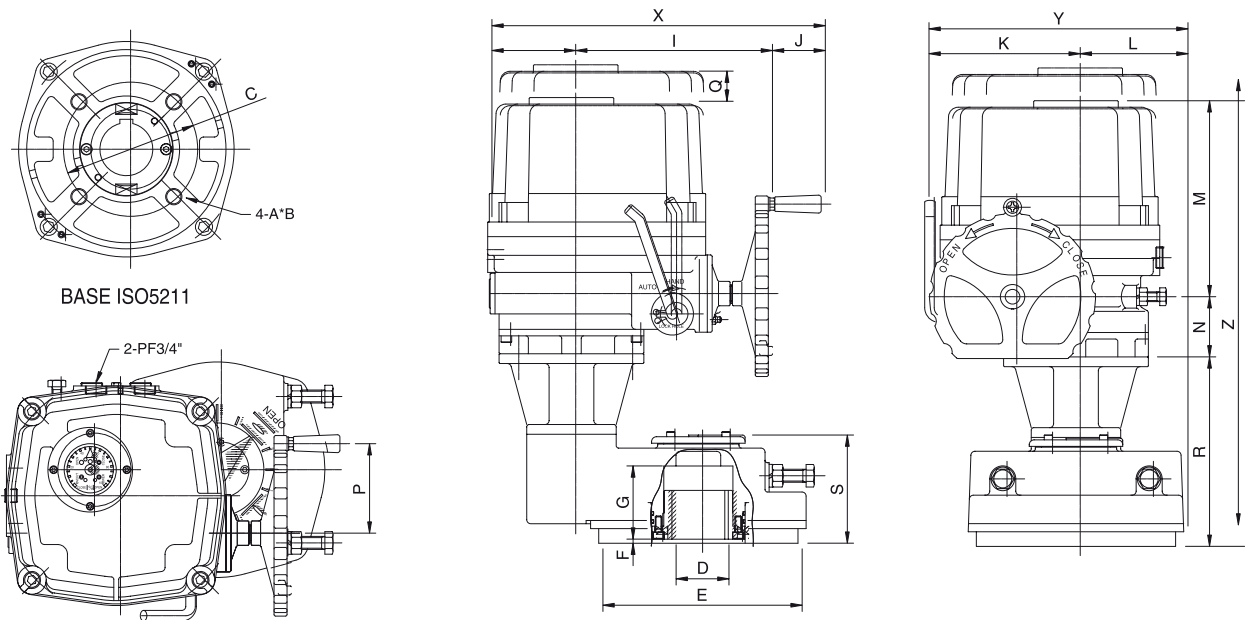
Fire Proofing Actuator (FPA)

Dimensional Drawing

EA008, EA010, EA015, EA020, EA030, EA050, EA060, EA080, EA120



EA200, EA300

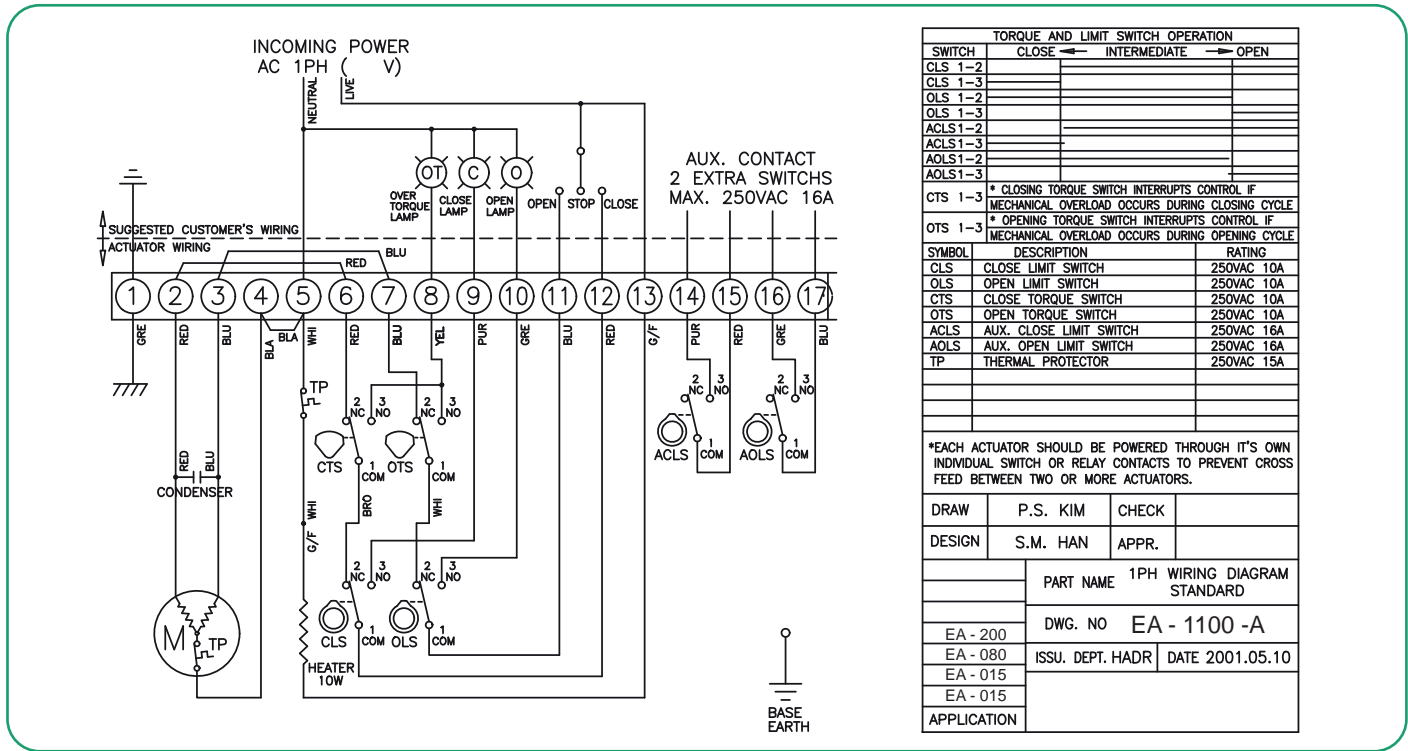


Dimensions (mm)

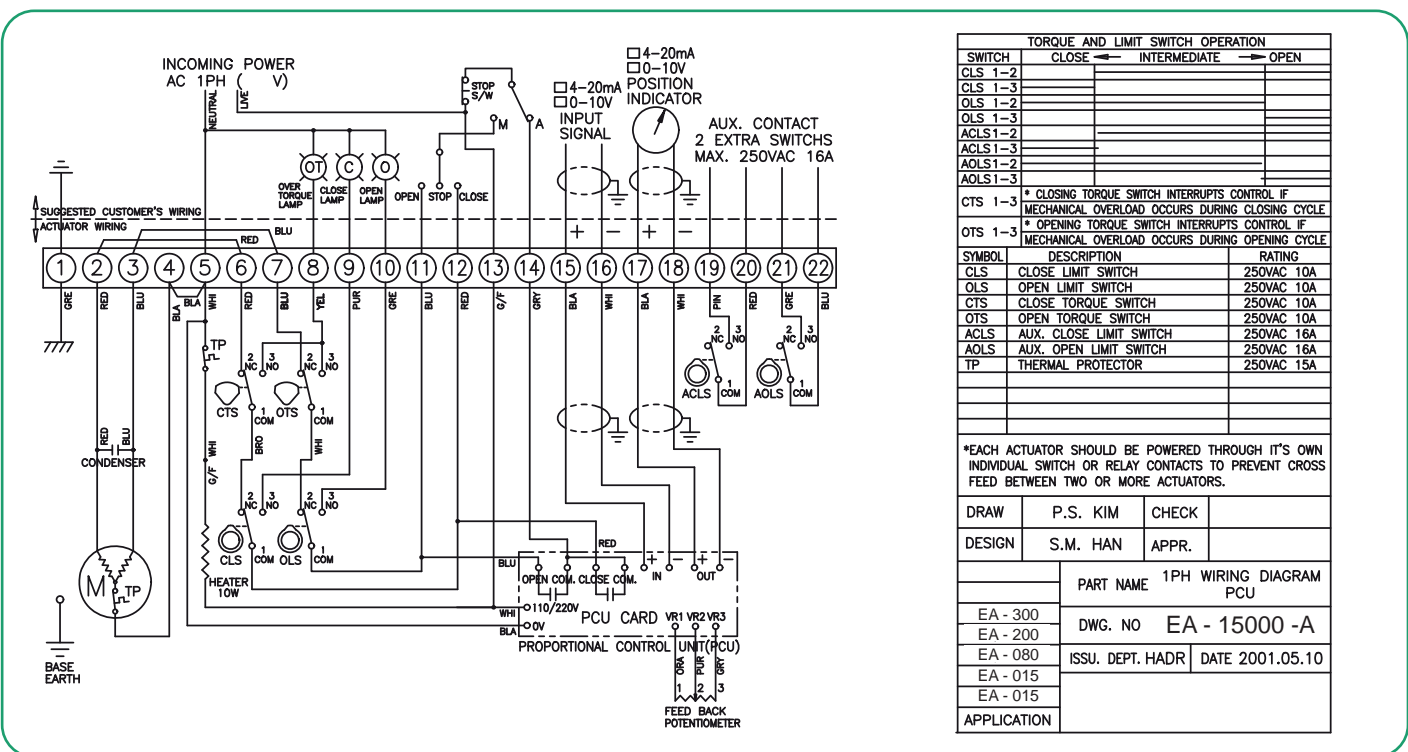
HQ (MODEL)	Base ISO 5211 ØC	A B	D (max.)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
EA-008	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
	Ø 70	12																			
EA-010	F07	M8	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
	Ø 70	12																			
EA015	F07 / F10	M8 / M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	338	229	268
	Ø70 / Ø102	12 / 15																			
EA-020	F07 / F10	M8 / M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	338	229	268
	Ø70 / Ø102	12 / 15																			
EA-030	F10 / F12	M10 / M12	35	148	3	49	82	221	65	160	99	221	69	65	78	180	-	-	368	259	290
	Ø102 / Ø125	15 / 18																			
EA-050	F10 / F12	M10 / M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	368	259	304
	Ø102 / Ø125	15 / 18																			
EA-060	F10 / F12	M10 / M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	368	259	304
	Ø102 / Ø125	15 / 18																			
EA-080	F12 / F14	M12 / M14	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	410	297	330
	Ø125* / Ø140	18 / 24																			
EA-120	F12 / F14	M12 / M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	410	297	330
	Ø125 / Ø140	18 / 24																			
EA-200	F14* / F16	M16* / M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	410	319	563
	Ø140* / Ø165	24* / 30																			
EA-300	F14* / F16	M16* / M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	410	319	563
	Ø140* / Ø165	24* / 30																			

NOTE: * F14" is drilled by request.

Standard Type (1- phase, 50/60Hz)



Proportional Type (1- phase, 50/60Hz)



LCU-B: Integral Control

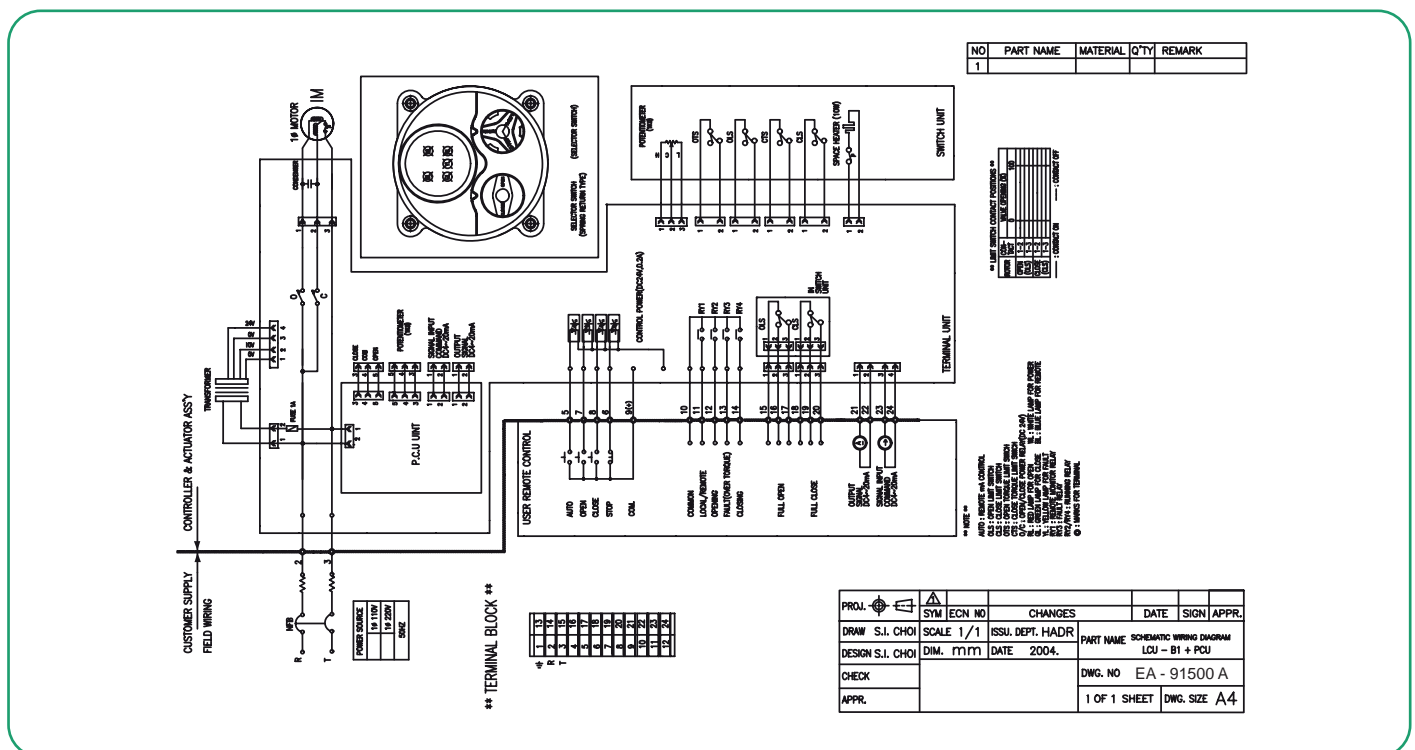
- Light, compact & Integrated design (IMS, Local/Remote control).
- Wide range of electric power application.
- 1 </; AC 110~220V 50/60Hz.
- 3 </; AC 220V~460V 50/60Hz.
- Phase protect monitoring by LEO in case of wrong wiring.
- Easy application for EA-series actuators.
- Various option available (Outy cycle:70%).



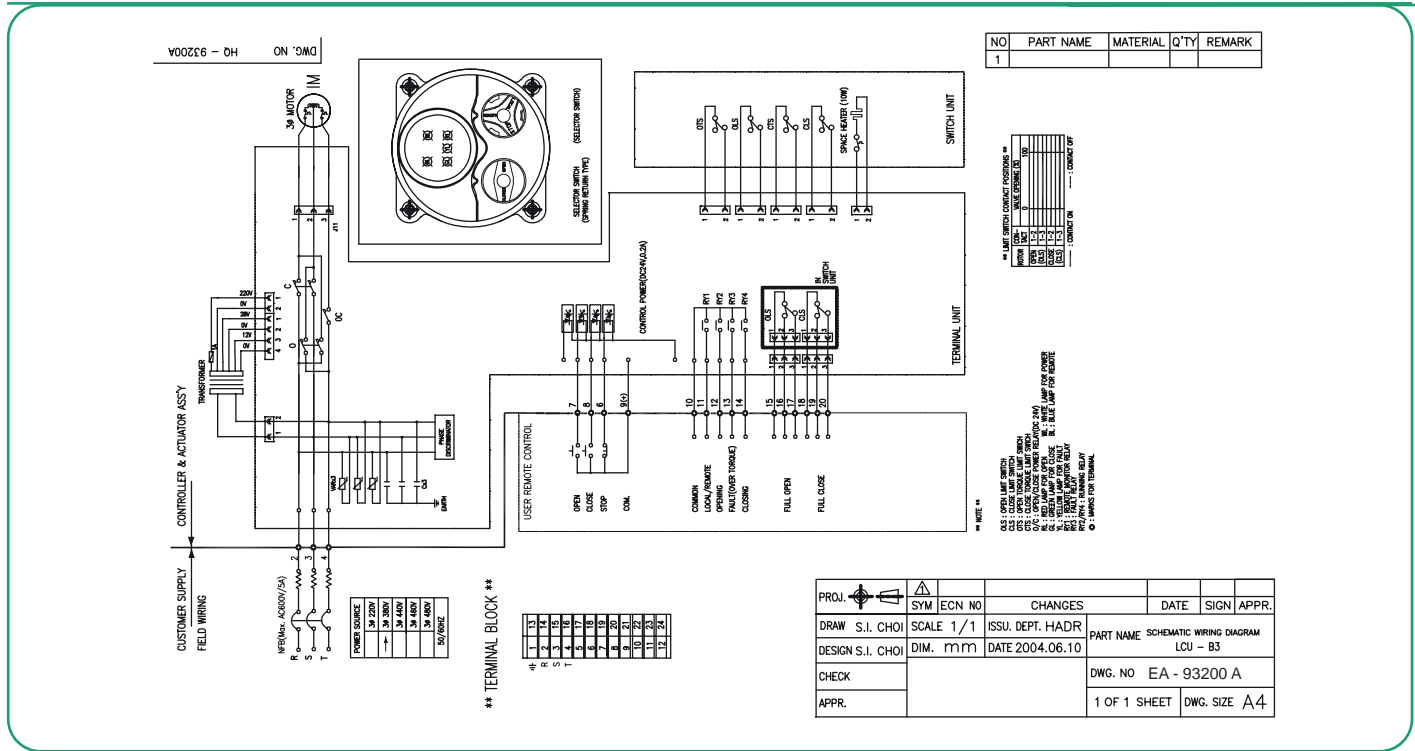
LEO lamp signal		
White	○	: Power
Blue	●	: Remote
Yellow	●	: Fault
Red	●	: Open / Opening
Green	●	: Close / Closing



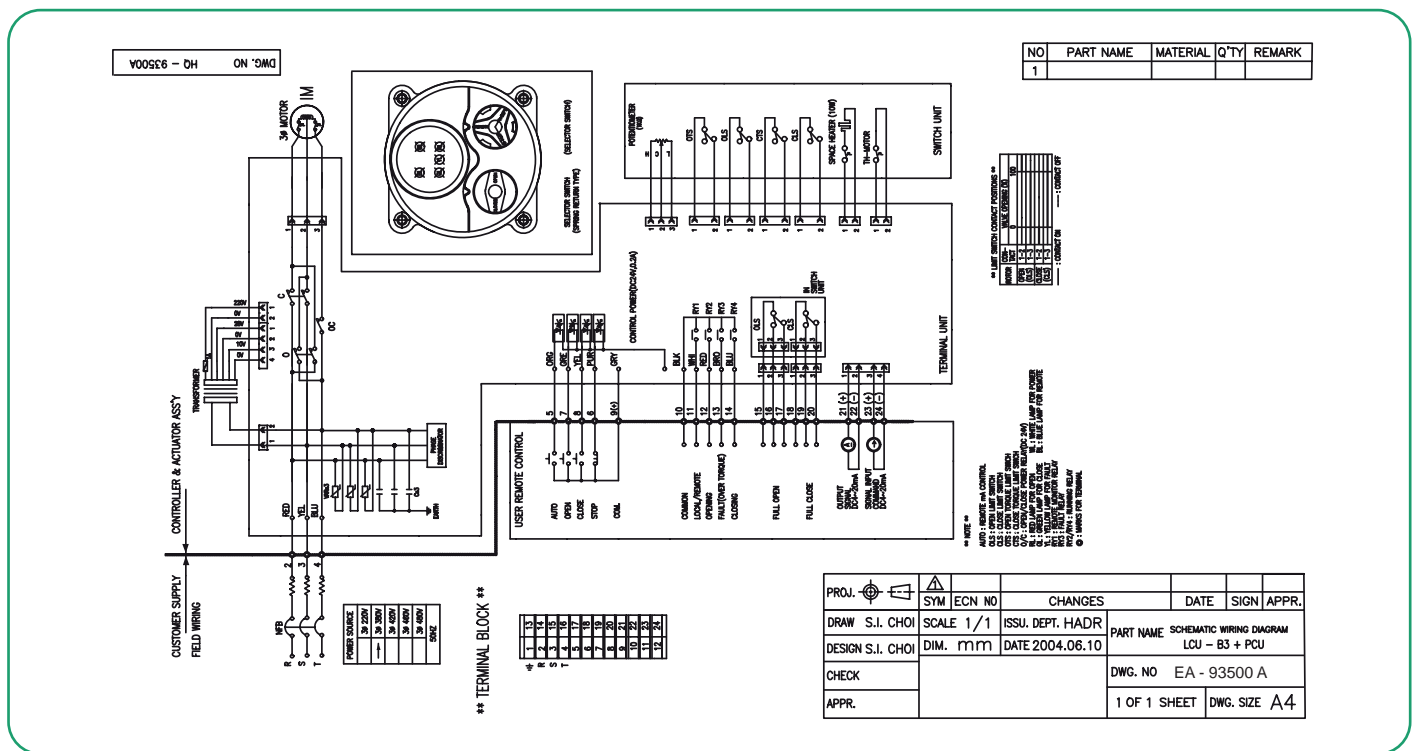
LCU-B Wiring (1-phase, 50/60Hz, proportional type)



LCU-B Wiring (3-phase, 50/60Hz, on-off type)

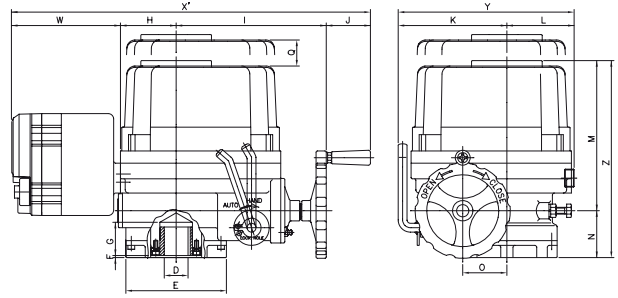
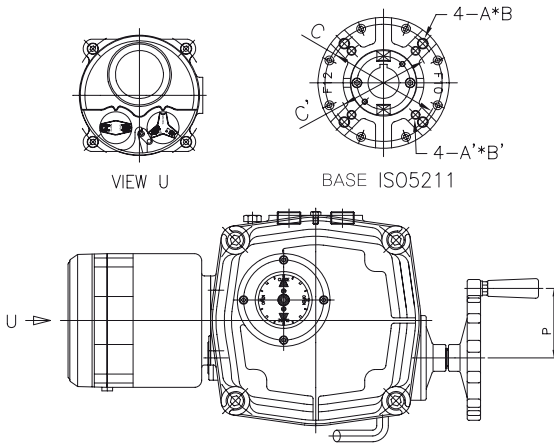


LCU-B Wiring (3-phase, 50/60Hz, proportional type)

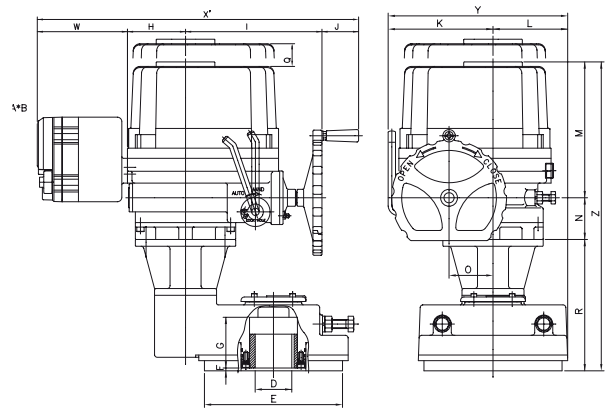
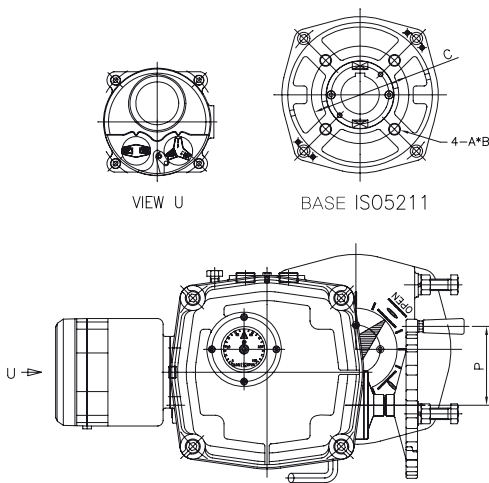


Dimensional Drawing (with LCU-B)

EA015, EA020, EA030, EA050, EA080, EA120



EA200, EA300



Dimensions (with LCU-B) (mm)

HQ (MODEL)	Base ISO 5211 ØC	A B	D (max.)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	W	X	Y	Z
EA015	F07 / F10	M8 / M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	160	338	229	268
	Ø70 / Ø102	12 / 15																				
EA-020	F07 / F10	M8 / M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	160	338	229	268
	Ø70 / Ø102	12 / 15																				
EA-030	F10 / F12	M10 / M12	35	148	3	49	82	221	65	160	99	221	69	65	78	180	-	-	160	368	259	290
	Ø102 / Ø125	15 / 18																				
EA-050	F10 / F12	M10 / M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	368	259	304
	Ø102 / Ø125	15 / 18																				
EA-060	F10 / F12	M10 / M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	368	259	304
	Ø102 / Ø125	15 / 18																				
EA-080	F12 / F14	M12 / M14	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	160	410	297	330
	Ø125 / Ø140	18 / 24																				
EA-120	F12 / F14	M12 / M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	160	410	297	330
	Ø125 / Ø140	18 / 24																				
EA-200	F10* / F16	M16* / M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	160	410	319	563
	Ø140* / Ø165	24* / 30																				
EA-300	F14* / F16	M16* / M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	160	410	319	563
	Ø140* / Ø165	24* / 30																				

NOTE: * Wiring drawings are provided upon request.

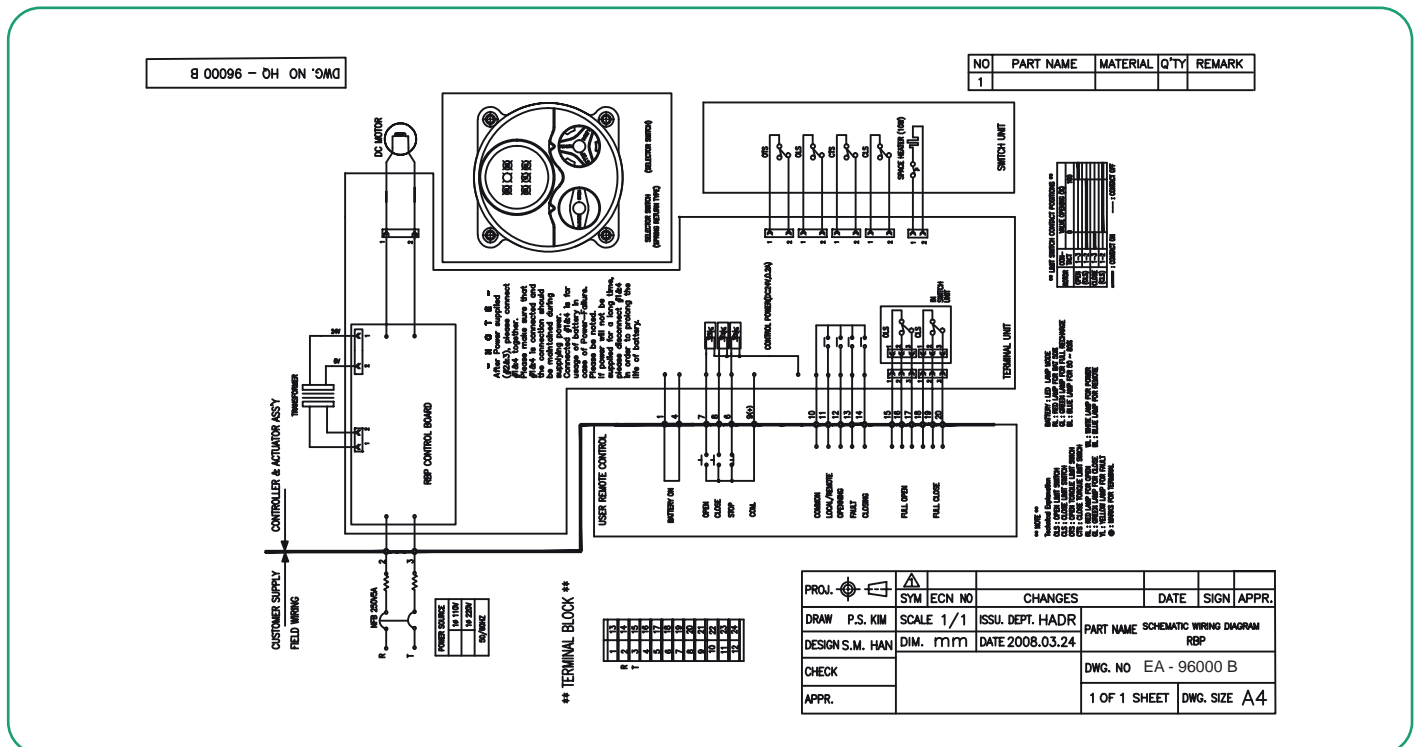
RBP: Rechargeable Battery Backup

- Emergency application when power failed at site.
- 1 phase power.
- Litium battery.
- Indication of battery level.
- Automatic recharge.
- 5 times operation per hour.

LEO lamp signal		
White	○	: Power
Blue	●	: Remote
Yellow	●	: Fault
Red	●	: Open / Opening
Green	●	: Close / Closing
GBR	●	: Battery level



RBP wiring (1-phase, 50/60Hz, on-off type)

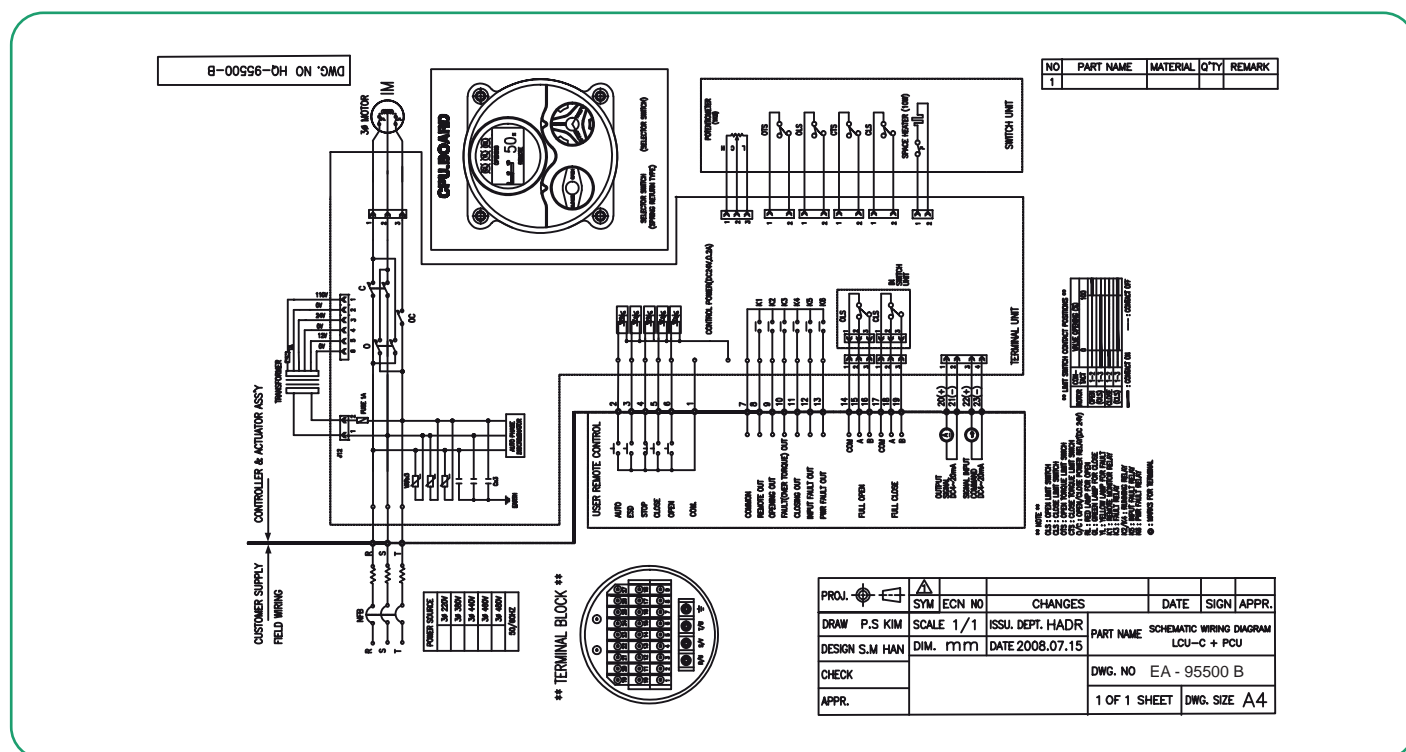


LCU-C : Digital Display Control

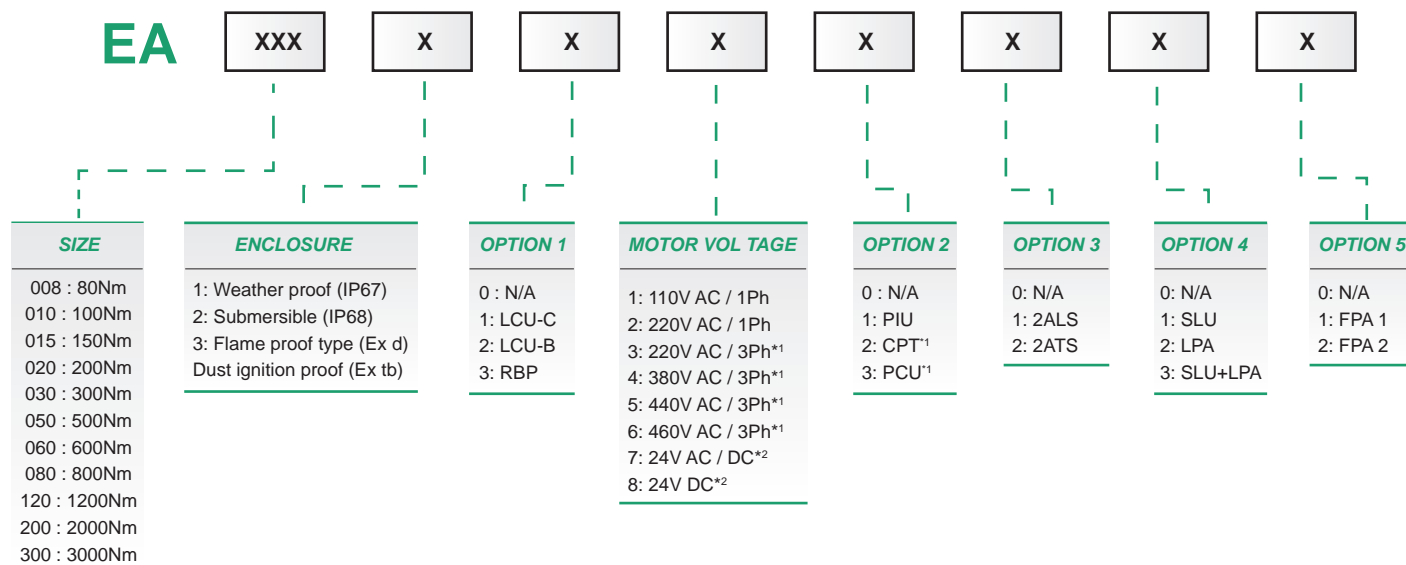
- Light, Compact & Integrated design.
- Wide range of electric power application.
(AC 220V~AC460V/3-phase, No Fuse Break Max.AC600V/5A).
- Built-in auto phase discriminator (Easy & convenient wiring).
- Digital indicator with number, bar graph & literature.
- Seperate terminal chamber.
- (Reliable against water, vibration, temp, etc).
- Easy application for EA-series actuators.
- Various option available.



LCU-C Wiring (3-phase, 50/60Hz, proportional type)



How to Order



NOTES:

Asterisk*1 : EA-008 through 010 actuators shall not be applied to the above condition.
 Asterisk*2 : EA-050 through 300 actuators shall not be applied to the above condition.
 2ATS/2ALS shall not be available far EA-008 and far HQ-015 through 020 actuators with PCU.
 When LCU-B option applied, EA-015 through 300 actuators shall be available on the full condition of motor voltages except DC 24V.
 When LCU-C option applied, HQ-015 through 300 actuators shall be available on the condition of 220V through 460V 3 phase of voltages and shall not be available with PIU/CPT.
 Option RBP is available only far HQ-008, 010, 015, 020, 030.
 More details should be advised to the manufacturer.

