ELECTRIC VALVE ACTUATOR TYPE CAR-H

FOR 2 & 3-WAY VALVES TYPE G/L/M/S 2FM-T & G/L/S/T AND TM

0-4.11.09-F



TECHNICAL DATA

Protection class: IP67/IP68 option

Ambient temperature: -20°C to +60°C

Power supply:
110/230 VAC + -10% (50-60Hz)
24VDC: CAR-H 006-0250 - ON/OFF
24VDC: CAR-H 006-035 - PCU or CPT

Torque switches: Open/Close
Limit switches: 2x Open/Close

Stall protection: Built-in thermal protection
Cut-off at 125°C ± 5°C /
reset at 90°C ±15°C
Travel angle: 90°±5°

Indicator: Continuous position indicator
Manual override: AUTO declutching mechanism
Worm gear: Permanently lubricated and self-locking

Mechanical stops: External adjustable limit stops

Space heater: 2 or 5W
Anti-condensation

Cable glands: 2 x M20 x 1,5mm

Lubrication: Grease NLGI grade 2 (EP-type)

Materials: Steel, aluminium alloy, Al-bronze
External coating: anodizing and dry powder epoxy painted RAL 6018 (green)

Duty cycle: ON/OFF AC230V,S2: 10min
Modulating: S4-25% ~ 600 start/hour
Anti-vibration: XYZ 10g 02 ~ 34Hz, 30min
Overrvoltage: CAT. III

Available actuator size
STANDARD: On-Off, 3-Point

Modulating/PCU
Command signal input: 4-20mA or 0-10V
Analogue feedback signal: 4-20mA or 0-10V self powered
Deep band: 1,0% adjustable
CPT: feedback signal 4-20mA

APPLICATIONS

Electric valve actuator type CAR-H is specially designed to meet the demands of the powerful low frequency vibration environments in marine installations.
The main applications are cooling of fresh water, sea water and lubricating oil systems for main and auxiliary engines. The actuator is used for Clorius 2 or 3-way valves type L3FM-T, M3FM-T, G3FM-T and S3FM-T, H3FM-T and type TM with double slides.

MOUNTING

For mounting and starting up, the instructions delivered with the actuator must be followed carefully.

SERVICE

No special service is needed. It is recommended to check and grease the actuator at every docking or every three years.

FEATURE

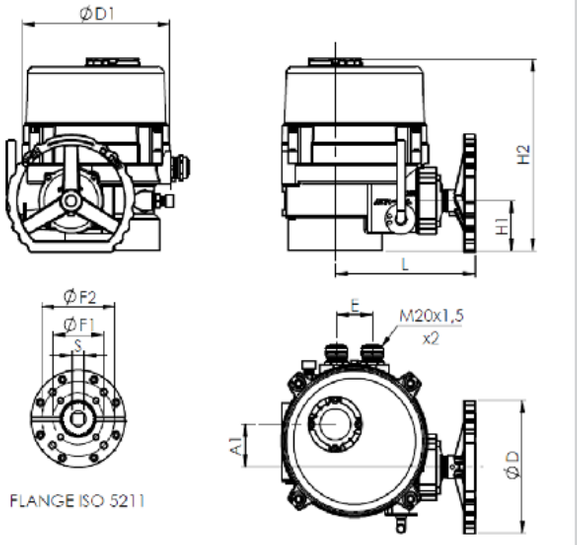
- **Robust design**
- **Maintenance free**
- **Reliable even in rough environments**
- **Easy installation**
- **User friendly**

SPECIFICATIONS

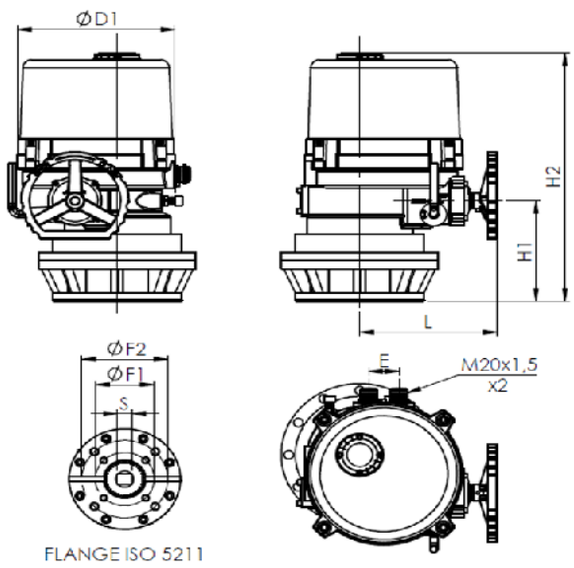
Type	Max. torque Nm	Operating time sek/90° (50/60 Hz)	RATED CURRENT (A) 230 V AC	RATED CURRENT (A) 110 V AC	RATED CURRENT (A) 24 V AC/DC	Power (W)	Duty cycle S2 (min) ON-OFF	Duty cycle S4 (%)	Weight (kg)
CAR-H 006	60	26/22	0,45	-	-	20	10	25	8
CAR-H 010	100	26/22	0,5	1,0	1,7	20	10	25	8
CAR-H 016	160	28/23	0,6	1,45	2,0	40	10	25	14
CAR-H 020	200	28/23	0,6	1,5	2,2	40	10	25	14
CAR-H 024	240	28/23	0,7	1,6	2,8	45	10	25	14
CAR-H 035	350	32/27	0,9	1,8	4,0	60	10	25	18
CAR-H 050	500	32/27	1,3	3,2	6,9	90	10	25	19
CAR-H 080	800	36/30	1,5	3,9	9,8	120	10	25	24
CAR-H 110	1100	36/30	2,2	4,2	12,5	180	10	25	26
CAR-H S200	2000	55/46	2,2	4,2	12,5	180	10	25	46
CAR-H S250	2500	110/92	2,2	4,2	12,5	180	10	25	46
CAR-H S400	4000	150/125	2,2	4,2	12,5	180	10	25	61

DIMENSION SKETCH

CAR-H 006 - 110

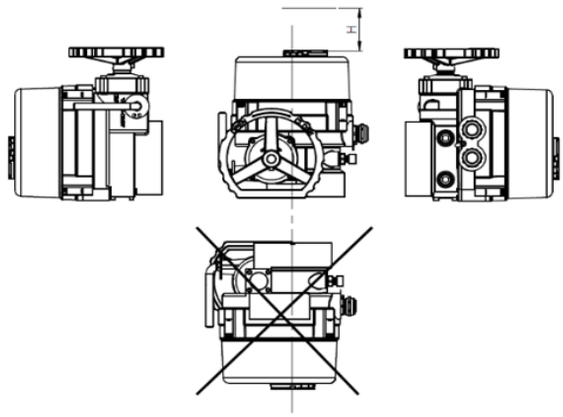


CAR-H S200-S400



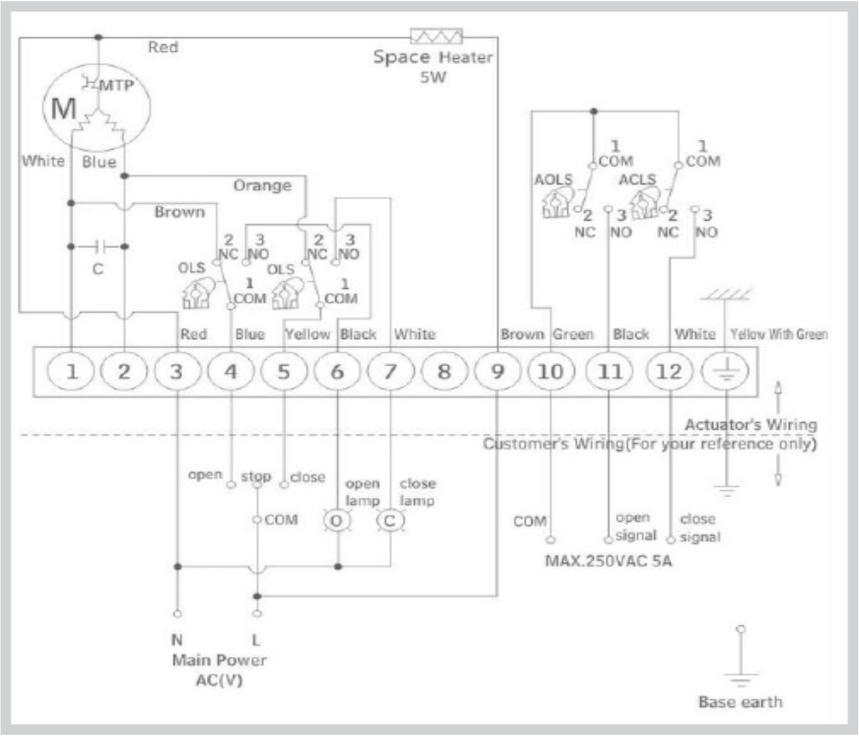
Type	A1	ØD	ØD1	H1	H2	L	E	ISO FLANGE 5211				
								F1	F2	M1	M2	S
								Ø	Ø			SQUARE
CAR-H 006	41	100	157	55	223	167	46	70	82	M8	M8	12x12 -17x17
CAR-H 010	41	100	157	55	223	167	46	70	82	M8	M8	12x12
CAR-H 016	57,5	180	206	67	261	197	50	82	102	M8	M10	17x17
CAR-H 020	57,5	180	206	67	261	197	50	82	102	M8	M10	17x17
CAR-H 024	57,5	180	206	67	261	197	50	70	102	M8	M10	19x19
CAR-H 035	60,5	180	222	70	315	208	50	102	125	M8	M10	19x19
CAR-H 050	60,5	180	222	70	315	208	50	102	125	M8	M10	27x27
CAR-H 080	70	180	262	81	352	230	50	125	140	M12	M16	27x27
CAR-H 110	70	180	262	81	352	230	50	125	140	M12	M16	27x27
CAR-H S200	70	180	262	185	456	230	50	140	165	M16	M20	27x27 - 46x46
CAR-H S250	70	180	262	185	456	230	50	140	165	M16	M20	46x46
CAR-H S400	70	180	262	303	574	/	50	165	254	M16	M20	52x52

RECOMMENDED CAR MOUNTING POSITION

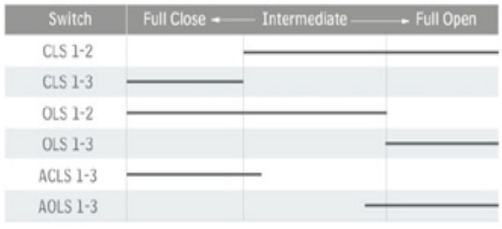


Actuator type	H
CAR-H 006 - 110	150
CAR-H S200-S400	200

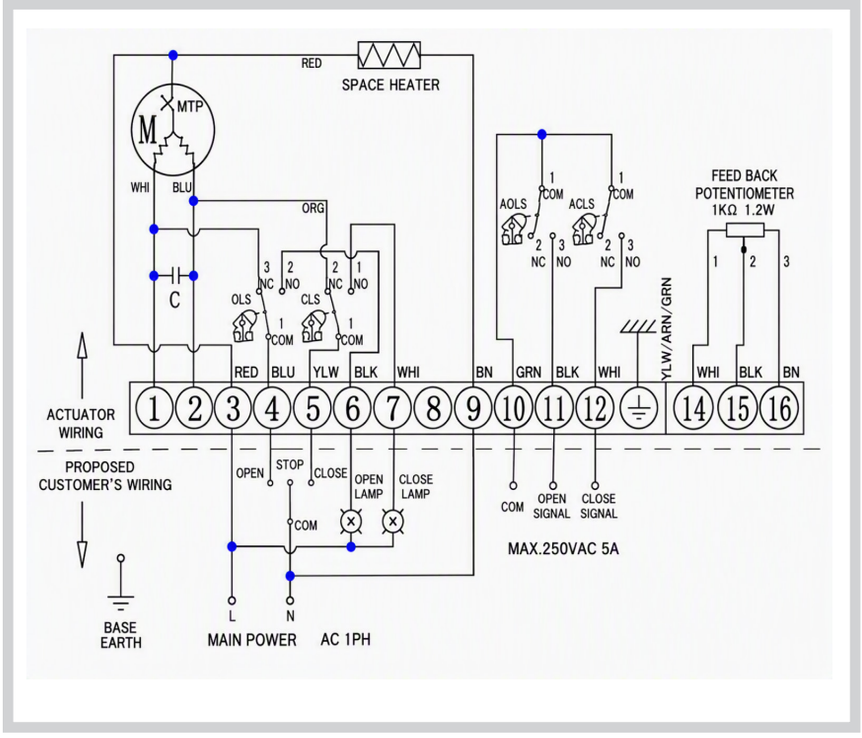
110/230 VAC
Wiring diagram ON/OFF- for CAR-H 006-010



AOLS:	AUX. Open limit switch (250VAC 5A)
ACLS:	AUX. Close limit switch (250VAC 5A)
O:	Open lamp
C:	Close lamp
CLS:	Close limit switch
OLS:	Open limit switch
KMC:	Magnetic contactor close
KMO:	Magnetic contactor open
MTP:	Motor thermal protector
M:	Motor

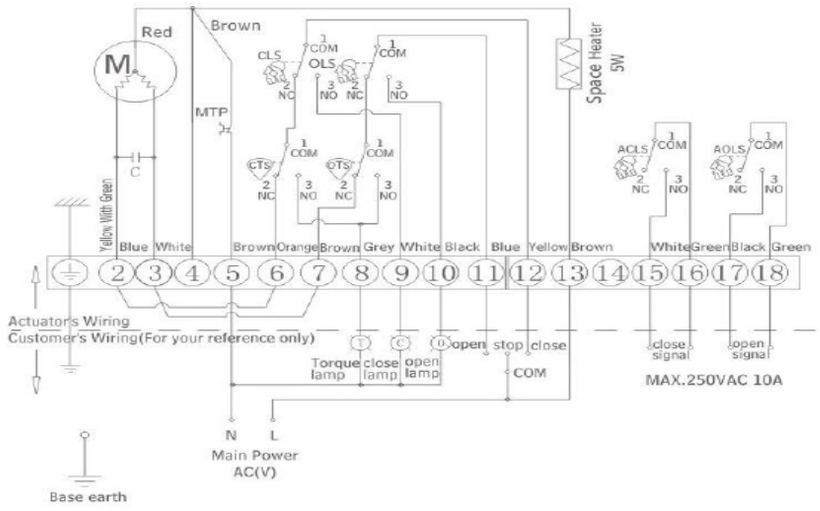


110/230 VAC
Wiring diagram ON/OFF- for CAR-H 006-010 R

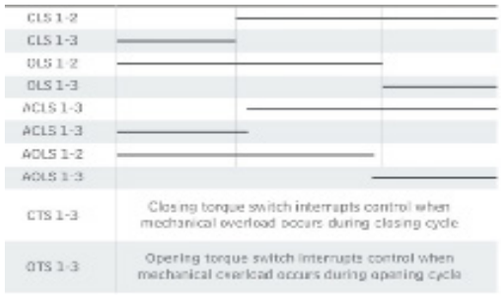


AOLS:	AUX. Open limit switch (250VAC 5A)
ACLS:	AUX. Close limit switch (250VAC 5A)
O:	Open lamp
C:	Close lamp
CLS:	Close limit switch
OLS:	Open limit switch
MTP:	Motor thermal protector
M:	Motor
RP1:	Potentiometer 1KΩ

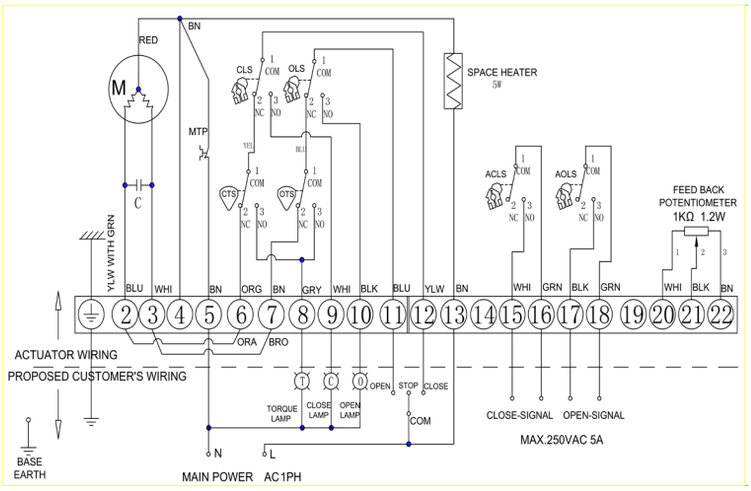
110/230 VAC
Wiring diagram ON/OFF for CAR-H 016-S400



AOLS:	AUX. Open limit switch (250VAC 10A)
ACLS:	AUX. Close limit switch (250VAC 10A)
O:	Open lamp
C:	Close lamp
T:	Torque switch
CLS:	Close limit switch
OLS:	Open limit switch
CTS:	Close torque switch
OTS:	Open torque switch
RP1:	Potentiometer 1KΩ
KMC:	Magnetic contactor close
KMO:	Magnetic contractor open
MTP:	Motor thermal protector
M:	Motor



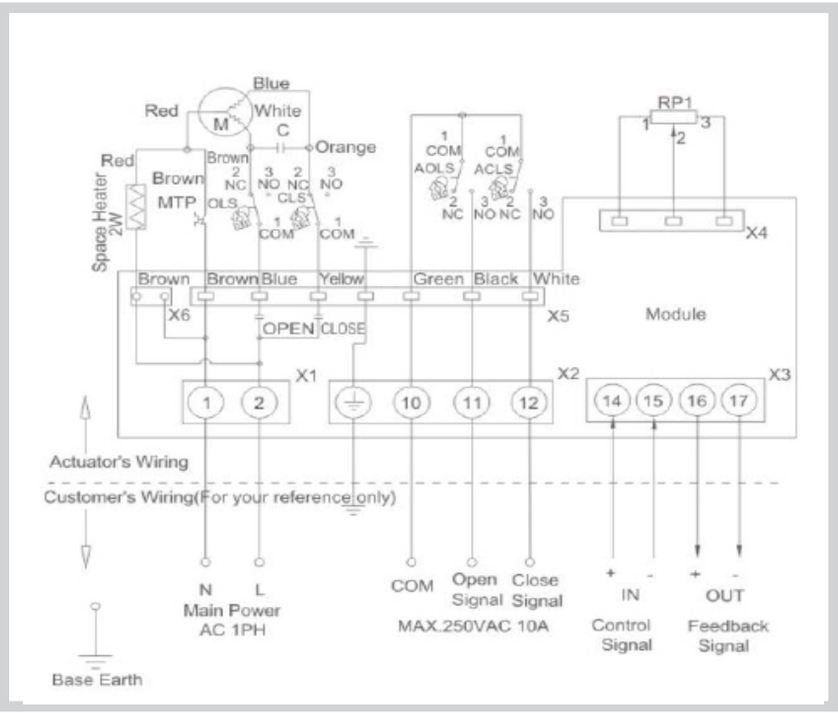
110/230 VAC
Wiring diagram ON/OFF- for CAR-H 016-S400 R



AOLS:	AUX. Open limit switch (250VAC 5A)
ACLS:	AUX. Close limit switch (250VAC 5A)
O:	Open lamp
C:	Close lamp
CLS:	Close limit switch
OLS:	Open limit switch
CTS	Close torques switch
OTS	Open torques switch
MTP:	Motor thermal protector
M:	Motor
RP1	Potentiometer 1KΩ

110/230 VAC

Wiring diagram MODULATING/PCU for CAR-H 006-010

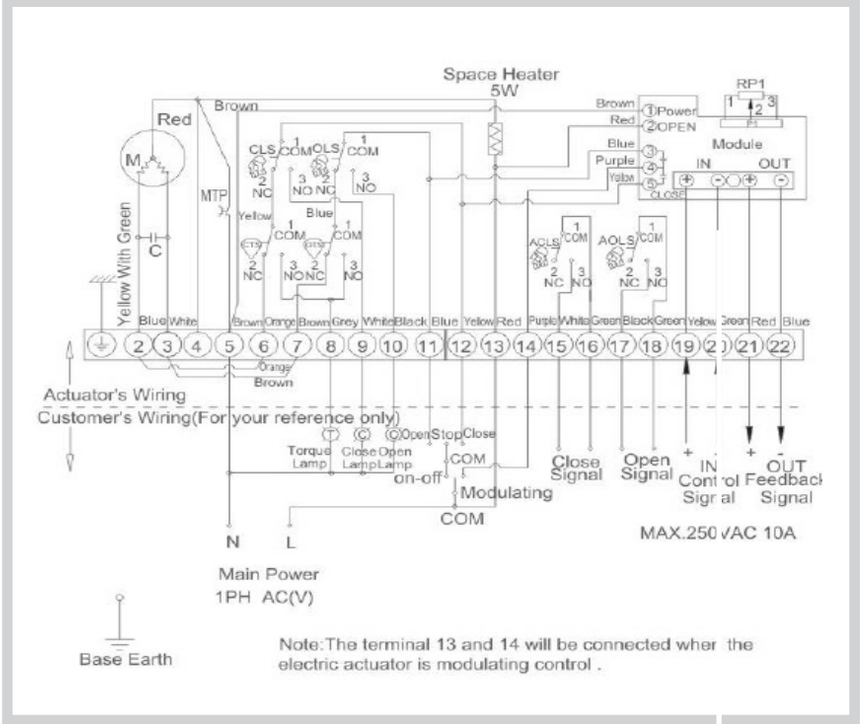


AOLS:	AUX. Open limit switch (250VAC 10A)
ACLS:	AUX. Close limit switch (250VAC 10A)
O:	Open lamp
C:	Close lamp
T:	Torque switch
CLS:	Close limit
OLS:	Open limit switch
RP1:	Potentiometer 1KΩ
KMC:	Magnetic contactor close
KMO:	Magnetic contactor open
MTP:	Motor thermal protector
M:	Motor

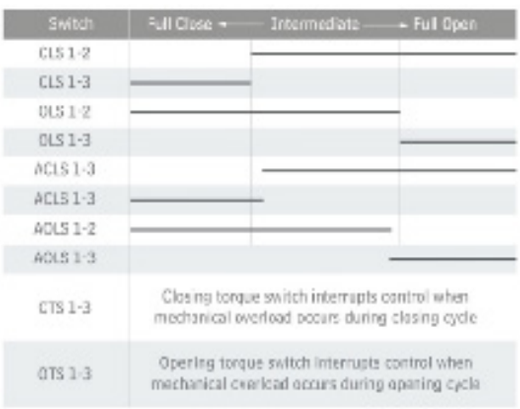


110/230 VAC

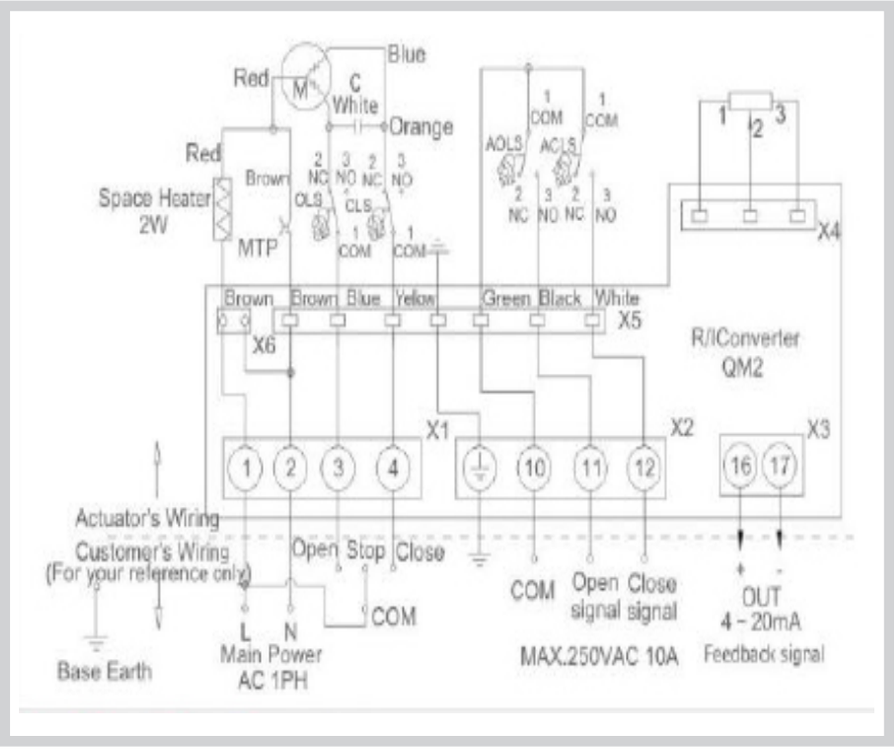
Wiring diagram Modulating/PCU for CAR-H 016-S400



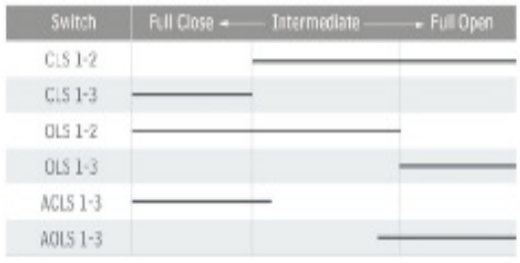
AOLS:	AUX. Open limit switch (250VAC 10A)
ACLS:	AUX. Close limit switch (250VAC 10A)
O:	Open lamp
C:	Close lamp
T:	Torquo switch
CLS:	Close limit switch
OLS:	Open limit switch
CTS:	Close torque switch
OTS:	Open torque switch
RP1:	Potentionmeter 1KΩ
KMC:	Mangetic contactor close
KMO:	Magnetic contactor open
MTP:	Motor thermal protector
M:	Motor



110/230 VAC
Wiring diagram CPT for CAR-H 006-010

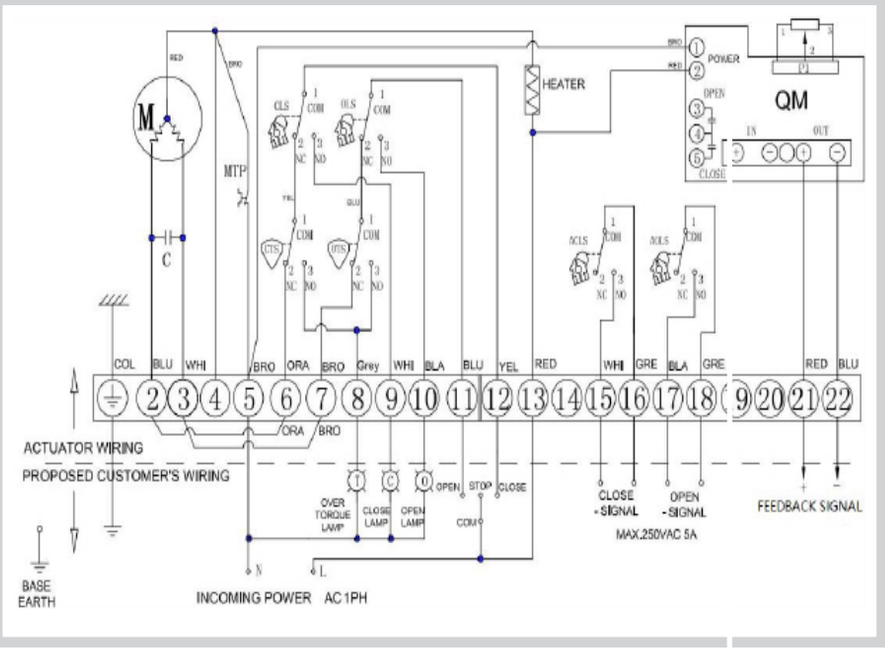


AOLS:	AUX. Open limit switch (250VAC 10A)
ACLS:	AUX. Close limit switch (250VAC 10A)
O:	Open lamp
C:	Close lamp
CLS:	Close limit switch
OLS:	Open limit switch
KMC:	Magnetic contactor close
KMO:	Magnetic contactor open
MTP:	Motor thermal protector
M:	Motor

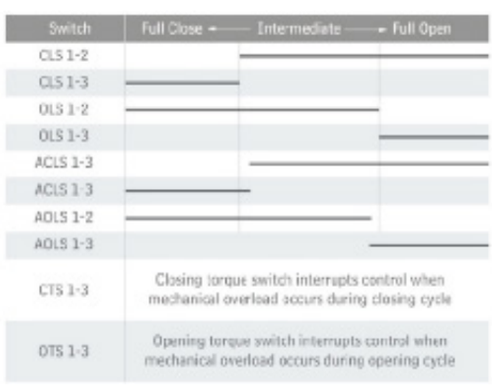


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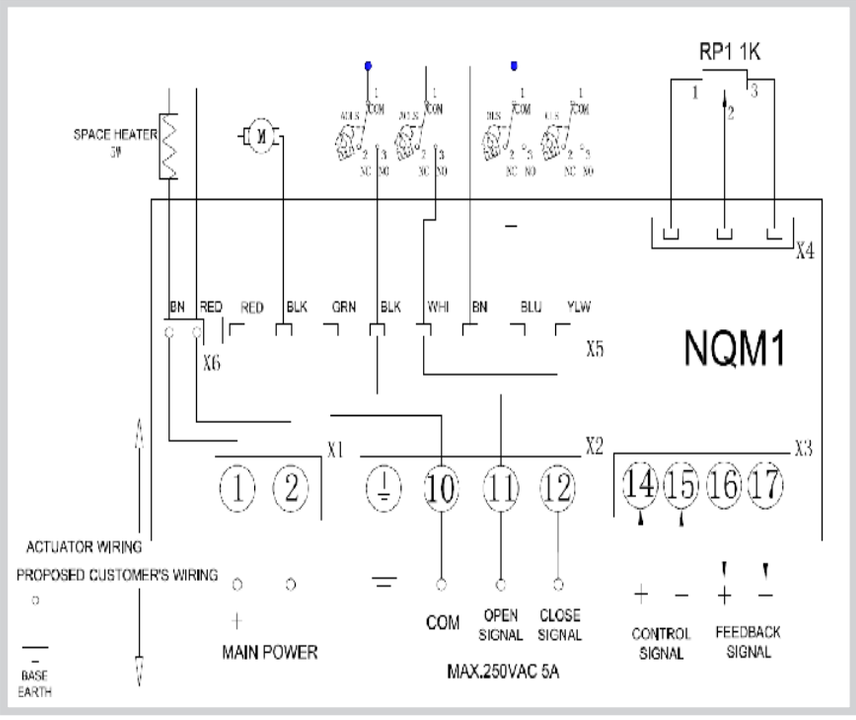
110/230 VAC
Wiring diagram CPT for CAR-H 016-S400



AOLS:	AUX. Open limit switch (250VAC 5A)
ACLS:	AUX. Close limit switch (250VAC 5A)
O:	Open lamp
C:	Close lamp
T:	Torque switch
CLS:	Close limit switch
OLS:	Open limit switch
KMC:	Magnetic contactor close
KMO:	Magnetic contactor open
MTP:	Motor thermal protector
M:	Motor



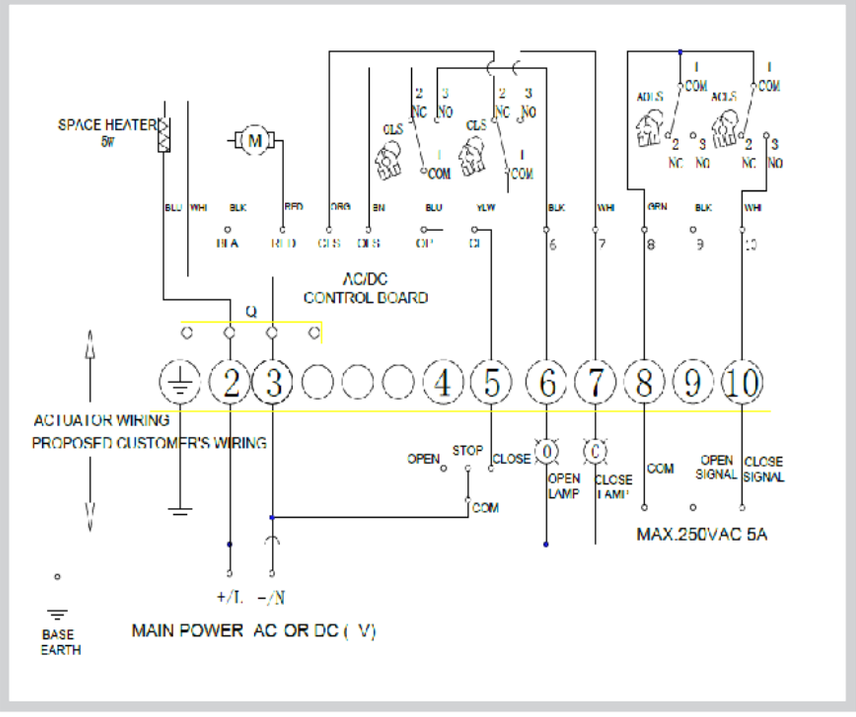
DCV24V
Wiring diagram PCU for CAR-H 006-010



AOLS:	AUX. Open limit switch (250VAC 5A)
ACLS:	AUX. Closelimit switch (250VAC 5A)
O:	Open lamp
C:	Close lamp
CLS:	Close limit switch
OLS:	Open limit switch
1K:	Potentiometer feedback 1KΩ
M:	Motor

Switch	Full Close	Middle Position	Full Open
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS 1-2			
AOLS 1-3			
AOLS 1-2			
AOLS 1-3			

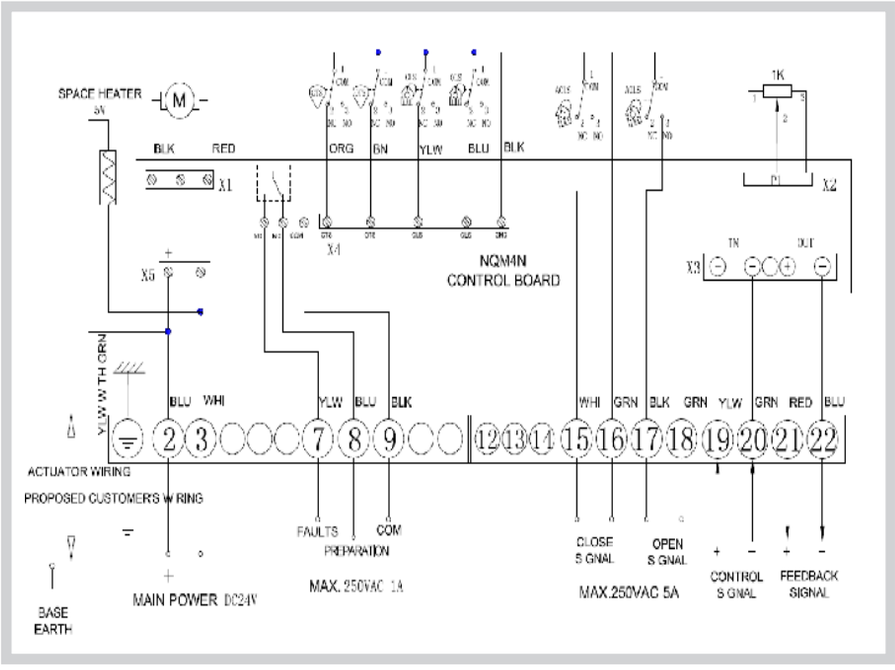
DCV24V
Wiring diagram ON/OFF for CAR-H 006-010



AOLS:	AUX. Open limit switch (250VAC 5A)
ACLS:	AUX. Close limit switch (250VAC 5A)
O:	Open lamp
C:	Close lamp
CLS:	Close limit switch
OLS:	Open limit switch
M:	Motor

Switch	Full Close	Middle Position	Full Open
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS 1-3			
AOLS 1-3			

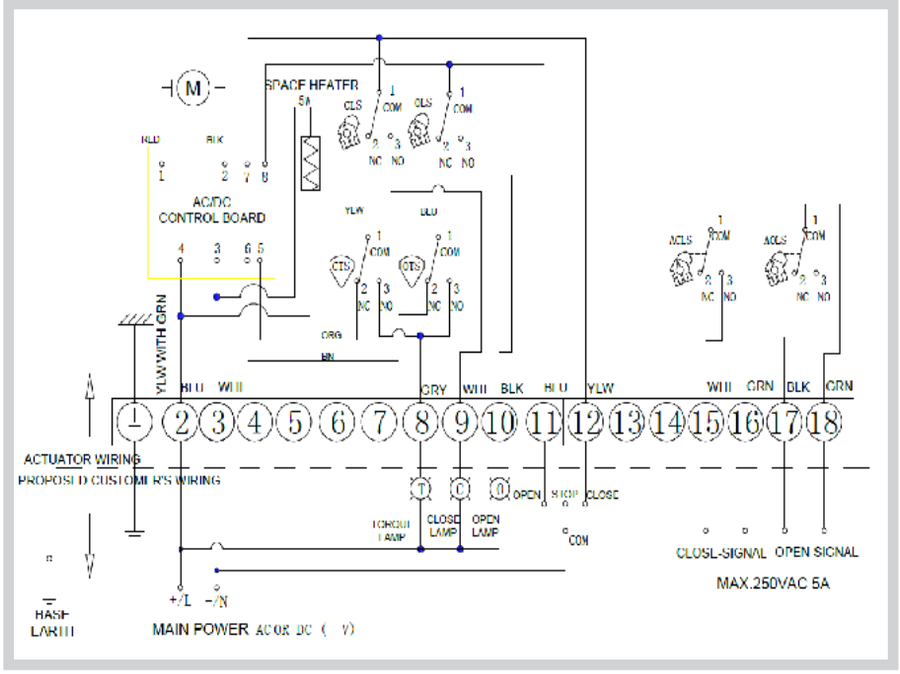
DCV24
Wiring diagram PCU for CAR-H 016-035



AOLS:	AUX. Open limit switch (250VAC 5A)
ACLS:	AUX. Close limit switch (250VAC 5A)
O:	Open lamp
C:	Close lamp
CLS:	Close limit switch
OLS:	Open limit switch
CTC:	Close torque switch
OTC:	Open torque switch
1K:	Potentiometer 1KΩ
M:	Motor

Switch	Full Close	Middle Position	Full Open
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS 1-2			
AOLS 1-3			
AOLS 1-2			
AOLS 1-3			

DCV24
Wiring diagram ON/OFF for CAR-H 016-250



AOLS:	AUX. Open limit switch (250VAC 5A)
ACLS:	AUX. Close limit switch (250VAC 5A)
O:	Open lamp
C:	Close lamp
T:	Torque lamp
CLS:	Close limit switch
OLS:	Open limit switch
CTC:	Close torque switch
OTC:	Open torque switch
M:	Motor

Switch	Full Close	Middle Position	Full Open
CLS 1-2			
CLS 1-3			
OLS 1-2			
OLS 1-3			
ACLS 1-2			
AOLS 1-3			
AOLS 1-2			
AOLS 1-3			

Modulating/PCU actuator data

CAR-H 006-010 Technical data	• Analogue input signal 4-20mA or 0-10V	Optional
	• Analogue feedback signal 4-20mA or 0-10 self-powered	Optional
	• Input impedance ≥ 400KΩ	-
	• Dead band 1-%	Adjustable
	• The electronic components are protected dirt and similar	-

CAR-H 016-S250 Technical data	• Analogue input signal 4-20mA or 0-10V	DIP Switches
	• Analogue feedback signal 4-20mA or 0-10V self-powered	DIP Switches
	• Input impedance ≥ 400KΩ	-
	• Dead band 1-%	Adjustable
	• The electronic components are protected dirt and similar	-

CLS	Close limit switch (250VAC 5A)	-
OLS	Close limit switch (250VAC 5A)	-
CLS	Close Torque switch (250VAC 5A)	-
OTS	Close Torque switch (250VAC 5A)	-
Torque switch	x 2 close/open	CAR-H 016-S400
Torque switch	without	CAR-H 006-010
TP	Thermal protector (250VAC 5A)	-
Header	CAR-H 006-10: 5W; CAR-H 016-S400: 7W	-