



11-4

Quarter-turn actuator GQ-010 ~ 900



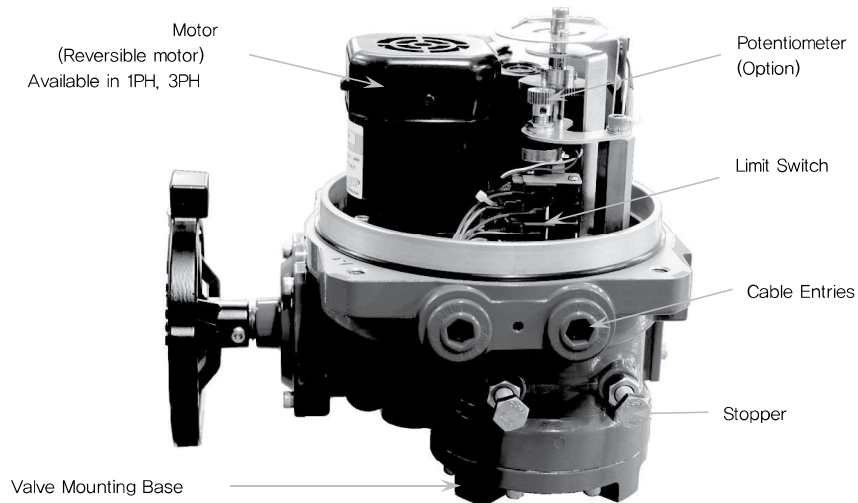
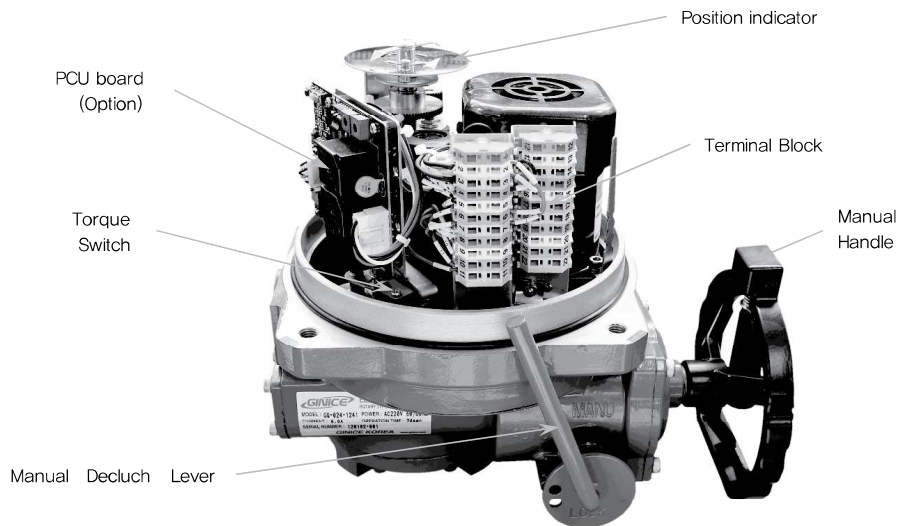
Description

GQ series electric actuator is specially.
Designed for quarter turn operating.
Applications for such as Ball, Butterfly, Plug Valves, Dampers and similar usages.

Features

- Compact and not heavy due to high grade Aluminum alloyed housing.
- Hard anodizing for High corrosion resistance on inside & outside.
- Various output torque from 100Nm to 3000Nm.
- Wide range of Voltage.
- Manual operation Hand-Wheel engaged by Manual / Auto lever arranged for power drive folding Handle.(Space-Saving & Protection from impact)
- Standard Mounting.(ISO 5211)
- Standard 4 limit switches, (2 for operation, 2 for extra (Dry contacts))
- Torque switches. (GQ-016~300)
- Space heater with thermostat for preventing overheat.
- Removable drive bushing with under hung for easy machining and tight connection.

Construction



Standard Configuration



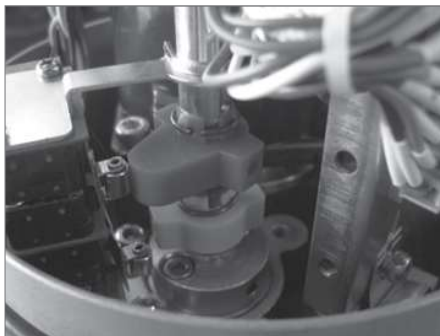
► Indicator

- Visual indicator
- Simple & easy setting by adjustment of bolt on the top



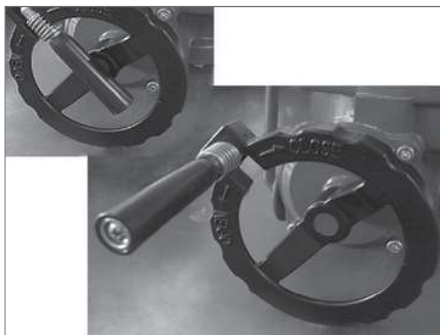
► Terminal Block

- Spring loaded push type terminal for tight wiring
- Rated voltage/current : 300V / 10A
- Solid and stranded wire : 16~28 AWG
- Wire strip length : 8~10mm
- Insulating with stand voltage : 6KV



► Limit Switch

- Manual setting
- Easy "Setting" by "L-Wrench" & Small screw-driver
- 8-SPDT Switch (GQ-016~300)
- 4-SPDT switch



► Manual Handle

- Foldable Handle
- Space-Saving & Protection from impact

Electric ball valve(2-way)

Actuator	Valve	Butterfly valve 10K, ANSI 150#	2-Way ball valve 10K, ANSI 150#	3-Way ball valve 10K, ANSI 150#
GQ-006		40A(1 ½")~65A(2 ½")	40A(1 ½")	25A(1")
GQ-008		80A(3")	40A(1 ½"), 50A	32A(1 ¼")
GQ-010		100A(4")	50A(2")	40A(1 ½")
GQ-016		125A(5"), 150A(6")	50A(2"), 65A(2 ½")	50A(2")
GQ-024		200A(8")	80A(3")	65A(2 ½")
GQ-035		250A(10")	100A(4")	80A(3")
GQ-050		300A(12")	125A(5")	100A(4")
GQ-080		350A(14")	150A(6")	125A(5")
GQ-110		400A(16")	200A(8")	150A(6")
GQ-200		450A(18"), 500A(20")	250A(10")	200A(8")
GQ-300		600A(24")	300A(12")	250A(10"), 300A(12")

The above specification can be changed as difference torque per

Order coding system

GQ-XXX-X X X X			
010 : 10Kg.m			1. 90°
016 : 16Kg.m			2. 120°
024 : 24Kg.m			3. 135°
035 : 35Kg.m			4. 180°
050 : 50Kg.m			5. 270°
080 : 80Kg.m			1. Standard(on-off)
110 : 110Kg.m			2. PU(Potentiometer Unit)
200 : 200Kg.m			3. PTM(Position Transmitter)
300 : 300Kg.m			4. PCU(Proportional Control Unit)
600 : 600Kg.m			5. ALS(Additional Limit Switches)
900 : 900Kg.m			6. ATS(Additional Torque Switches)Except GQ-010
			7. LCU(Local Control Unit, LED + On/Off)Except GQ-010
			8. LCU(Local Control Unit, LED + PCU) Except GQ-010
			9. LCU(Local Control Unit, LED + PTM)Except GQ-010
			0. 24V AC/DC (GQ-010 only, Except PCU)
			1. 110V AC / 1Ph
			2. 220V AC / 1Ph
			3. 220V AC / 3Ph(Except GQ-010)
			4. 380V AC / 3Ph(Except GQ-010)
			5. 440V AC / 3Ph(Except GQ-010)
			6. 460V AC / 3Ph(Except GQ-010)
			7. 24V AC / 1Ph(GQ-010 ONLY)
			8. 24V DC (Except above GQ-080, incompatible with LCU)
			9. 24V DC INNER Contact(Relay)(Except above GQ-050, incompatible with LCU)
	1. IP 67		
	2. IP 68		
Explosion-proof certified)			
016 : 16kg.m	3. Ex db IIB T4	0. 24V AC/DC	1. Standard(on-off)
024 : 24kg.m	(IP67)	1. 110V AC/1Ph	2. PU
		2. 220V AC/1Ph	(Potentiometer Unit)
		3. 220V AC/3Ph	3. PTM
		4. 380V AC/3Ph	(Position Transmitter)
		5. 440V AC/3Ph	4. PCU(Proportional Control Unit)
		8. 24V DC	A. PUC(Potentiometer Unit-chiller)
		9. 24V DC	B. PCUC(Proportional Control Unit-chiller)
		INNER CONTACT	
			1. 90°
			2. 120°
			3. 135°
			4. 180°
			5. 270°

Technical data

Model	Maximum Output torque	Operating Time(sec.) 60/50Hz	Rated current(A) 60/50 Hz					Duty Cycle IEC 34-1	Number of Handel turn	Weight
			1 Phase		3 Phase		DC			
	Kg.m	90°	110V	220V	380V	440V	24V	S4(%)	N	Kg
GQ-010	10	18/21	1.10/0.98	0.58/0.52	—	—	3.5 A	30	10	7
GQ-016	16	21/25	1.70/1.60	0.90/0.85	0.30/0.35	0.32/0.50	2.7 A	50	12	15
GQ-024	24	21/25	1.72/1.62	0.90/0.87	0.32/0.37	0.35/0.57	2.7 A	50	12	15
GQ-035	35	26/31	1.80/1.72	0.95/0.92	0.32/0.37	0.32/0.50	4.0 A	50	14	20
GQ-050	50	26/31	3.90/3.60	1.60/1.50	0.56/0.52	0.58/0.55	4.0 A	50	14	20
GQ-080	80	32/39	4.20/3.90	2.20/2.05	0.88/0.82	0.88/0.82	—	30	17	25
GQ-110	110	32/39	4.20/3.90	2.30/2.15	0.90/0.84	0.88/0.84	—	30	17	25
GQ-200	200	50/59	—	3.15/2.95	1.80/1.50	2.20/2.30	—	30	23	70
GQ-300	300	50/59	—	3.85/3.75	2.00/1.60	2.40/2.50	—	30	23	70

Standard specifications

Enclosure	Weatherproof enclosure IP67 (IP68 OPTIONAL)
Power supply	110/220V AC 1 Phase 50/60Hz, 380/440V AC 3 Phase 50/60Hz, ±10%
Control power supply	110/220V AC 1 Phase 50/60Hz, ±10%
Duty cycle (on-off)	S2, Max 30Min
Duty cycle (modulating)	S4, 30~50% Max 300~1,600 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
Torque switches	Open / close, SPDT, 250V AC 16A rating (Except for GQ-010)
Stall protection/operating temp.	Built-on thermal protection, open 150°C±5°C / close 97°C ± 15°C
Travel angle	90°±5° (0~100°)
Indicator	Continuous mechanical indicator with arrow
Manual override	Declutching mechanism
Self locking	Provided by double worm gearing
Mechanical stopper	2 each external adjustable screws
Space heater	10W(110/220V AC) anti-condensation
Cable entries	Three PF ¾" tap
Lubrication	Grease Moly (EP type)
Terminal block	Spring loaded lever push type
Materials	Aluminum alloy, Steel, Al bronze, polycarbonate
Ambient temperature	-20°C ~ + 70°C (except option electronic board)
Ambient humidity	90% RH Max. (non-condensing)

Electric data

Model No.	Phase	Voltage[V]	Frequency[Hz]	Consumption Power[VA]
GQ - 010	1PH	24	50	90.72
			60	90.96
		110	50	126.5
			60	126.5
		220	50	121
			60	114.4
GQ - 016 GQ - 024	1PH	110	50	155.1
			60	161.7
		220	50	189.2
			60	180.4
		240	50	199.2
			60	175.2
	3PH	220	50	68.2
			60	59.4
		380	50	68.4
			60	53.2
		440	50	74.8
			60	61.6
GQ - 035 GQ - 050	1PH	110	50	196.9
			60	188.1
		220	50	200.2
			60	200.2
	3PH	220	50	88
			60	74.8
		380	50	87.4
			60	76
		440	50	92.4
			60	79.2
GQ - 080 GQ - 110	1PH	110	50	500.5
			60	517
		220	50	525.8
			60	510.4
	3PH	220	50	321.2
			60	270.6
		380	50	319.2
			60	269.8
		440	50	321.2
			60	268.4
GQ - 200 GQ - 300	1PH	100	50	80
			60	73
		120	60	700.8
			50	1056
	3PH	220	60	1012
			50	440
		380	60	374
			50	448.4
		440	60	372.4
			50	-
		440	60	-
			50	-

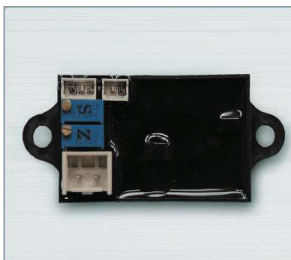
Options

WE	Watertight enclose actuator. (IP 68, 10m 100hour)
PU	Potentiometer unit. (1K Ω)
PTM	Position transmitter. (Output 4~20mA)
PCU	Proportional control unit. (Input / Output 4~20mA or 0~10VDC or 1~5VDC)
ALS	Additional limit switches. (SPDT X 2EA 250V AC 10A Rating)
ATS	Additional torque switches.
LCU	Local Control Unit. (Remote / Local, Open / Stop / Close Selector Switch with Lamps)
EX	Extension 120 Ω , 135 Ω , 180 Ω , 270 Ω turn.
EXD	Explosion proof (Ex d II B T4)
APD	Auto Phase Discriminator



► Potentiometer Unit

- Compact size
- Range : 0~1k Ω
- Metal gear



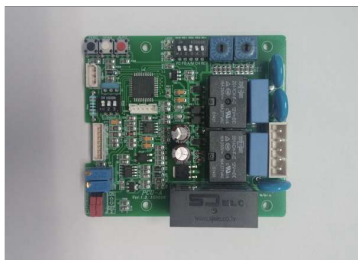
► Position Transmitter

- Compact and reliable performance
- Input: AC/DC 24V, AC 110/220V
- Output : 4~20mA
- Zero, span setting



► Auto Phase Discriminator

- Simple auto phase controller
- Reverse-phase protection
- Open-phase protection
- In case of reverse connection, phase is switched automatically.
- Fault indicator



► Proportional Control Unit

- Power : 85~280VAC $\pm$ 10%, 50/60Hz $\pm$ 2% / 24VDC
4VA Max-Changeable by DIP switch
- Input signal : 4~20mA, 1~5V DC, 2~10V DC, 0~5V DC, 0~10V DC
- Output signal: 4~20mA, 1~5V DC, 2~10V DC, 0~5V DC, 0~10V DC
- Auto setting, dead band, delay time etc.

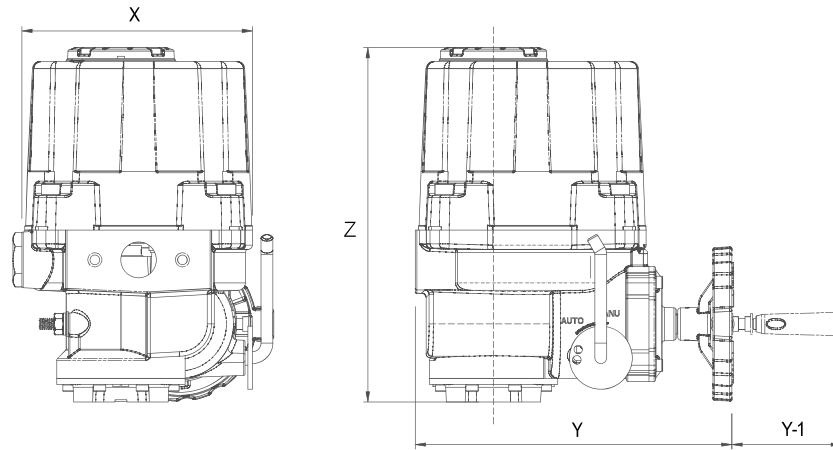


► LCU(Local Control Unit)

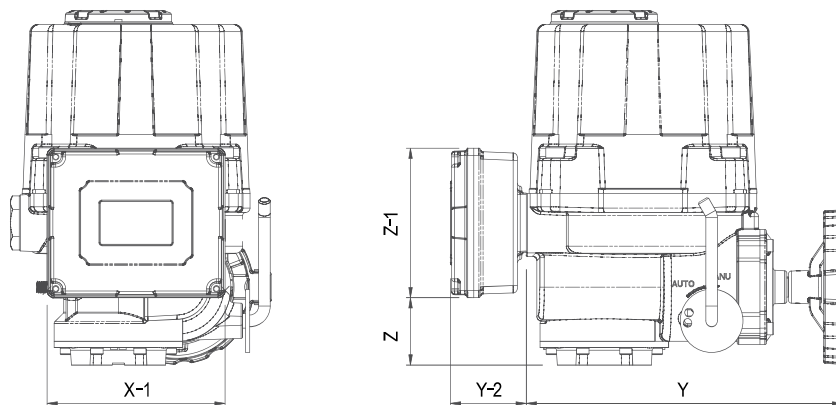
- Compact unit that is mounted to the actuator to operate the valve at local.
- Local/Remote switch
- Open/Stop/Close selector switches with lamps
- Auto-Phase Discriminator

Dimension of GQ-010

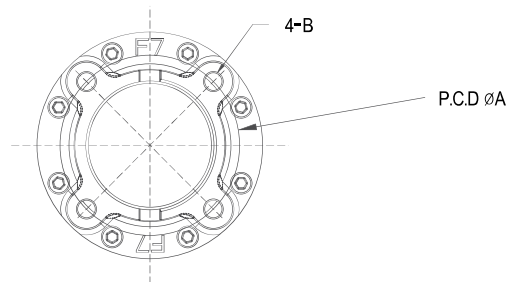
► On-Off



► Modulating (with PCU)



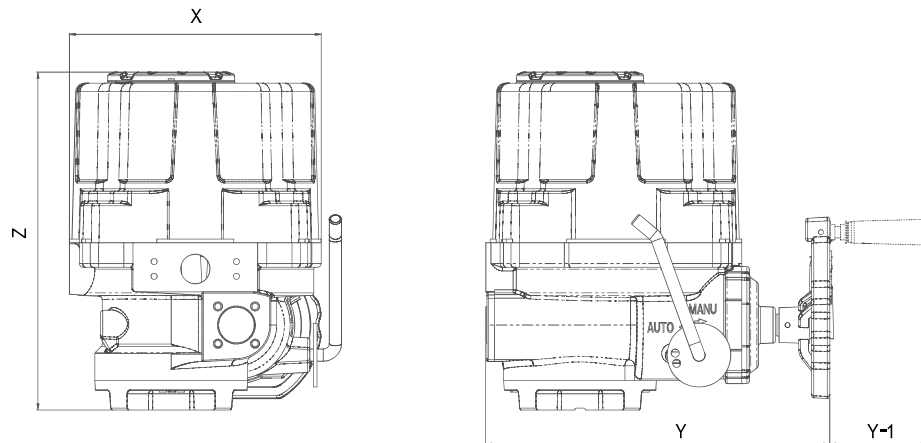
► Valve Mounting (Base ISO 5211)



Model	ØA	B	X	X - 1	Y	Y - 1	Y - 2	Z	Z'	Z - 1
GQ-010	70	M8 / 15	158	122	217	75	52	242	46	102

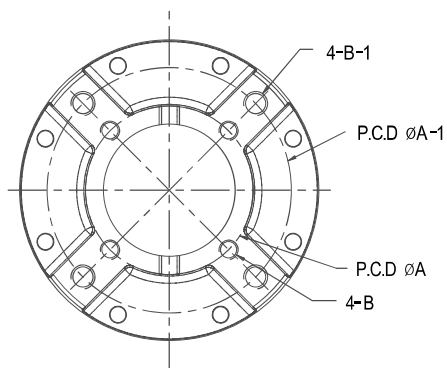
Dimension of GQ-016 ~ 300

► On/Off, Modulating (with PCU)

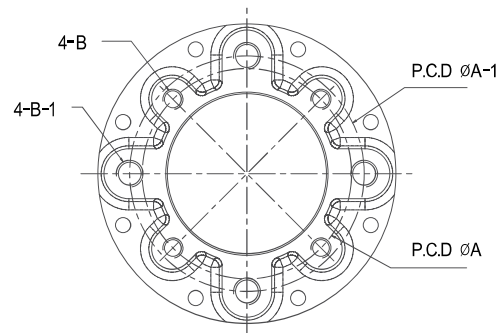


► Valve Mounting (Base ISO 5211)

GQ - 016 ~ 050



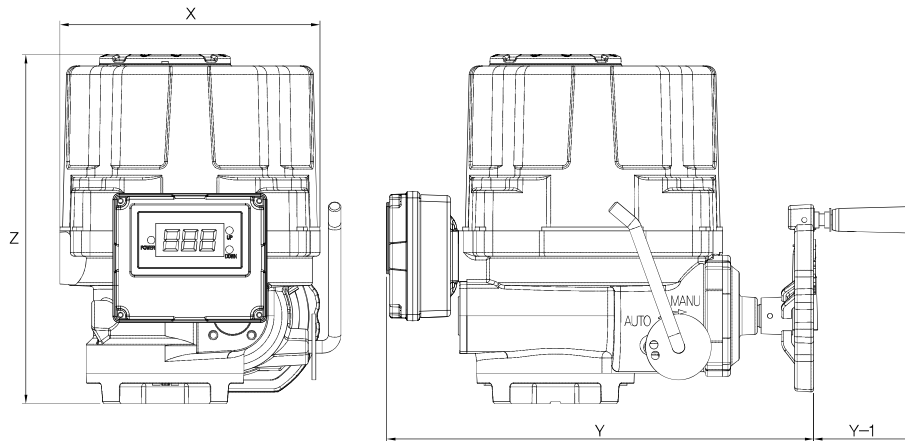
GQ - 080 ~ 300



Model	ØA	ØA - 1	B	B - 1	X	Y	Y - 1	Z
GQ-016	70	102	M8 / 12	M10 / 15	206	282	80	276
GQ-024	70	102	M8 / 12	M10 / 15	206	282	80	276
GQ-035	102	125	M10 / 15	M12 / 18	222	295.5	80	294
GQ-050	102	125	M10 / 15	M12 / 18	222	295.5	80	294
GQ-080	125	140	M12 / 18	M16 / 24	239	310	80	326
GQ-110	125	140	M12 / 18	M16 / 24	239	310	80	326
GQ-200	-	165	-	M20 / 30	307	401	100	394
GQ-300	-	165	-	M20 / 30	307	401	100	394

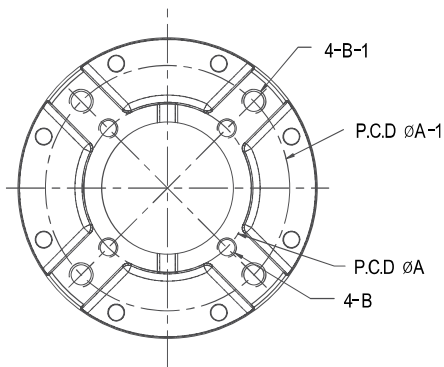
Dimension of GQ-016 ~ 300

► Modulating(with PCU and digital display)

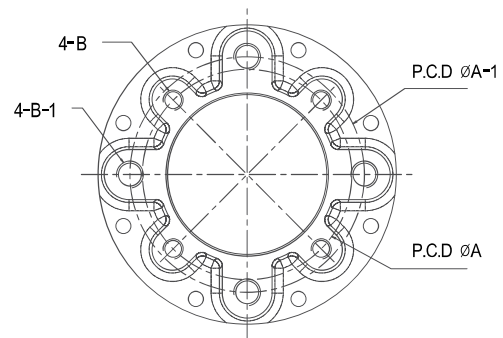


► Valve Mounting (Base ISO 5211)

GQ - 016 ~ 050



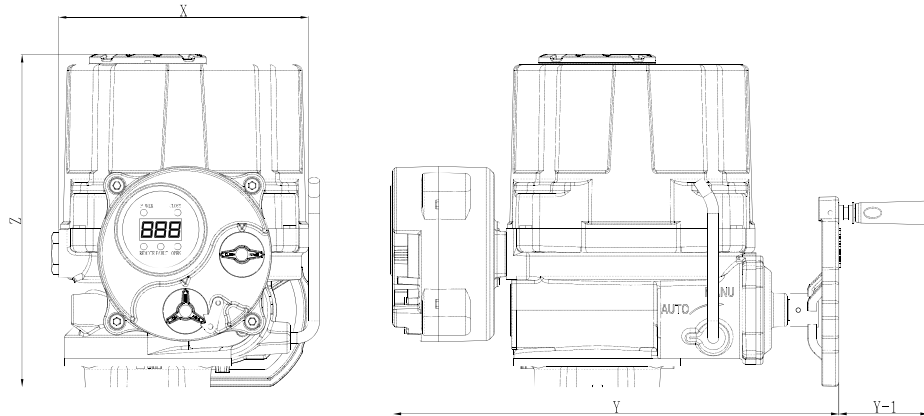
GQ - 080 ~ 300



Model	ØA	ØA - 1	B	B - 1	X	Y	Y - 1	Z
GQ-016	70	102	M8 / 12	M10 / 15	206	334	80	276
GQ-024	70	102	M8 / 12	M10 / 15	206	334	80	276
GQ-035	102	125	M10 / 15	M12 / 18	222	347.5	80	294
GQ-050	102	125	M10 / 15	M12 / 18	222	347.5	80	294
GQ-080	125	140	M12 / 18	M16 / 24	239	362	80	326
GQ-110	125	140	M12 / 18	M16 / 24	239	362	80	326
GQ-200	-	165	-	M20 / 30	307	453	100	394
GQ-300	-	165	-	M20 / 30	307	453	100	394

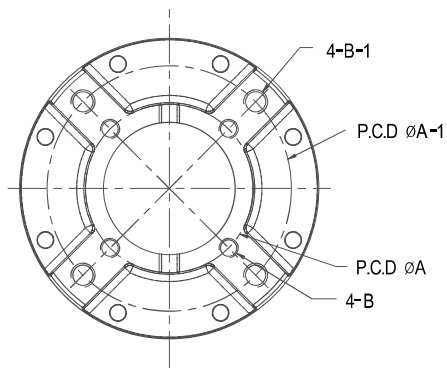
Dimension of GQ-016 ~ 300

► 1PH Integral, Modulating (with LCU)

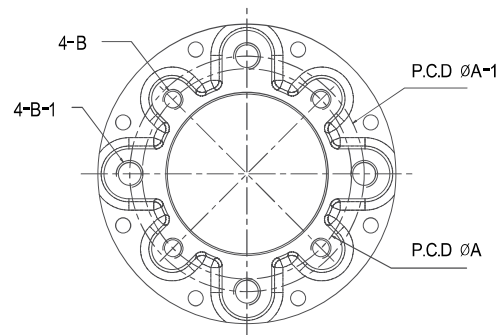


► Valve Mounting (Base ISO 5211)

GQ - 016 ~ 050



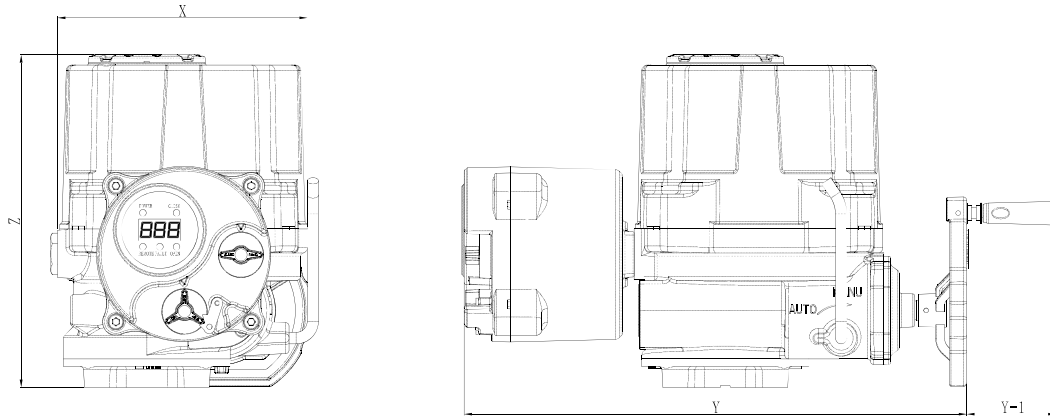
GQ - 080 ~ 300



Model	ØA	ØA - 1	B	B - 1	X	Y	Y - 1	Z
GQ-016	70	102	M8 / 12	M10 / 15	206	385	80	276
GQ-024	70	102	M8 / 12	M10 / 15	206	385	80	276
GQ-035	102	125	M10 / 15	M12 / 18	222	398.5	80	294
GQ-050	102	125	M10 / 15	M12 / 18	222	398.5	80	294
GQ-080	125	140	M12 / 18	M16 / 24	239	413	80	326
GQ-110	125	140	M12 / 18	M16 / 24	239	413	80	326
GQ-200	-	165	-	M20 / 30	307	504	100	394
GQ-300	-	165	-	M20 / 30	307	504	100	394

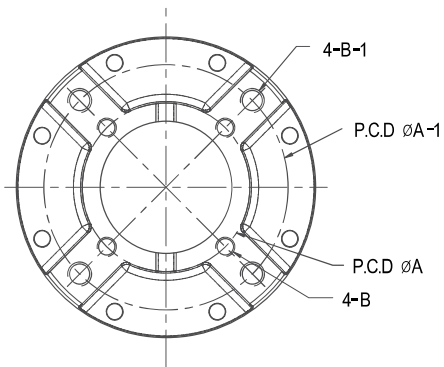
Dimension of GQ-016 ~ 300

▶ 3PH Integral, Modulating (with LCU)

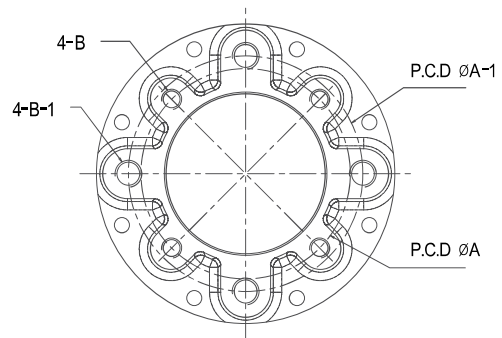


▶ Valve Mounting (Base ISO 5211)

GQ - 016 ~ 050



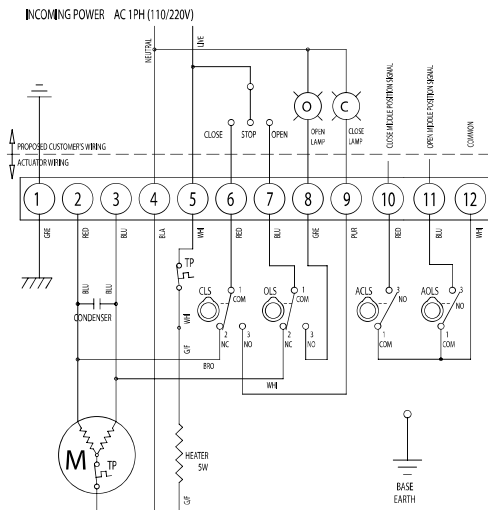
GQ - 080 ~ 300



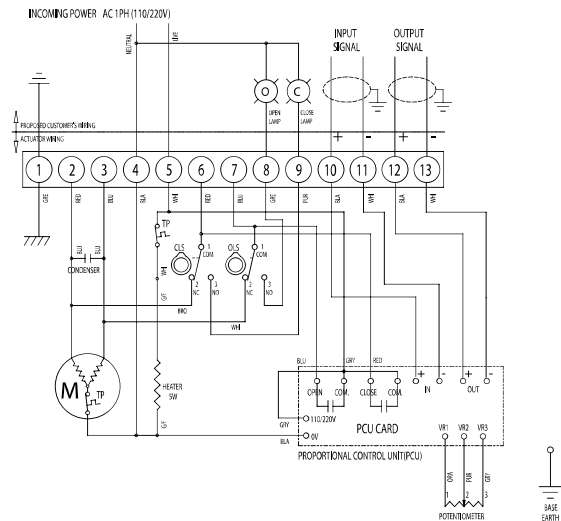
Model	ØA	ØA - 1	B	B - 1	X	Y	Y - 1	Z
GQ-016	70	102	M8 / 12	M10 / 15	206	435	80	276
GQ-024	70	102	M8 / 12	M10 / 15	206	435	80	276
GQ-035	102	125	M10 / 15	M12 / 18	222	448.5	80	294
GQ-050	102	125	M10 / 15	M12 / 18	222	448.5	80	294
GQ-080	125	140	M12 / 18	M16 / 24	239	463	80	326
GQ-110	125	140	M12 / 18	M16 / 24	239	463	80	326
GQ-200	-	165	-	M20 / 30	307	554	100	394
GQ-300	-	165	-	M20 / 30	307	554	100	394

Wiring of GQ-010

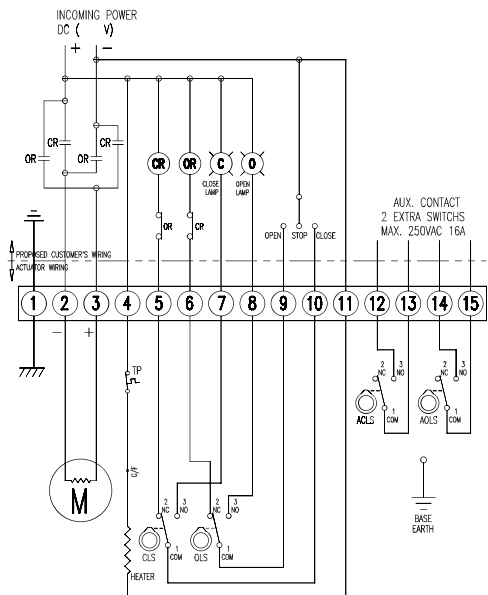
▶ 1PH/110V/220VAC 50/60Hz(On-Off)



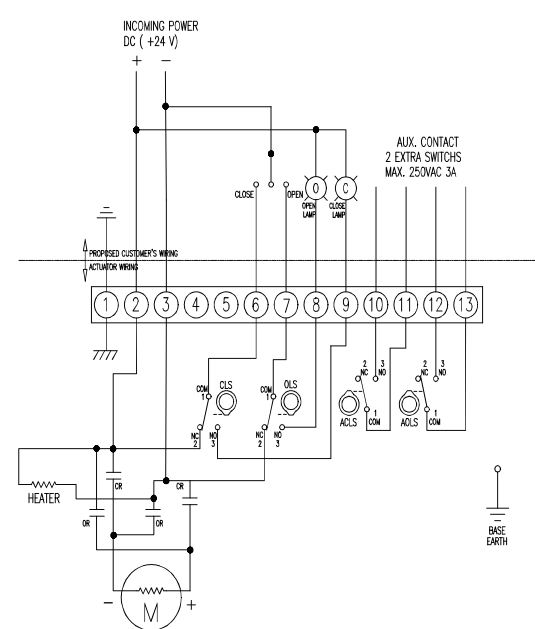
▶ 1PH/110V/220VAC 50/60Hz(PCU)



▶ 24VDC (On/Off)



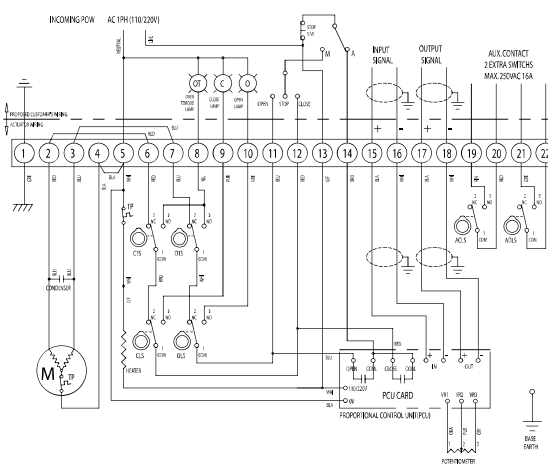
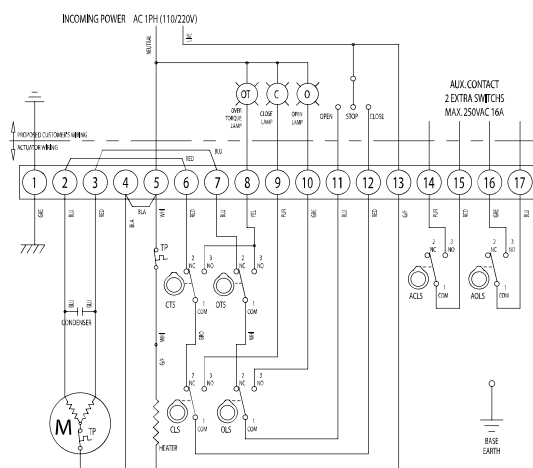
▶ 24VDC (On/Off Inner)



Important Notice

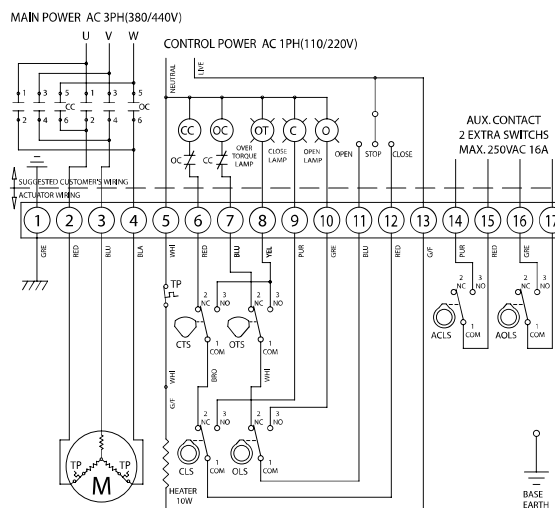
※ Please only refer to the Wiring Diagram Sticker or separate Wiring Diagram inside of each actuator.
If there is any confusion please contact your distributor.

► 1H/110V/220VAC 50/60Hz (PCU)



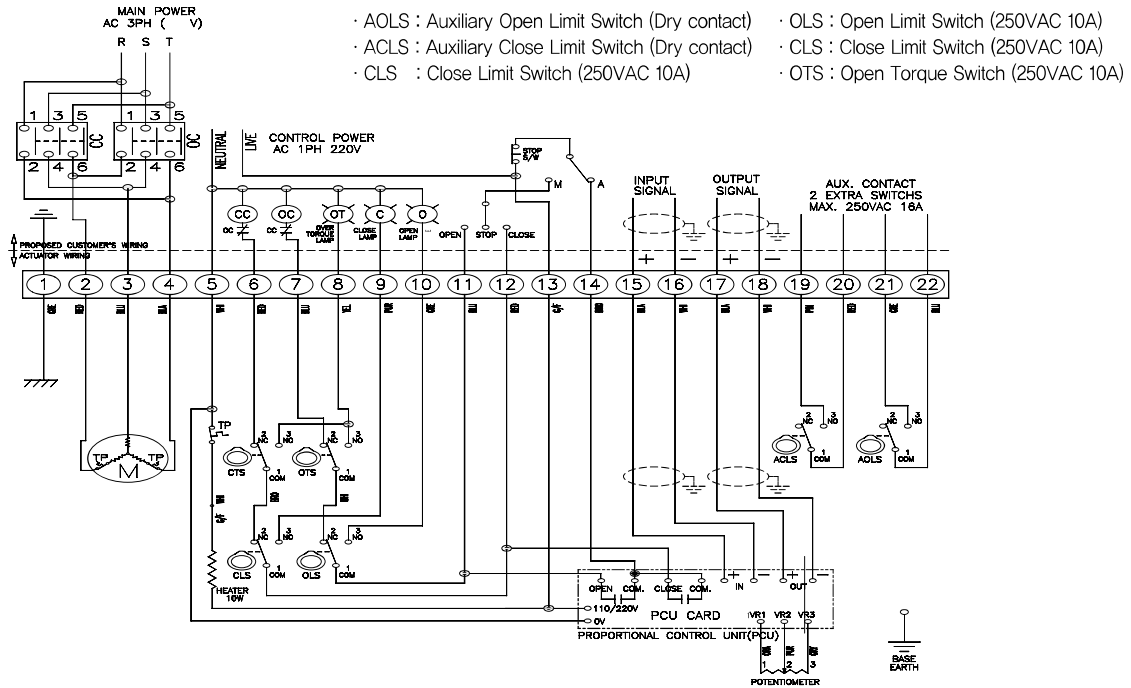
► 3PH/380V/440VAC 50/60Hz (On/Off)

SWITCH	CLOSE ←	INTERMEDIATE	→ OPEN
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLs 1-2			
ACLs 1-3			
AOLS 1-2			
AOLS 1-3			
CTS 1-3	* CLOSING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		
OTS 1-3	* OPENING TORQUE SWITCH INTERRUPTS CONTROL IF MECHANICAL OVERLOAD OCCURS DURING CLOSING CYCLE		

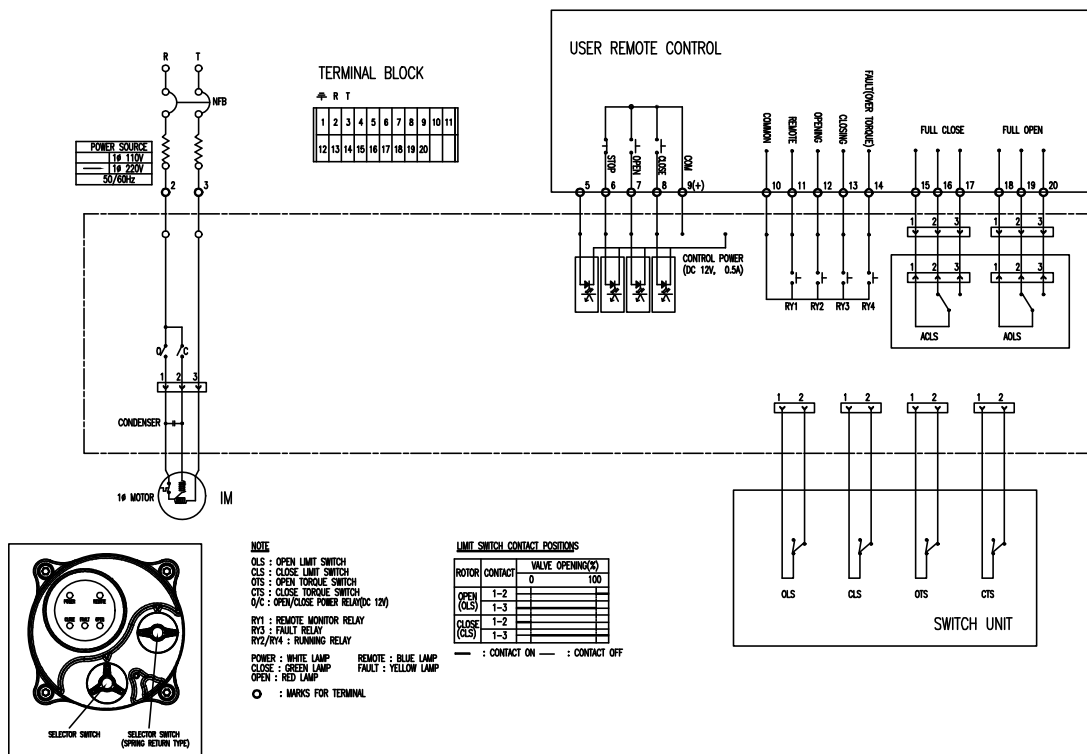


Wiring of GQ-016 ~ 300

▶ 3PH/380V/440VAC 50/60Hz (PCU)

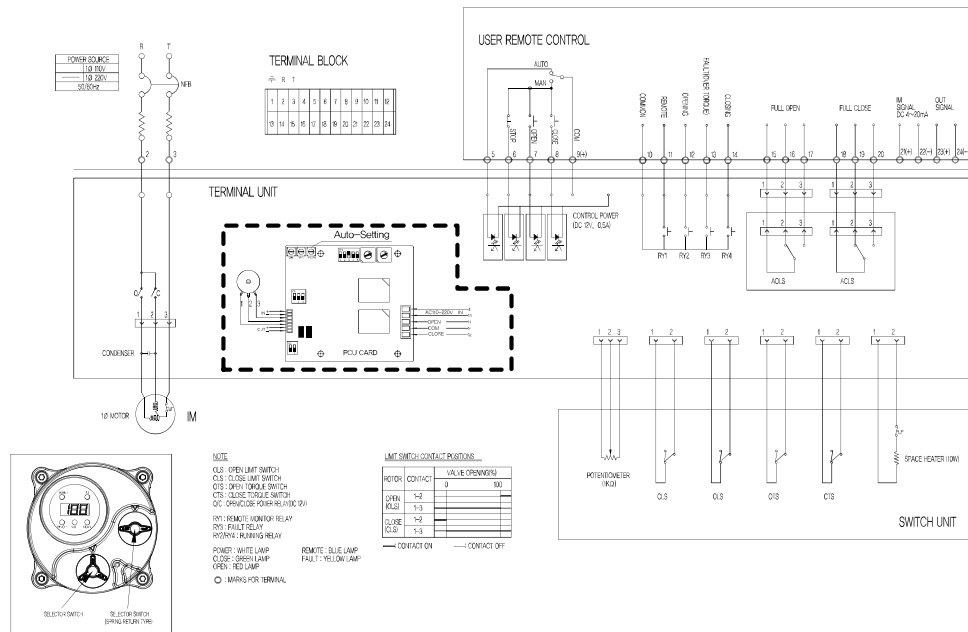


▶ 1PH/110V/220VAC 50/60Hz (LCU)

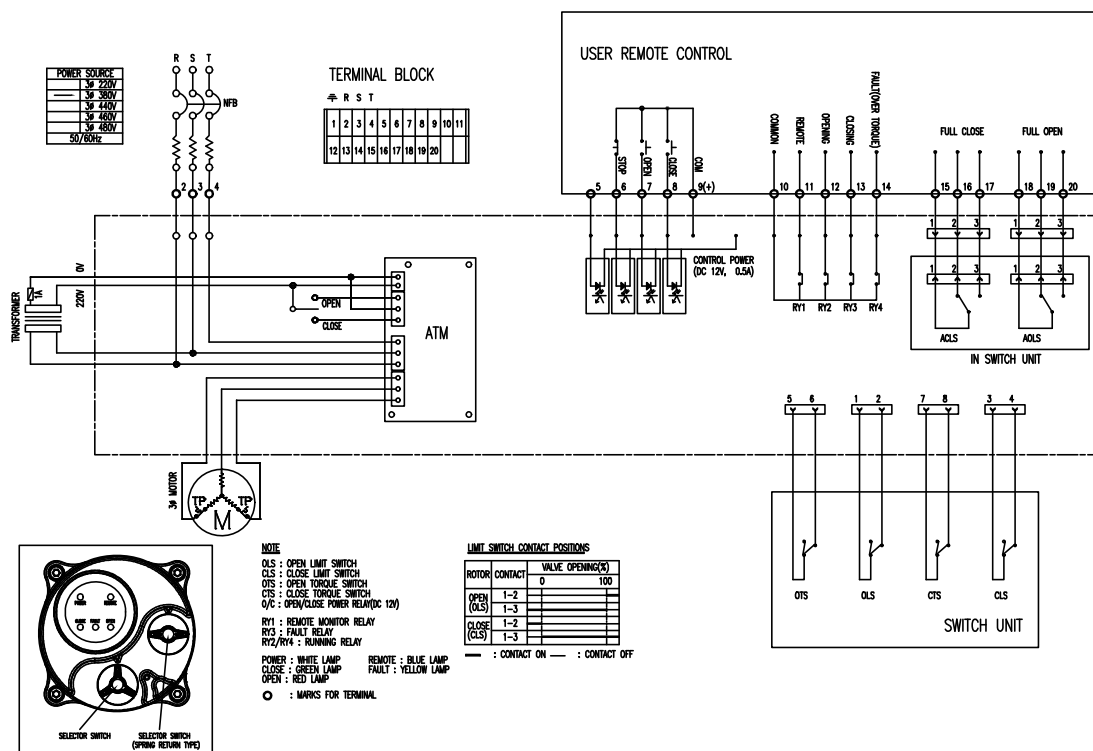


Wiring of GQ-016 ~ 300

► 1PH/110V/220VAC 50/60Hz (LCU+PCU)

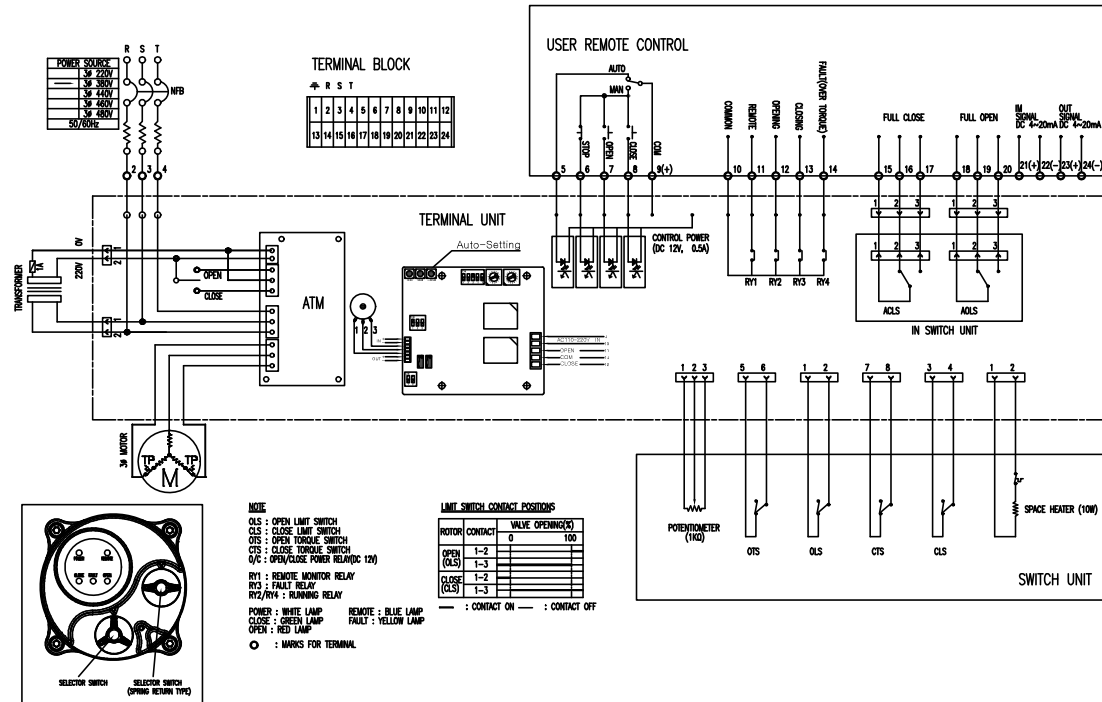


► 3PH/380V/440VAC 50/60Hz(LCU)



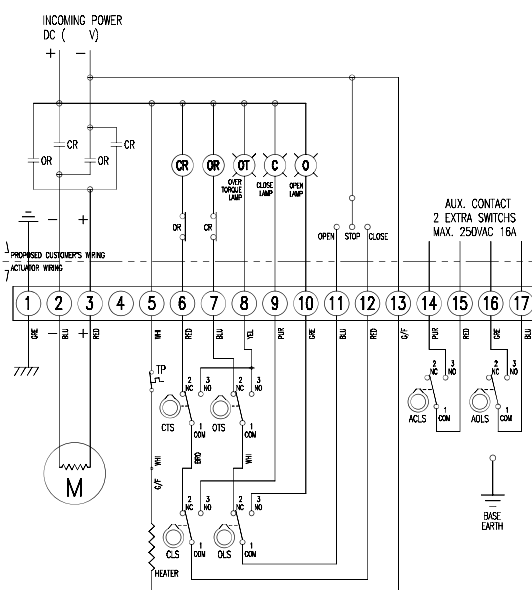
Wiring of GQ-016 ~ 300

▶ 3PH/380V/440VAC 50/60Hz (LCU+PCU)

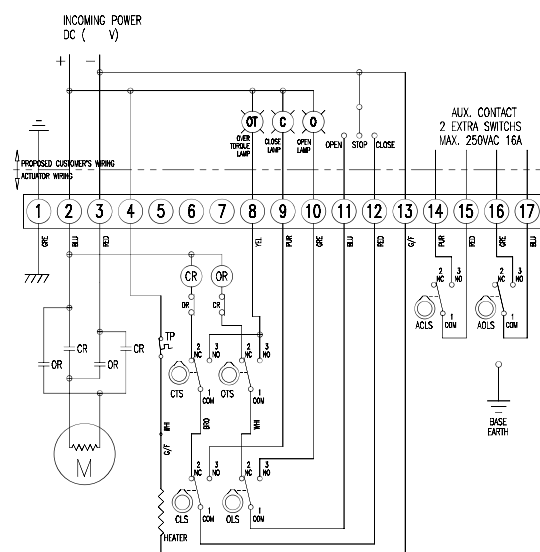


Wiring of GQ-016 ~ 050

▶ 24VDC (On-Off)

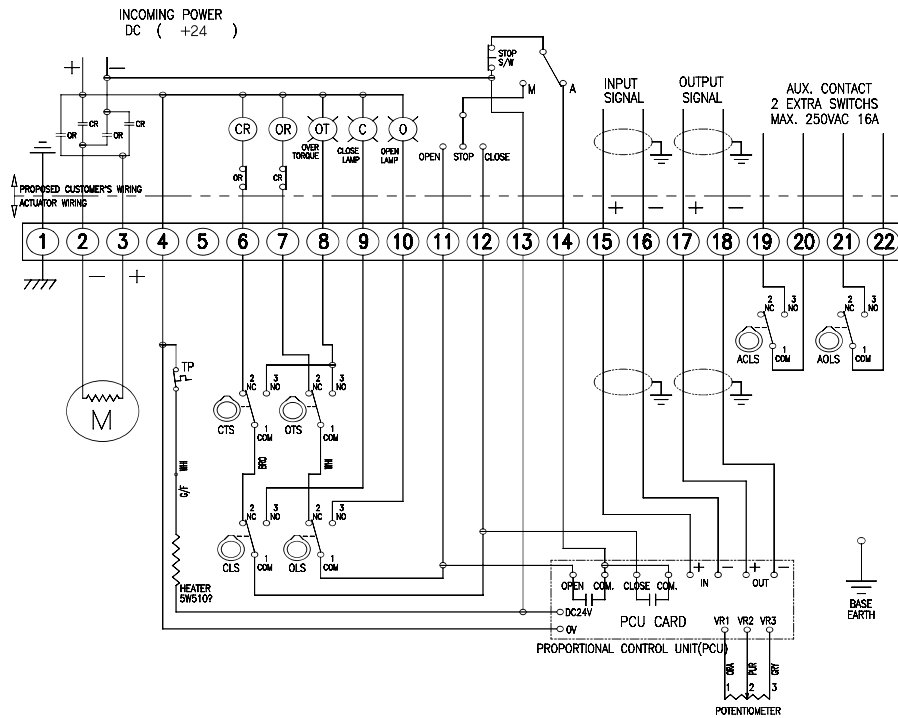


▶ 24VDC (On-Off Inner)



Wiring of GQ-016 ~ 300

▶ 24VDC (PCU)



▶ 24VDC (PCU Inner)

