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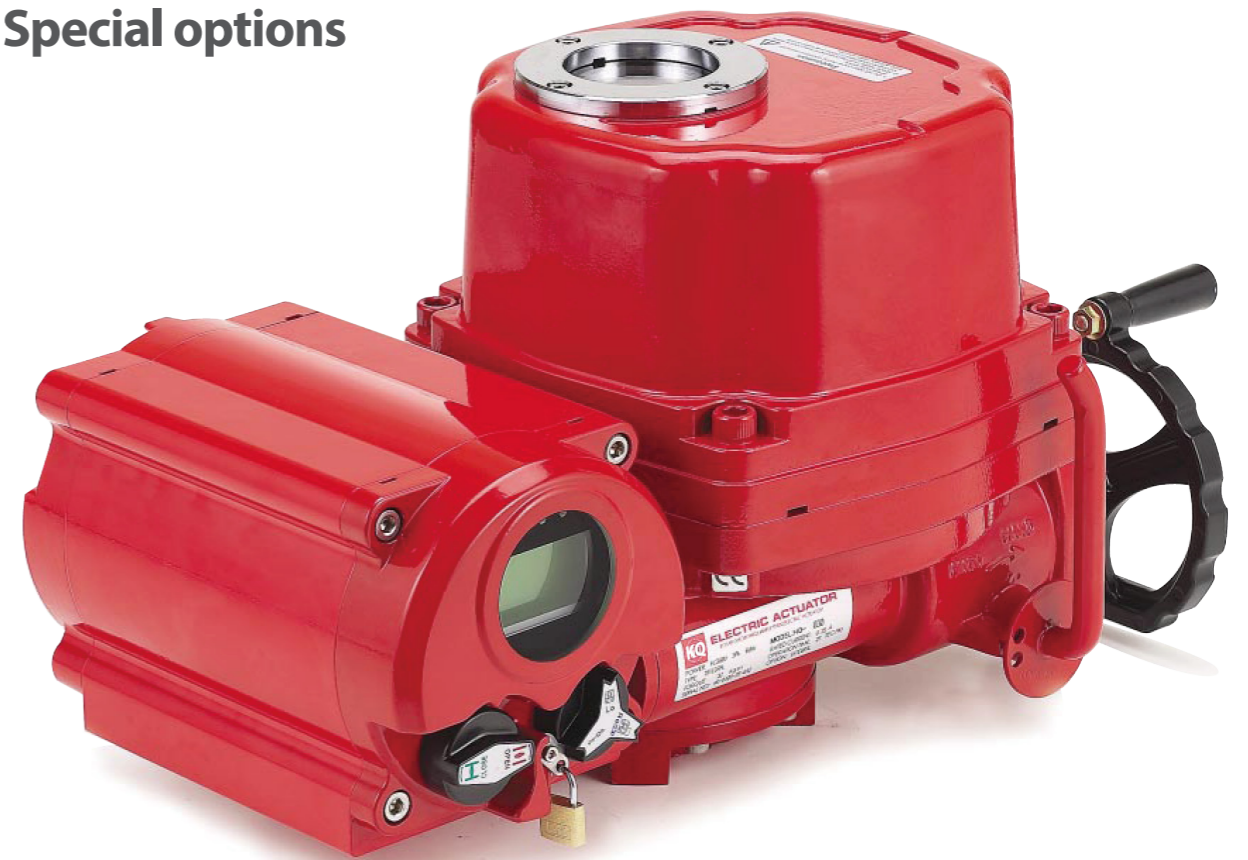


Hologram shall be put on all products manufactured in the factory.



# ELECTRIC ACTUATOR KQ - SERIES

**Weather proof  
Explosion proof  
Special options**



Patent No. : 0233636, 0366306, 0382861  
Design Right No. : 0303037, 0400783, 0408882



**VALVE AUTOMATION**  
HT-LIT 01322E 03/08

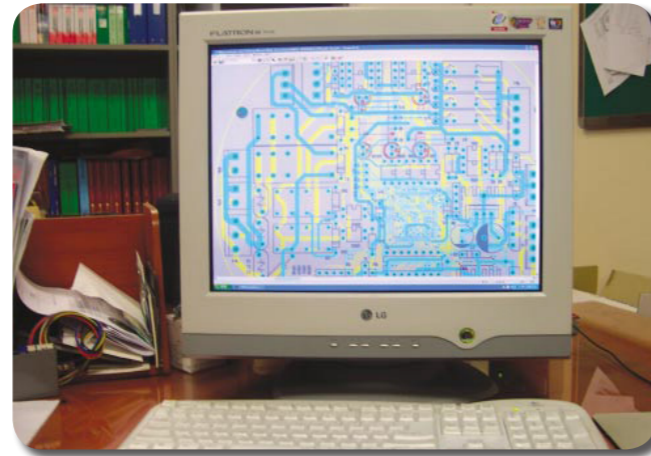


***ELECTRIC ACTUATOR  
KQ - SERIES***

**Weather proof  
Explosion proof  
Special options**



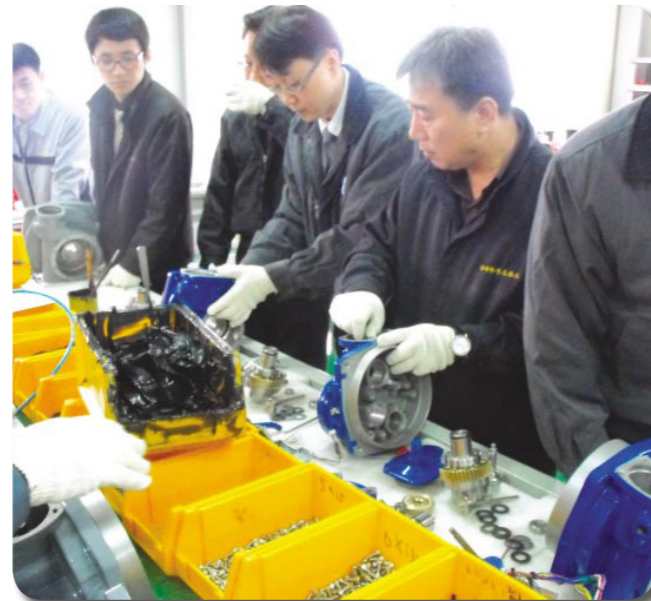
**Research and Development Center**



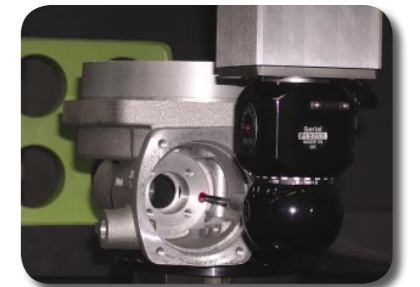
**Aluminum Die-Cast Foundry**



**Training & Education Center**



**Programmed Machining Center**



**Test Equipment**

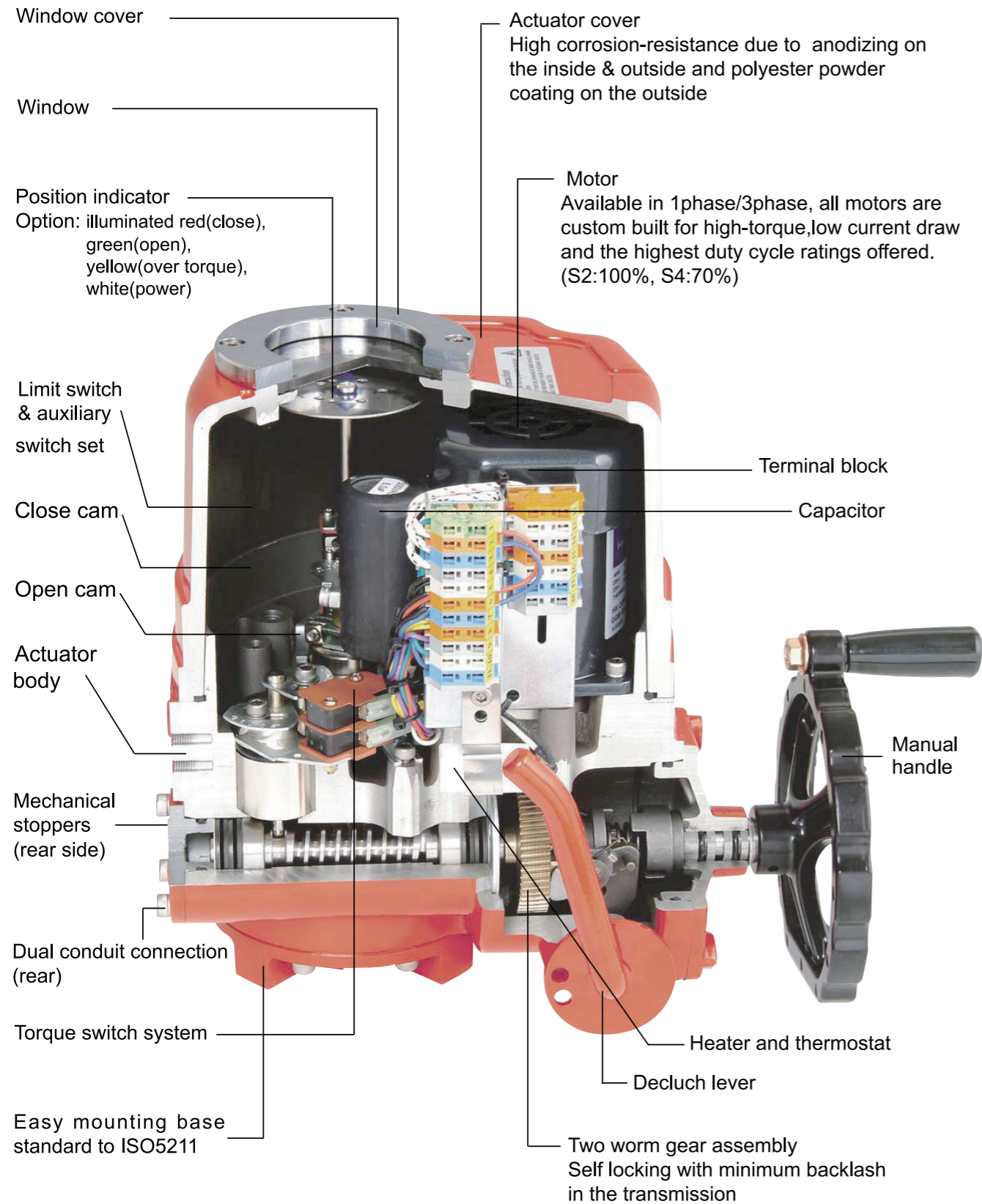


**Assembly**

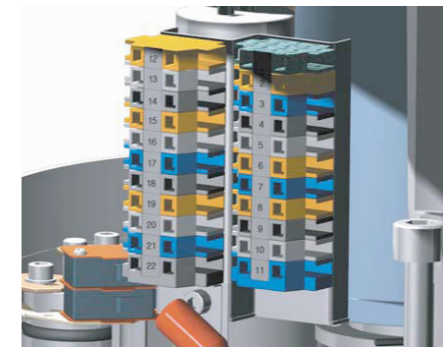




**Construction**



**Standard Configuration**



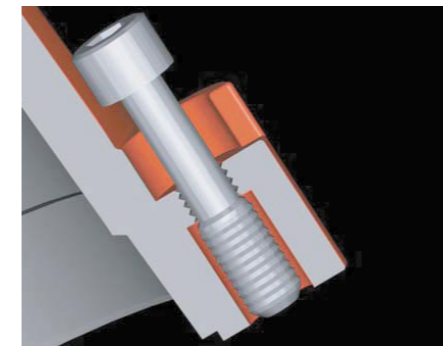
**Construction**

- Enough number of terminal strips for customer's convenience
- Proven reliability and tight wiring connection.
- Stripped length: 8-9 mm / 0.33 in(2.5mm<sup>2</sup>)
- Terminal dimensions: 10 X 22 X 32mm



**Heater**

- Ceramic housing with thermostat to prevent over heat comparing with set temperature.
- No risk of electricity leakage.



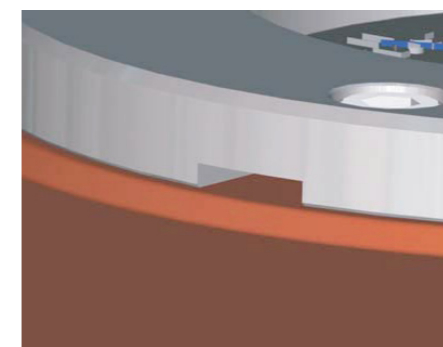
**Captive cover bolt**

- Cover bolts are specially designed to prevent losing it during maintenance or installation.
- All external bolts are stainless steel for rust prevention.



**Indicator sustained by spring**

- 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 !



**Slot on window cover for draining rainwater**

- Rainwater inside of window cover may affect the sealing of window.
- To prevent this, drain slot is useful to prevent this effect.





# Electric Actuator KQ Series



## KQ Series



Duty 70~100%



## Performance

KQ (MODEL)	Maximum output torque Kg-m	Operating time(sec.) 60/50Hz	Maximum bore size mm	Motor class F power(W) 60Hz/50Hz		Rated current(A) 60Hz/50Hz				Duty cycle IEC 34-1	Number of handle turn N	Weight Kg
				1 Phase	3 Phase	1 Phase		3 Phase				
						110V	220V	380V	440V			
KQ-008	8	13/16	φ 20	106/103	N/A	1.00/0.97	0.45/0.45	N/A	N/A	70	10	7.4
KQ-010	10	16/20	φ 20	106/103	N/A	1.00/0.97	0.47/0.45	N/A	N/A	70	10	7.4
KQ-015	15	21/25	φ 22	185/166	112/216	1.70/1.50	0.84/0.73	0.28/0.37	0.36/0.59	70	11	16.6
KQ-020	20	21/25	φ 22	185/166	112/216	1.70/1.50	0.84/0.73	0.28/0.37	0.36/0.59	70	11	16.6
KQ-030	30	26/31	φ 35	177/148	130/171	1.67/1.37	0.81/0.68	0.27/0.33	0.34/0.55	70	13.5	22
KQ-050	50	26/31	φ 35	390/410	184/236	3.56/4.27	1.30/1.40	0.42/0.51	0.47/0.66	70	13.5	23
KQ-060	60	26/31	φ 35	390/410	184/236	3.56/4.27	1.30/1.40	0.42/0.51	0.47/0.66	70	13.5	23
KQ-080	80	31/37	φ 45	483/389	312/427	4.93/3.59	2.20/1.80	0.61/0.83	0.67/1.10	70	16.5	29
KQ-120	120	31/37	φ 45	483/389	312/427	4.93/3.59	2.20/1.80	0.61/0.83	0.67/1.10	70	16.5	29
KQ-200	200	93/112	φ 65	483/389	312/427	4.93/3.59	2.20/1.80	0.61/0.83	0.67/1.10	70	49.5	75
KQ-300	300	93/112	φ 65	483/389	312/427	4.93/3.59	2.20/1.80	0.61/0.83	0.67/1.10	70	49.5	75

## Standard Specification

Enclosure	Weatherproof enclosure IP67, NEMA 4 and 6
Power supply	110 / 220V AC 1PH, 380 / 440V AC 3PH 50 / 60Hz, ±10%
Control power supply	110 / 220V AC 1PH, 50 / 60Hz, ±10%
Duty cycle(on-off)	S2, 100% Max 30Min
Duty cycle(modulating)	S4, 70% Max 300~1600 start/hour
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 97°C ± 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 × external adjustable screws
Space heater	10W(110/220V AC) Anti-condensation
Cable entries	Three PF3/4" tap (standard type only)
Lubrication	Grease moly (EP type)
Terminal block	Spring loaded lever push type
Materials	Steel, Aluminium alloy, Al bronze, Polycarbonate
Ambient temperature	-20°C ~ +70°C (except option electronic board)
Ambient humidity	90% RH Max.(non-condensing)
Anti vibration	X Y Z 10g, 0.2~34Hz, 30minute
External coating	Anodizing treatment before dry powder, Polyester

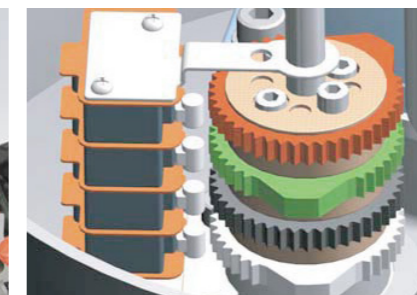
## Electric Actuator KQ-Series

## Standard Configuration

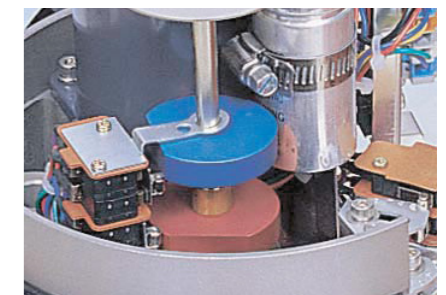
EXA	Explosionproof enclosure actuator (Excd II B T4)	KQ-series
WTA	Watertight enclosure actuator (IP68 10M 72HR)	KQ-series
PIU	Potentiometer unit (0~1kΩ)	KQ-series
PCU	Proportional control unit (input, output 0~10V DC, 4~20mA DC)	KQ-series
ATS	Additional torque switches (SPDT x 2EA 250V AC 10A Rating)	except KQ-008/010
LCU-B	Integral control (LCU + IMS + phase protect indicator)	except KQ-008/010
LCU-C	Digital display control (LCU + IMS + auto phase discriminator)	except KQ-008/010
CPT	Current position transmitter (output 4~20mA DC)	KQ-series
EXT	Extension 120°, 180°, 270° turn	except KQ-200, 300
RBP	Rechargeable battery backup	KQ-008/010, 015, 020, 030
DCM	DC motor (24V DC)	KQ-008/010, 015, 020, 030
ADCM	Multi AC/DC 24V(integral)	KQ-008/010, 015, 020, 030
LPA	Lever plate actuator	except KQ-008/010
SLU	Signal lamp unit (white-power on, red-open, green-close, yellow-over torque)	except KQ-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



(Standard cam)

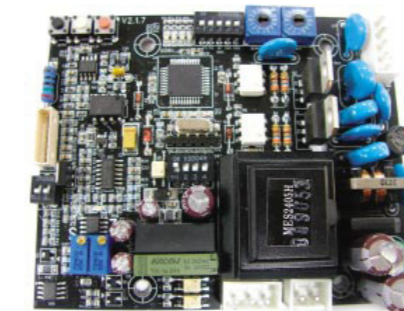


(Cam block)



(D-Type cam)

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



Proportional Control Unit (PCU)

- Input signal range : 0~10VDC, 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)



Potentiometer Kit (PIU)

- 0~1K ohm(0.5%), high resolution



Fire Proofing Actuator (FPA)

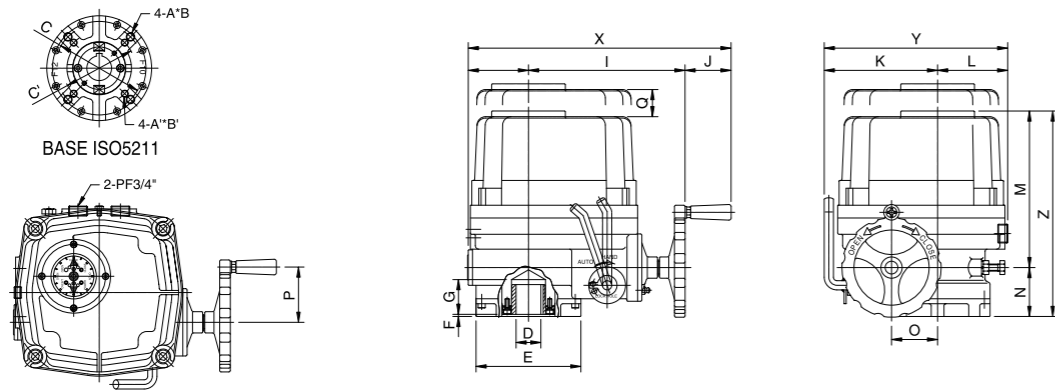


Rechargeable Battery Backup

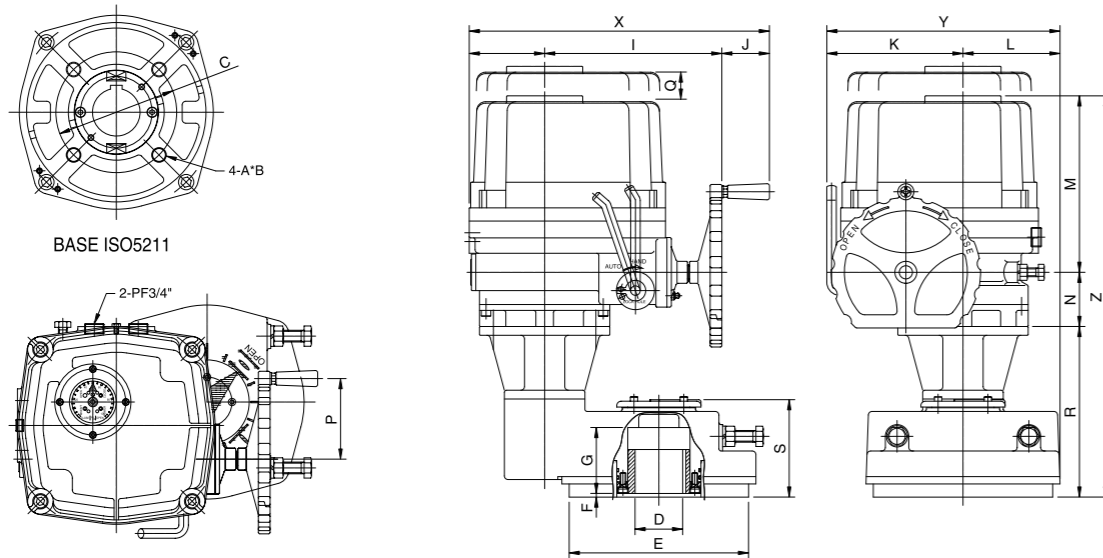


### Dimensional Drawing

KQ008, KQ010, KQ015, KQ020, KQ030, KQ050, KQ060, KQ080, KQ120



KQ200, KQ300

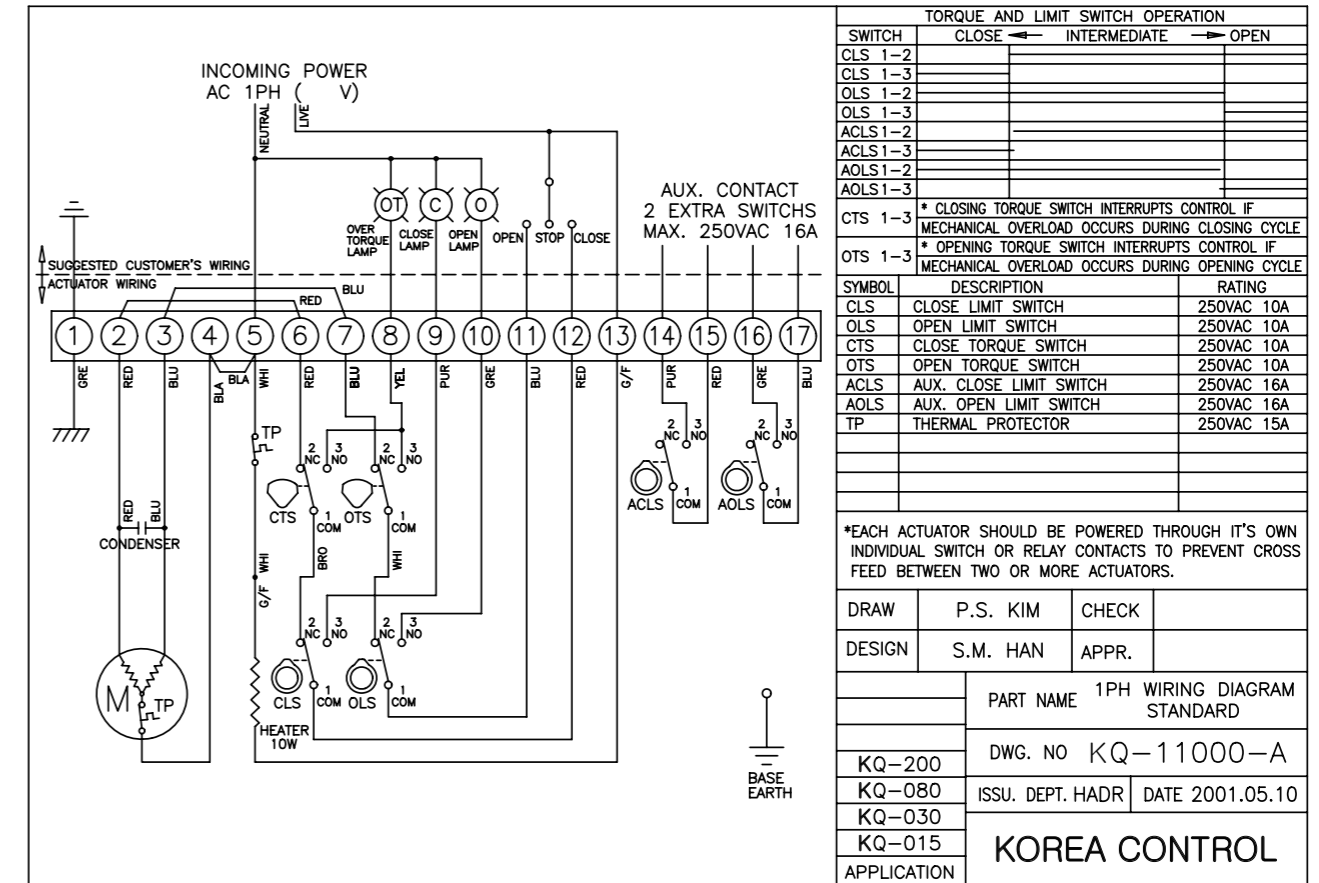


### Dimension

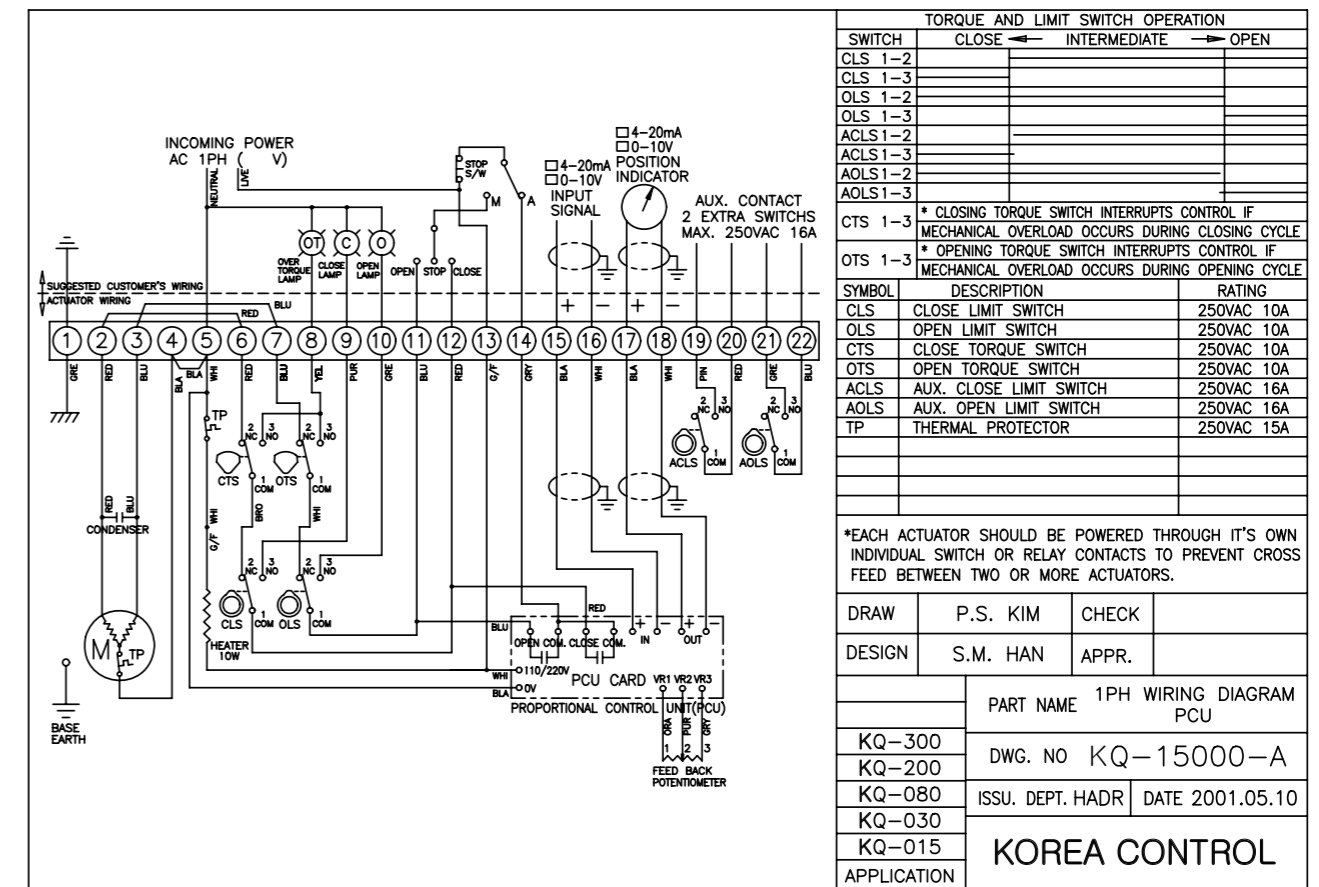
Model	Base ISO 5211		D (max)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	X	Y	Z
	φ C	B																			
KQ008	F07 φ 70	M8 12	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
KQ010	F07 φ 70	M8 12	20	88	3	32	50	157	51	100	70	182	53	40	60	120	-	-	258	170	235
KQ015	F07/F10 φ 70 φ 102	M8/M10 12/15	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	338	229	268
KQ020	F07/F10 φ 70 φ 102	M8/M10 12/15	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	338	229	268
KQ030	F10/F12 φ 102 φ 125	M10/M12 15/18	35	148	3	49	82	221	65	160	99	221	69	65	78	180	-	-	368	259	290
KQ050	F10/F12 φ 102 φ 125	M10/M12 15/18	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	368	259	304
KQ060	F10/F12 φ 102 φ 125	M10/M12 15/18	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	368	259	304
KQ080	F12/F14 φ 125 φ 140	M12/M16 18/24	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	410	297	330
KQ120	F12/F14 φ 125 φ 140	M12/M16 18/24	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	410	297	330
KQ200	F14*/F16 φ 140*/φ 165	M16*/M20 24*/30	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	410	319	563
KQ300	F14*/F16 φ 140*/φ 165	M16*/M20 24*/30	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	410	319	563

※ 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 φ AC 110~220V 50/60HZ
- 3 φ AC 220V~460V 50/60HZ
- Phase protect monitoring by LED in case of wrong wiring
- Easy application for KQ-series actuators
- Various option available (Duty cycle:70%)

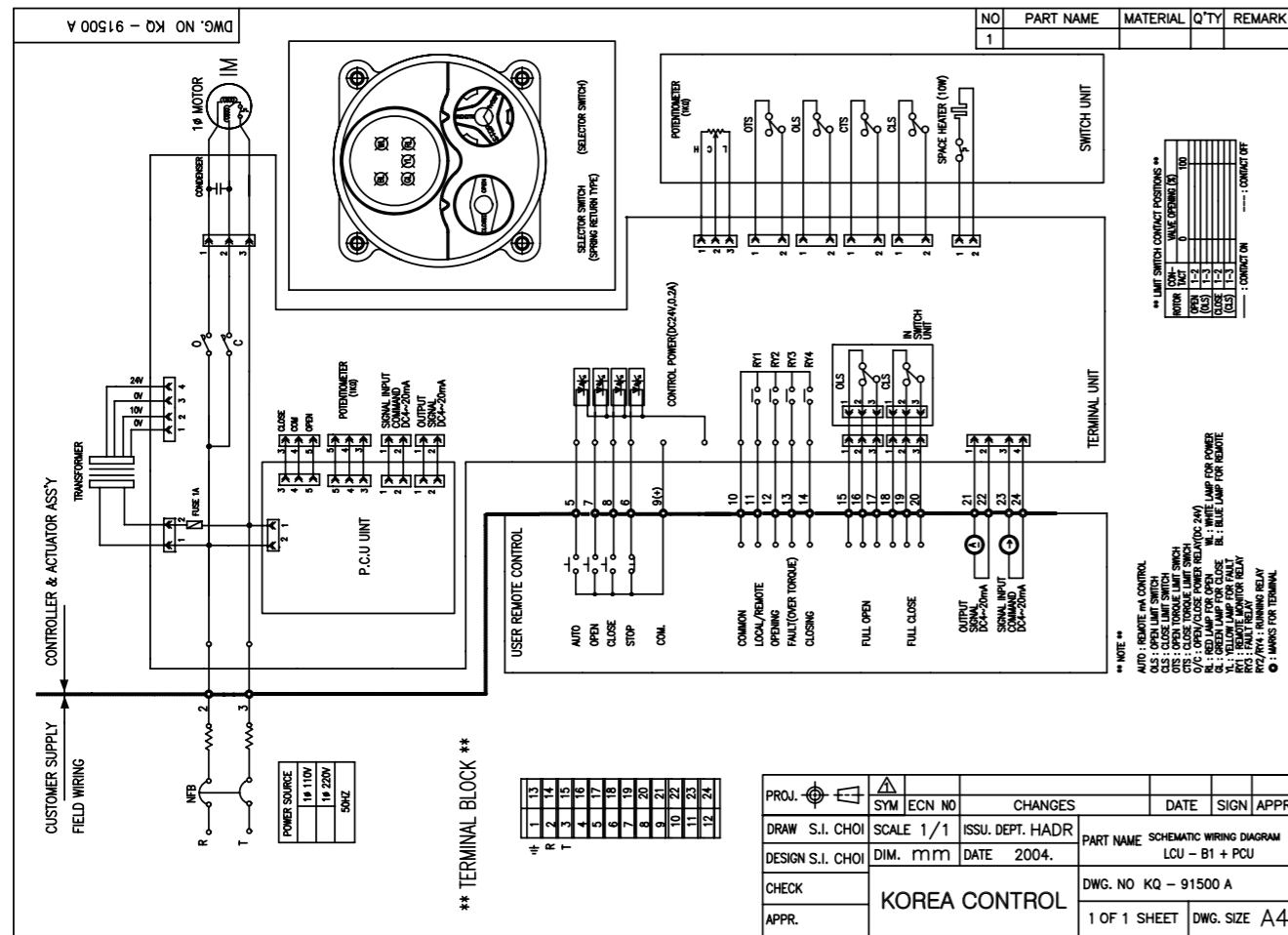


**LED lamp signal**

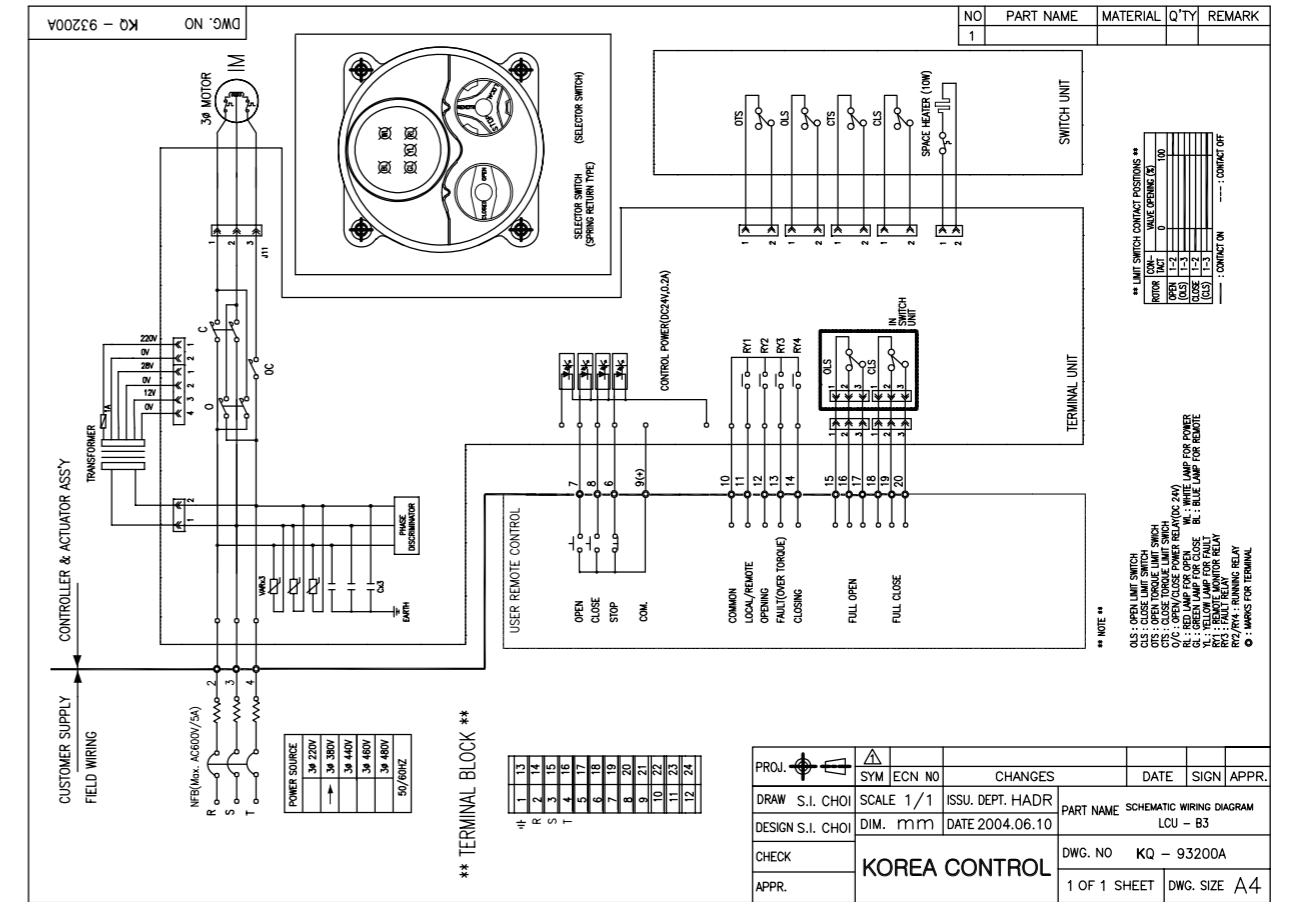
White ○ : Power  
 Blue ● : Remote  
 Yellow ● : Fault  
 Red ● : Open/Opening  
 Green ● : Close/Closing



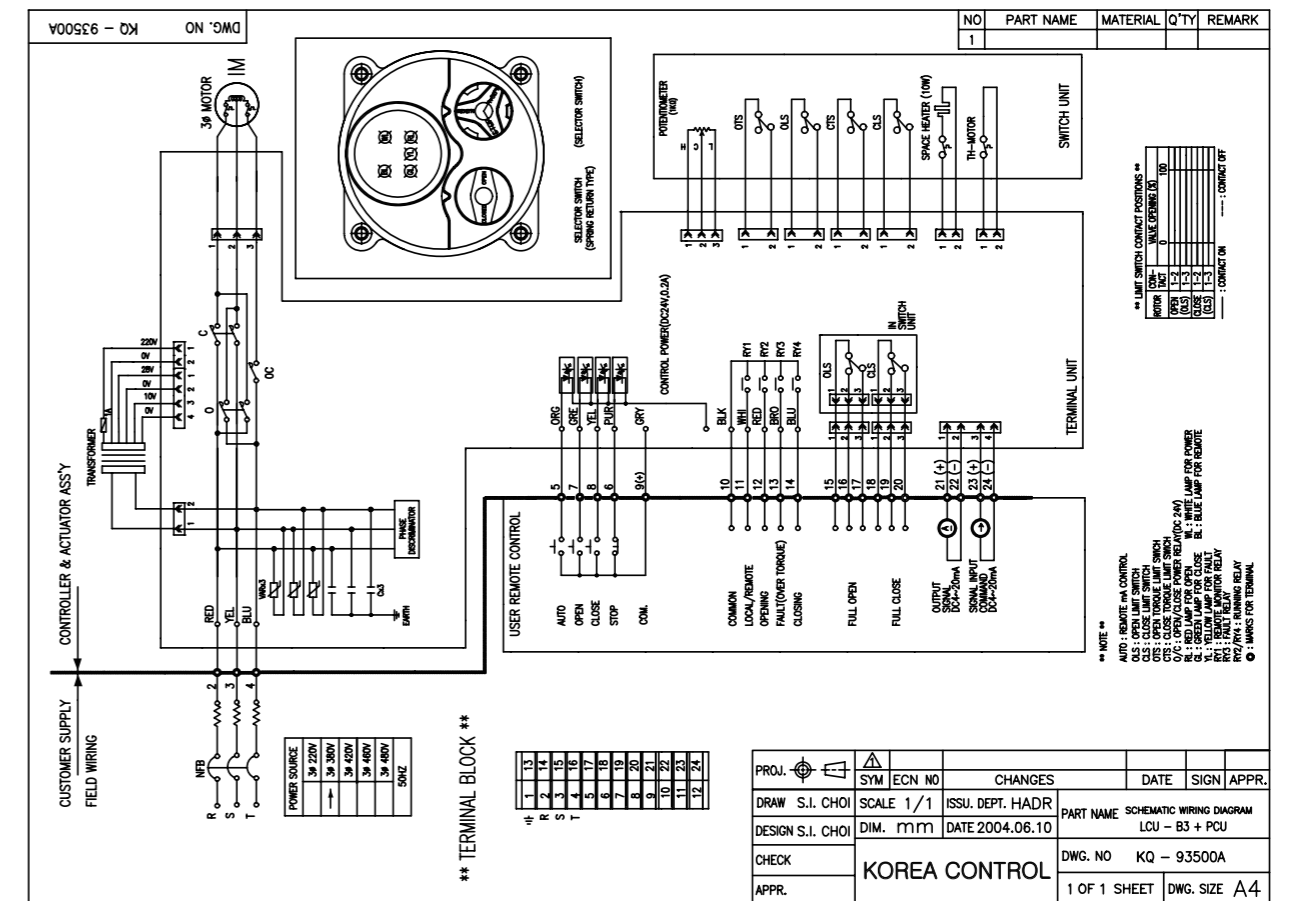
**LCU-B Wiring (1-phase, 50/60Hz, proportional type)**



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



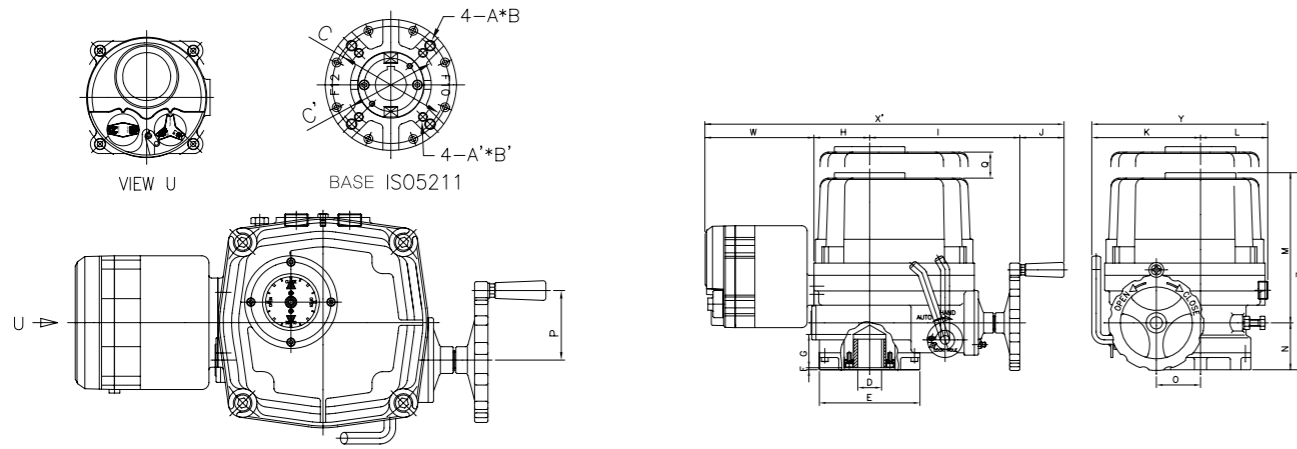
**LCU-B Wiring (3-phase, 50/60Hz, proportional type)**



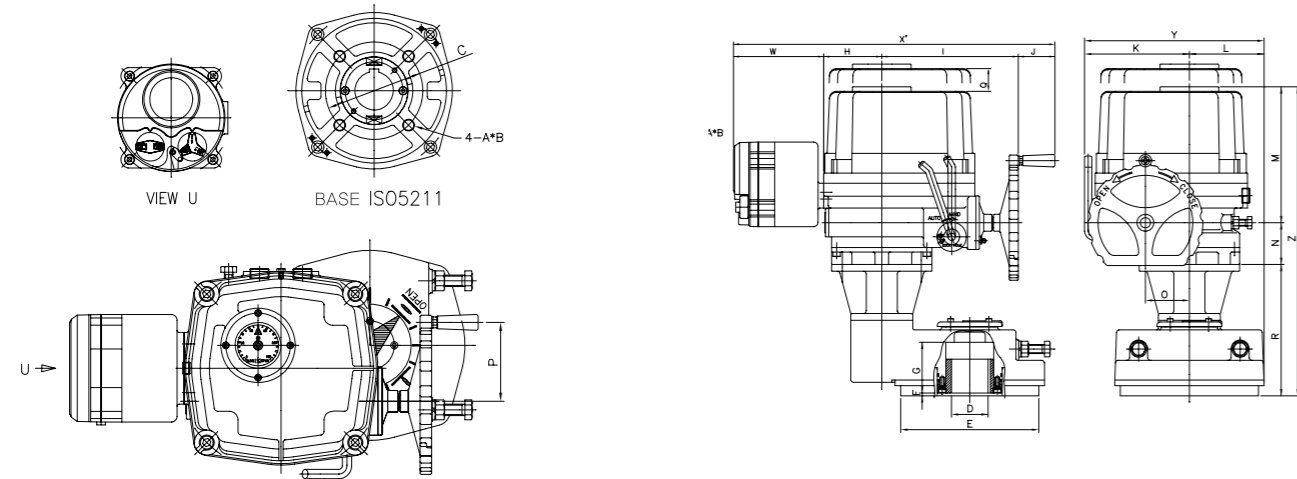


### Dimensional Drawing (with LCU-B)

KQ015, KQ020, KQ030, KQ050, KQ080, KQ120



KQ200, KQ300



### Dimension (with LCU-B)

Model	Base ISO 5211		unit(mm)																			
	∅C	B	D (max)	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	W	X	Y	Z
KQ015	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	160	498	229	268
	∅70/∅102	12/15																				
KQ020	F07/F10	M8/M10	22	125	3	42	73	200	65	142	87	200	68	54	78	160	-	-	160	498	229	268
	∅70/∅102	12/15																				
KQ030	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	221	69	65	78	180	-	-	160	528	259	290
	∅102/∅125	15/18																				
KQ050	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	528	259	304
	∅102/∅125	15/18																				
KQ060	F10/F12	M10/M12	35	148	3	49	82	221	65	160	99	235	69	65	78	180	-	-	160	528	259	304
	∅102/∅125	15/18																				
KQ080	F12/F14	M12/M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	160	570	297	330
	∅125/∅140	18/24																				
KQ120	F12/F14	M12/M16	45	178	3	57	103	242	65	186	111	256	74	78	110	210	-	-	160	570	297	330
	∅125/∅140	18/24																				
KQ200	F14*/F16	M16*/M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	160	570	319	563
	∅140*/∅165	24*/30																				
KQ300	F14*/F16	M16*/M20	65	245	5	90	103	242	65	186	133	256	74	78	110	210	233	133	160	570	319	563
	∅140*/∅165	24*/30																				

※ F14" is drilled by request.

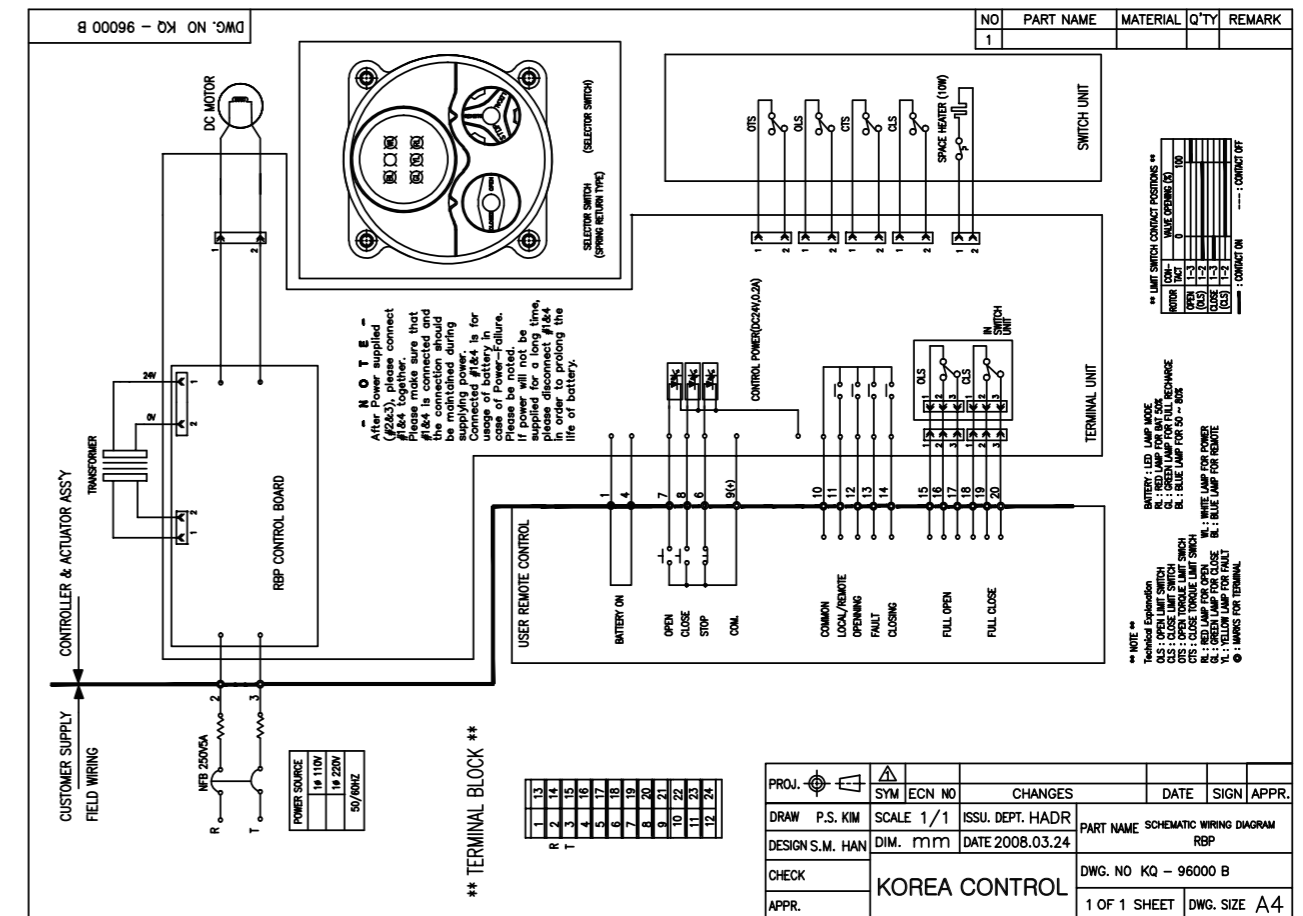
### RBP : Rechargeable Battery Backup

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

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



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



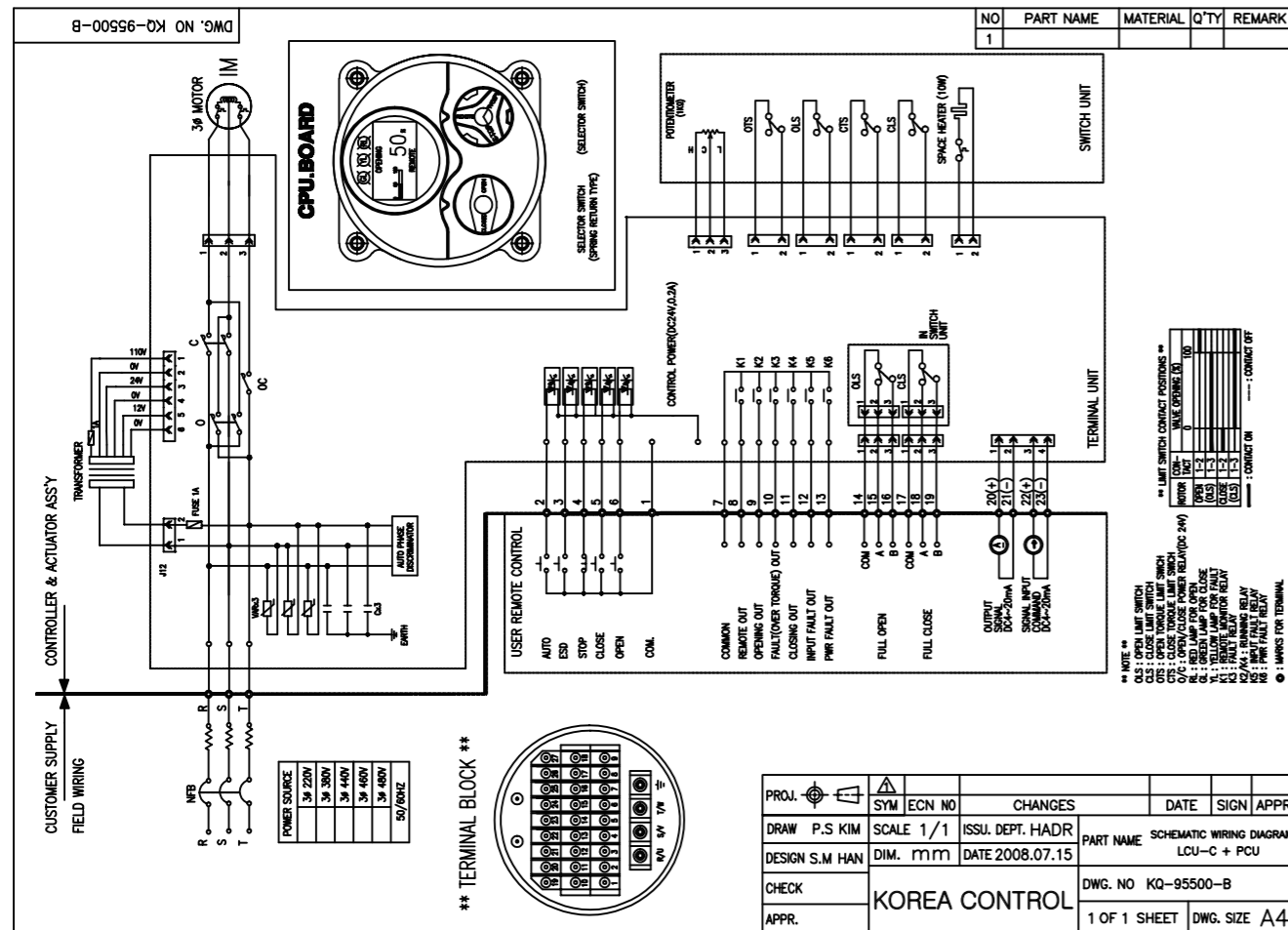


### LCU-C : Digital Display Control

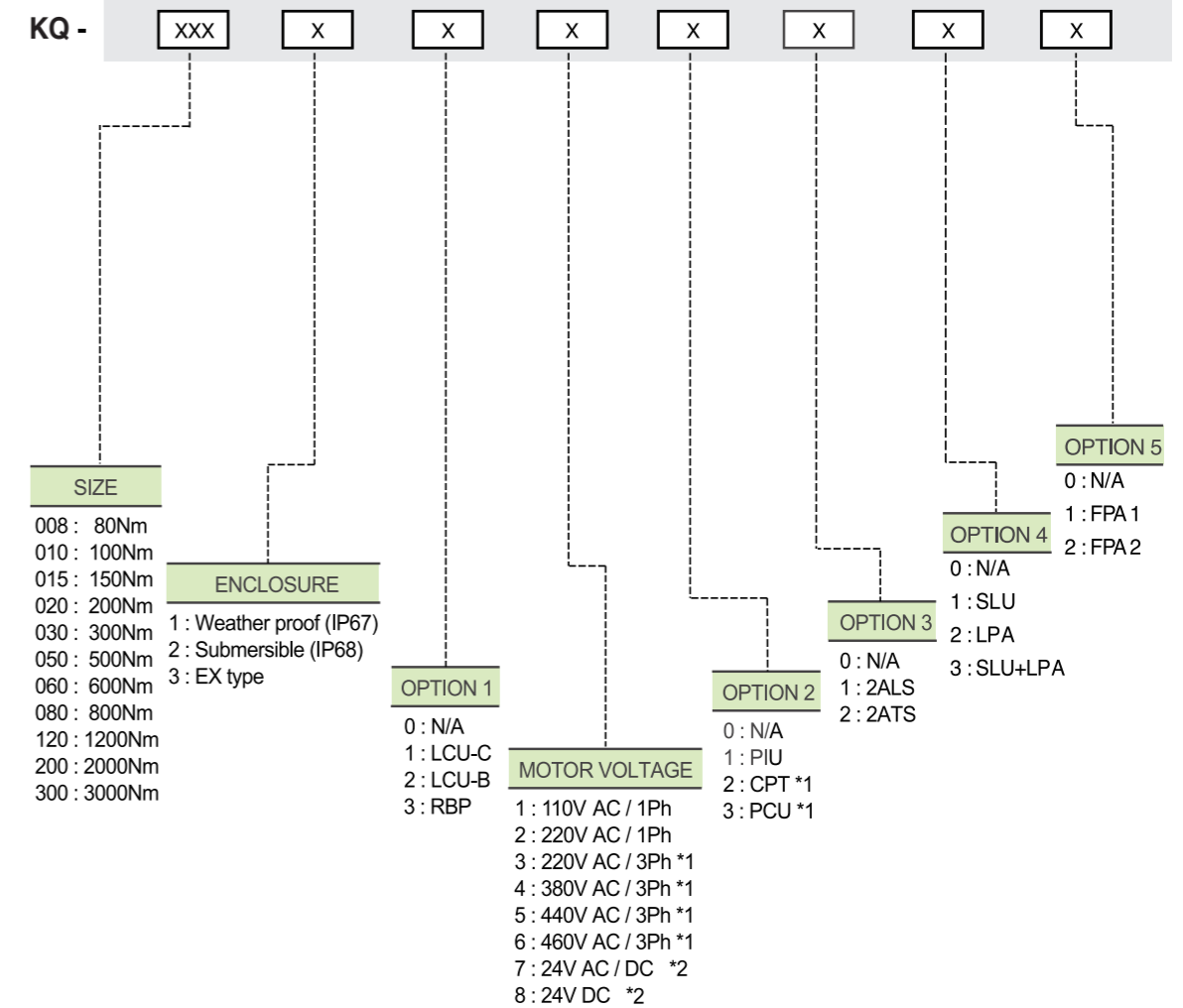
- Light, Compact & Integrated design
- Wide range of electric power application  
(AC 220V~AC460V/3-phase, No Fuse Break Max.AC600V/5A)
- Built-in auto phase discriminator (Easy & convenient wiring)
- Digital indicator with number, bar graph & literature
- Separate terminal chamber  
(Reliable against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



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



### RBP : Rechargeable Battery Backup



### Remarks

- Asterisk\*1 : KQ-008 through 010 actuators shall not be applied to the above condition.
- Asterisk\*2 : KQ-050 through 300 actuators shall not be applied to the above condition.
- 2ATS/2ALS shall not be available for KQ-008 and for KQ-015 through 020 actuators with PCU.
- When LCU-B option applied, KQ-015 through 300 actuators shall be available on the full condition of motor voltages except DC 24v.
- When LCU-C option applied, KQ-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 for KQ-008/010, 015, 020, 030.
- More details should be advised to the manufacturer.





# Electric Actuator KQ-006 Series

## KQ-006 Series

- KQ-006 Actuator is newly designed and invented for small size valve automation like ball, butterfly, plug and even dampers.
- Small, light and compact design, high torque and various control options will meet your specific requirements.
- KQ provides high technical service & quality products for your automation system.



## LCU-C : Digital Display Control

- Compact and light due to high grade aluminum alloy housing.
- High resistance for corrosion due to hard anodizing on inside & outside and polyester powder coating on external surface
- Output torque : 60Nm(6kg.m)
- The actuator motor is reversible, high torque and low current design.
- Solid with O-ring system giving weatherproof (IP67)

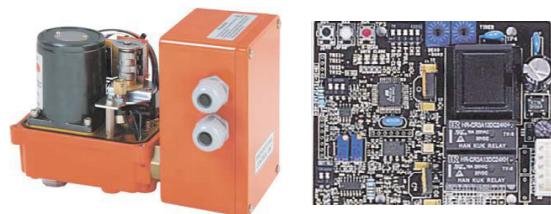


## LCU-C : Digital Display Control

- Manual handwheel
- Wide, easy mounting base standard to ISO5211 (F03/F05/F07)
- Standard 4 limit switches. 2 for operation, 2 for extra(dry contacts)
- Captive cover bolt.
- Space heater.
- Limit switches for easy and tight setting.
- Terminal block. (11P)
- Standard color : Red or Blue

## LCU-C : Digital Display Control

- Proportional Control Unit (PCU)
- AC-DC 24V Control Unit



- KQ PCU is a combination of electronic positioner.
- Input signal range : 4~20mA, or 0~10VDC
- Output signal range : 4~20mA, or 0~10VDC
- Adjustable range : zero 8mA, open 16mA
- Position conversion accuracy : 0.5~1.5% (depends on installation)



- AC or DC power input (2-wire) only by user
- Control function built inside



- Position Indication Unit (Potentiometer kit, PIU) High resolution potentiometer with precisely machined gearing directly engaged with driving shaft provides continuous monitoring of position of valve and actuator

# Electric Actuator KQ-Se ries

## Performance

KQ (MODEL)	Maximum output torque Kg.m	Operating time(sec.) 60/50Hz	Mounting size ISO 5211	Motor class F power(W) 60Hz/50Hz		Rated current(A) 60Hz/50Hz		Duty cycle IEC 34-1	Number of handle turn	Weight Kg
				1 Phase	1 Phase	1 Phase	1 Phase			
KQ-006	6	12 / 14	F03 / F05 / F07	110V	220V	110V	220V	S4(%)	N	3
				54.5 / 46.8	40.9 / 38.0	0.39 / 0.35	0.18 / 0.17			

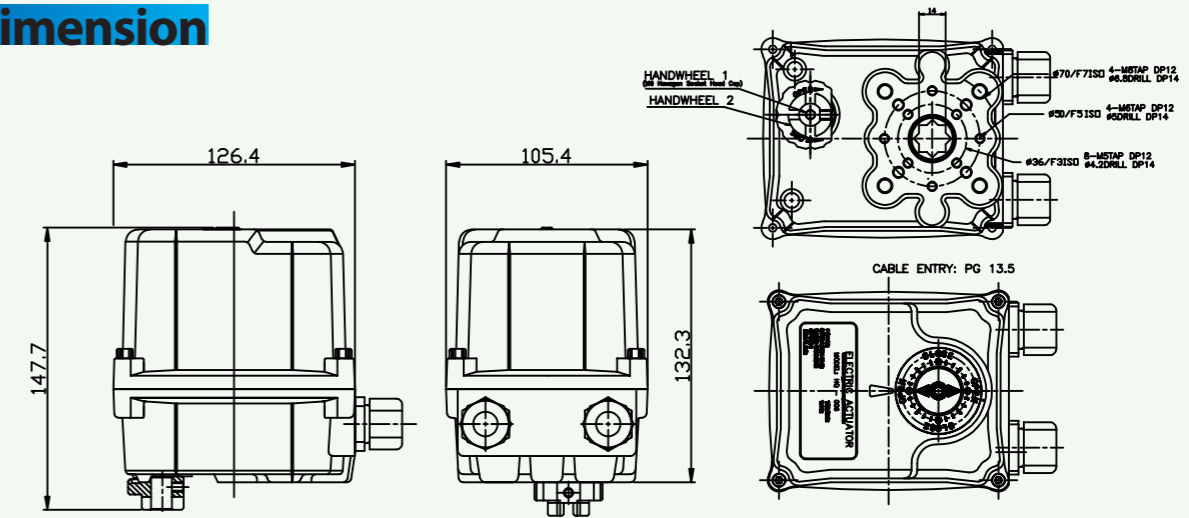
## Standard Specification

Enclosure	Weatherproof enclosure IP67
Power supply	110/220V AC 1PH, 50/60Hz, ±10%
Duty cycle(on-off duty)	S2 35%
Motor	Reversible motor
Limit switches	Open/close, SPDT, 250V AC 10A rating
Additional limit switches	Open/ close, SPDT, 250V AC 10A rating
Space heater	2W (110/220V AC)Anti-condensation
Manual override	Handwheel (hexagon design)
Cable entries	Two PG 13.5 Tap(Option : NPT1/2", PT1/2", PF 1/2")
Movement angle	320° ±10° (0° ~330°)
Ambient temperature	-20 ~70
External coating	Polyester powder coating

## Option Specification

PIU	Potentiometer unit(0~1kΩ)
PCU	Proportional control unit (In/out0~10V, 4~20mA DC)
CPT	Current position transmitter (Output 4~20mA DC)
ADCM	Multi(24VAC/DC)
DCM	DC motor (24VDC)
LCU	Local control unit - remote/local - open/stop/close

## Dimension



## Application



- Butterfly Valves
- Ball Valves
- Damper Valves
- Plug Valves

Valve Automation (Rotary Motion Valves)