



**CUSTOMER:** \_\_\_\_\_ **DATE:** \_\_\_\_\_

**CONTACT:** \_\_\_\_\_ **PHONE:** \_\_\_\_\_ **FAX:** \_\_\_\_\_

### 1) APPLICATION

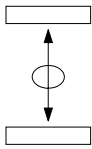
- INDOOR    OUTDOOR    MARINE ENVIRONMENT    MOBILE EQUIPMENT    OVERHEAD CRANE/HOISTING    CRANE CHAIR
- PORTABLE EQUIPMENT    FOOT PEDAL    OTHER \_\_\_\_\_

### 2) CONTROLLER SIZE & DURABILITY

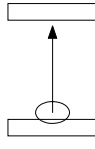
- MINIATURE: V10 H100 H7 V14 V20 S14    MEDIUM: V11 V8 D8
- SMALL: V5 VV5 S2 S21 S22 S23 S24 N6    LARGE: V3 V6 VV6 D64 DD64 K2

### 3) CONTROLLER FUNCTIONS

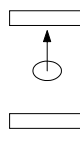
SINGLE AXIS (PICK 1 OF 3 ITEMS BELOW)



STANDARD BI-DIRECTIONAL

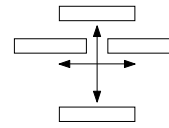


FULL TRAVEL UNI-DIRECTIONAL

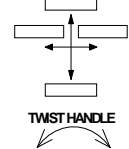


CENTER TO END UNI-DIRECTIONAL

DUAL AXIS



MULTI AXIS



TWIST HANDLE

### 4) SWITCH SPECIFICATIONS

LEFT HAND MOUNTING

- VOLTAGE \_\_\_\_\_ AC/DC    CURRENT \_\_\_\_\_ AMPS.  
 DIRECTION 1&2    DIRECTION 3&4  
 NUMBER OF CONTACTS \_\_\_\_\_    NUMBER OF CONTACTS \_\_\_\_\_  
 STEPLESS OR STEPS \_\_\_\_\_    STEPLESS OR STEPS \_\_\_\_\_
- SPRING RETURN    SPRING RETURN
  - FRICTION BRAKE    FRICTION BRAKE
  - POTENTIOMETER \_\_\_\_\_    POTENTIOMETER \_\_\_\_\_
  - ELECTRONICS    ELECTRONICS

RIGHT HAND MOUNTING

- VOLTAGE \_\_\_\_\_ AC/DC    CURRENT \_\_\_\_\_ AMPS.  
 DIRECTION 5&6    DIRECTION 7&8  
 NUMBER OF CONTACTS \_\_\_\_\_    NUMBER OF CONTACTS \_\_\_\_\_  
 STEPLESS OR STEPS \_\_\_\_\_    STEPLESS OR STEPS \_\_\_\_\_
- SPRING RETURN    SPRING RETURN
  - FRICTION BRAKE    FRICTION BRAKE
  - POTENTIOMETER \_\_\_\_\_    POTENTIOMETER \_\_\_\_\_
  - ELECTRONICS    ELECTRONICS

### 5) ELECTRONICS

#### A) VALVE SPECIFICATIONS

VALVE MANUFACTURE \_\_\_\_\_ MODEL NUMBER \_\_\_\_\_

SUPPLY VOLTS: \_\_\_\_\_ VDC    COIL RESISTANCE: \_\_\_\_\_ OHMS    THRESHOLD: \_\_\_\_\_ mA    MAX. OUTPUT \_\_\_\_\_ mA

- SINGLE COIL    DUAL COIL    FLOW CONTROL    SWITCHES FOR DIRECTIONAL VALVES   PWM FREQUENCY: \_\_\_\_\_ Hz

#### B) SIGNAL OUTPUTS

SUPPLY VOLTS: \_\_\_\_\_ VDC     4-20mA    0-20mA    0-10V    -10V to +10V    OTHER \_\_\_\_\_

#### C) OPTIONS FOR BOTH

- SINGLE MAX. (A ADJ.)    DUAL MAX. (A & B ADJ.)    DUAL RANGE \_\_\_\_\_ mA    RAMP TIME \_\_\_\_\_ SEC.

### 6) HANDLE TYPE

- STANDARD KNOB    MECHANICAL INTERLOCK    PUSHBUTTON DEADMAN    PUSH DEADMAN    PULL DEADMAN
- PALM HANDLE \_\_\_\_\_

### 7) NAMEPLATE SPECIFICATIONS

- STANDARD NAMEPLATE \_\_\_\_\_    SPECIAL NAMEPLATE (ATTACH LAYOUT DRAWING OR SPECIFICATIONS)

### 8) ENCLOSURE

- GENERAL PURPOSE    WEATHERPROOF    CORROSIVE RESISTANT (PLASTIC)    PORTABLE CONSOLES
- ENCLOSURE DIMENSIONS L= \_\_\_\_\_ W= \_\_\_\_\_ H= \_\_\_\_\_    TS1    TS2

### 9) NOTES

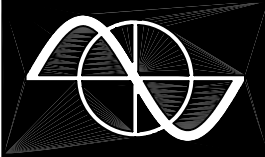
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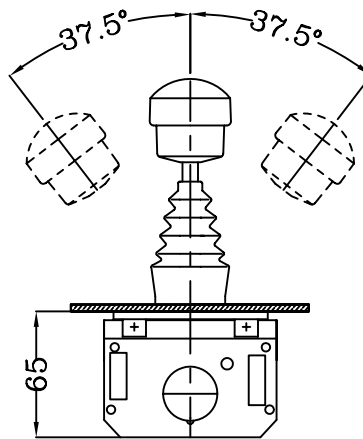
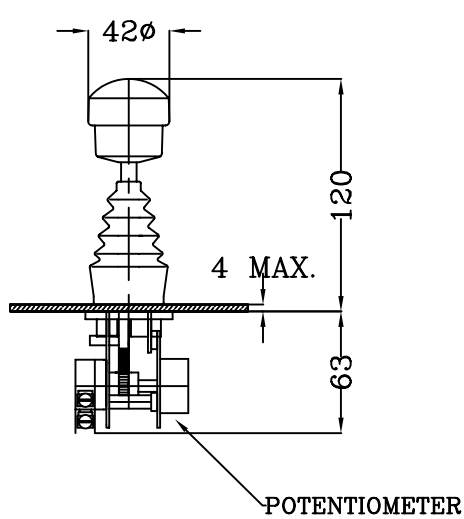
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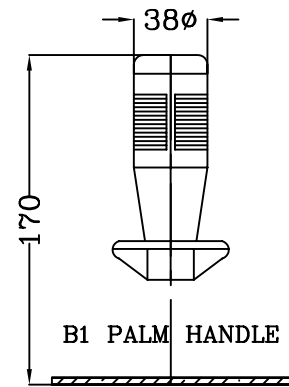
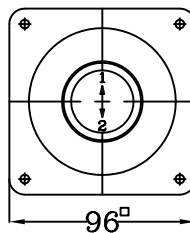
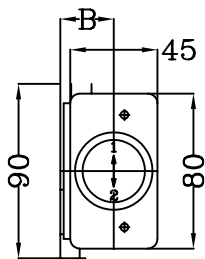
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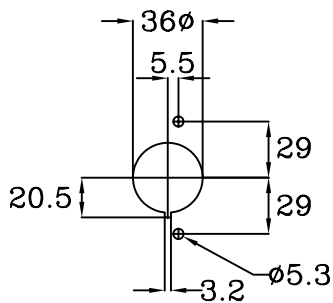
THE S24 SINGLE AXIS MASTER SWITCH CAN BE USED FOR REMOTE CONTROL OF ELECTRO-HYDRAULIC PROPORTIONAL VALVES, VARIABLE SPEED DRIVES AND ELECTRONICS FOR ELECTRO/HYDRAULIC CONTROLS. IT IS OF MODULAR DESIGN AND COMPACT SIZE. IT IS BUILT FOR 6 MILLION OPERATIONS. THE S24 SWITCH IS OIL, OZONE, UV AND SALT ATMOSPHERE (OCEAN CONDITION) RESISTANT. THE S24 IS OBTAINABLE WITH A VARIETY OF MICROSWITCHES AND POTENTIOMETERS. STANDARD CONTACT RATING 0.1A. 30VDC TO 15A. 250VAC  
DEGREE OF PROTECTION FRONT: IP54



SIZE	# OF CONTACTS	B DIMENSION
1	1	25
2	2	31
3	3	36
4	4	42

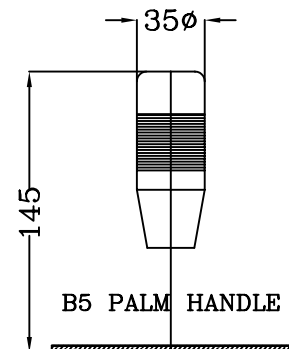
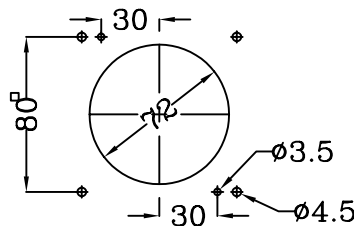


B1 PALM HANDLE

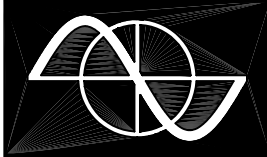


PANEL CUT OUT

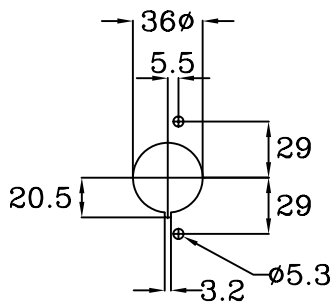
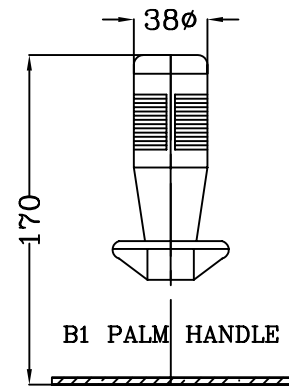
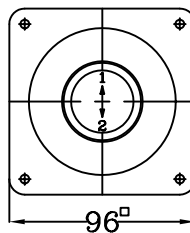
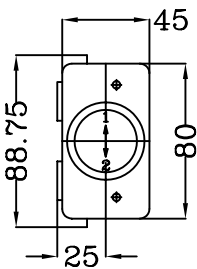
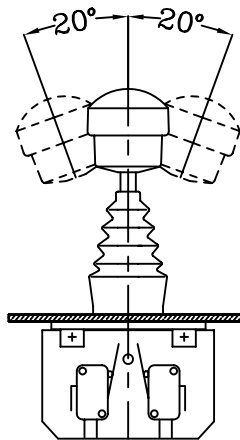
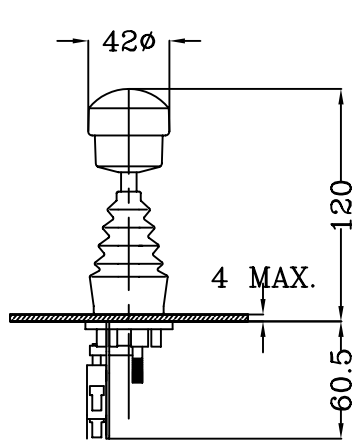
HOLE PATTERN for FLANGE MTG.



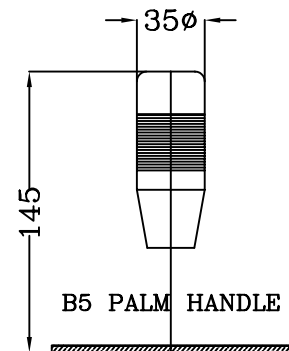
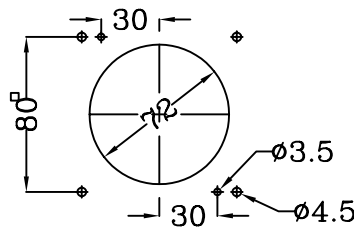
B5 PALM HANDLE



THE S24 SINGLE AXIS MASTER SWITCH BANG BANG IS THE MOST SIMPLE AND COST EFFECENT FOR SINGLE AXIS OFF ON APPLICATIONS. IT IS OF MODULAR DESIGN AND COMPACT SIZE. IT IS BUILT FOR 6 MILLION OPERATIONS. THE S24 SWITCH IS OIL, OZONE, UV AND SALT ATMOSPHERE (OCEAN CONDITION) RESISTANT. STANDARD CONTACT RATING 0.1A. 30VDC TO 15A. 250VAC DEGREE OF PROTECTION FRONT: IP54

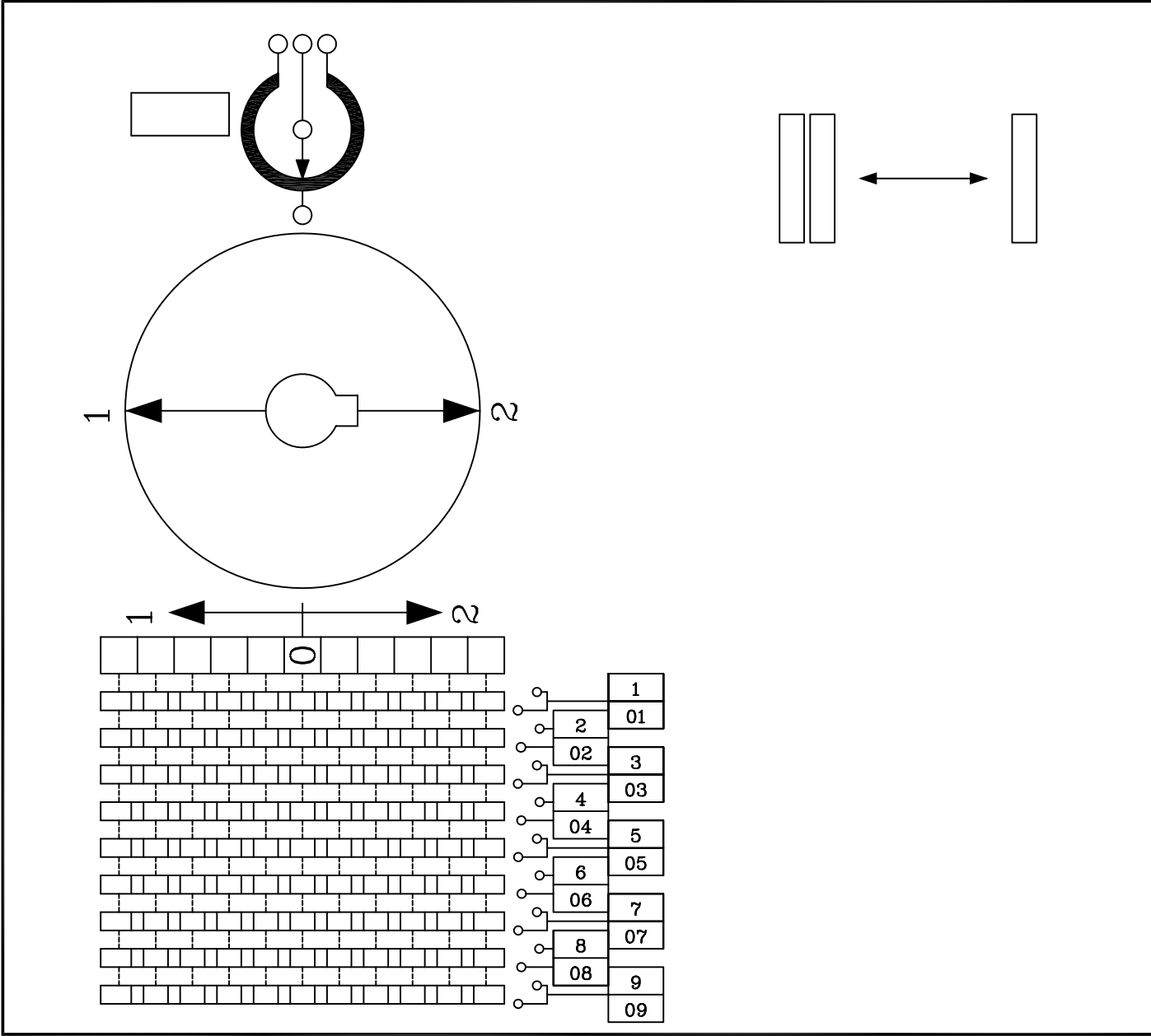
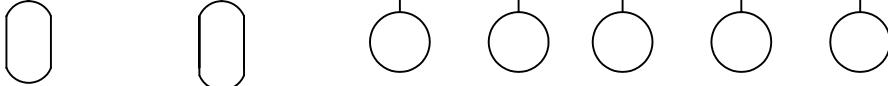


HOLE PATTERN for FLANGE MTG.

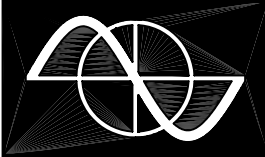


PANEL CUT OUT

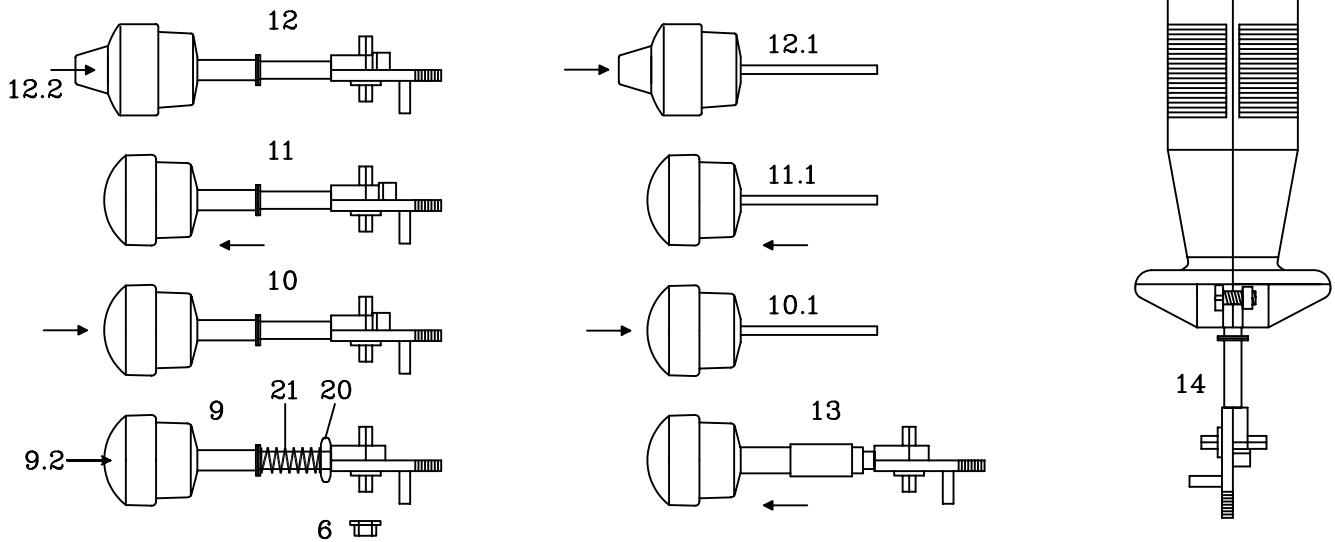
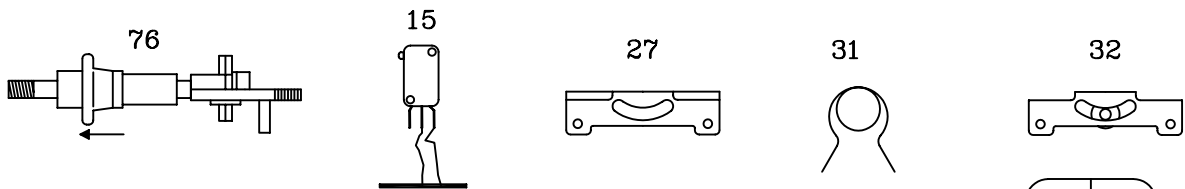
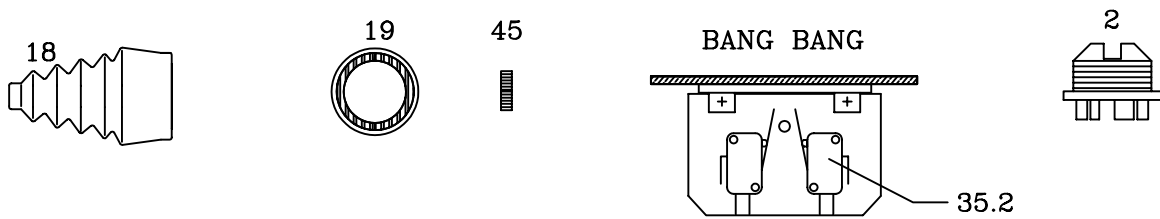
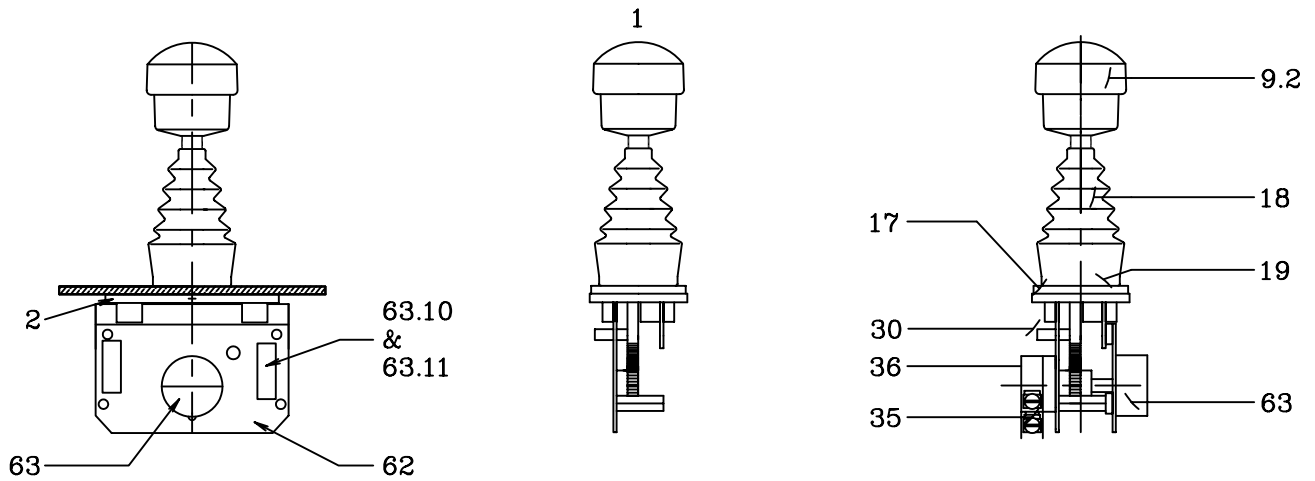
S2-MASTER SWITCH
S21-MASTER SWITCH
S22-MASTER SWITCH
S23-MASTER SWITCH HUB TYPE
S24-MASTER SWITCH
X-STANDARD HANDLE
T-DEAD MAN TO PRESS
P-DEAD MAN TO PULL
B-PUSH BUTTON IN HANDLE
M-MECH. INTERLOCK IN O POSS.
Q-T GRIP HANDLE (S23 ONLY)
SPECIAL HANDLE SEE SECT. 5
CONTACT ARR. DIR. 1-2
A-Z-FROM SHEET 20.2.1
O-SPECIAL CONTACT ARR.
X-IF NOT REQUIRED
Z-SPRING RETURN
F-BRAKE ADJUSTABLE
X-IF NOT REQUIRED
P-POTENTIOMETER SEE SECT. 6
p-POTENTIOMETER MOUNTING
X-IF NOT REQUIRED
1-M-STANDARD NAMEPLATE. SECT. 20.1
X-IF NOT REQUIRED
O-SPECIAL NAMEPLATE MARK IN CHART
G-GENERAL PURPOSE ENCL.
W-WEATHERPROOF ENCL.
O-OPEN TYPE SWITCH



GESSMANN S___ MASTER SWITCH		JOB #
DATE: _____ NAME: _____	FROM: _____	_____

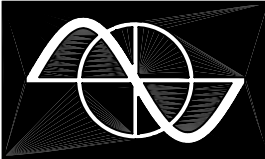


FOR FLANGE MOUNTING (S21) SEE SHEET 3.2.4



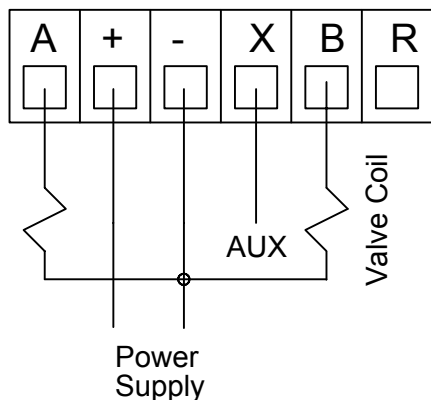


<b>PART#</b>	<b>DESCRIPTION</b>
1	COMPLITE DRIVE WITH STD.HANDLE & RETURN SPRING
2	CASTING
6	PLASTIC BUSHING
9	STANDARD SHAFT ASSEMBLY
9.2	SOLID KNOB
10	STANDARD SHAFT ASSEMBLY FOR PUSH DEAD MAN 'T'
10.1	KNOB AND ROD FOR PULL DEAD MAN 'P'
11	KNOB AND ROD FOR PULL DEAD MAN 'P'
11.1	KNOB AND ROD FOR PUSH BUTTON DEAD MAN 'B'
12	STANDARD SHAFT ASSEMBLY FOR PUSH BUTTON DEAD MAN 'B'
12.1	KNOB AND ROD FOR PUSH BUTTON DEAD MAN 'B'
12.2	RUBBER CAP FOR PUSH BUTTON DEAD MAN
13	STANDARD SHAFT ASSEMBLY FOR MECHANICAL INTERLOCK 'M'
13.1	TOP KNOB,SPRING AND BOTTOM FOR MECHANICAL INTERLOCK 'M'
14	STANDARD SHAFT ASSEMBLY FOR B1T
14.1	B1T PALM HANDLE WITH ROD
15	DEAD MAN MICROSWITCH SEALED
17	RUBBER GASKET
18	RUBBER BOOT
19	MOUNTING RING NUT
20	'0' POSITION PLASTIC BUSHING
21.0	SPRING
27.1	RETURN SPRING COMPLETE
27.2	RETURN SPRING COMPLETE '0' POS. IN DIRECTION 2
27.3	RETURN SPRING COMPLETE '0' POS. IN DIRECTION 1
30	TENSION SPRING STUD
31.2	TENSION SPRING OMEGA NORMAL
31.4	TENSION SPRING OMEGA STRONG
32	FRICTION BRAKE
35.1	MICROSWITCHS c/w ROLLER (0.187 TABS)
35.2	MICROSWITCHS c/w LEVER
35.3	MICROSWITCHS c/w ROLLER (0.250 TABS)
35.4	MICROSWITCHS (166) AC c/w ROLLER (SCREW TERMINALS)
36	INSULATING CIRCUIT BOARD
62	PRINTED CIRCUIT BOARD
63	POTENTIOMETER SEE SECTION 6
76	STANDARD SHAFT ASSY. FOR B5 HANDLE WITH MECH. INTERLOCK 'M' SEE PAGE 5.5.1 FOR B5 OPTIONS

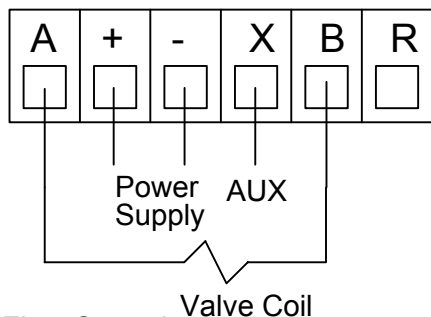


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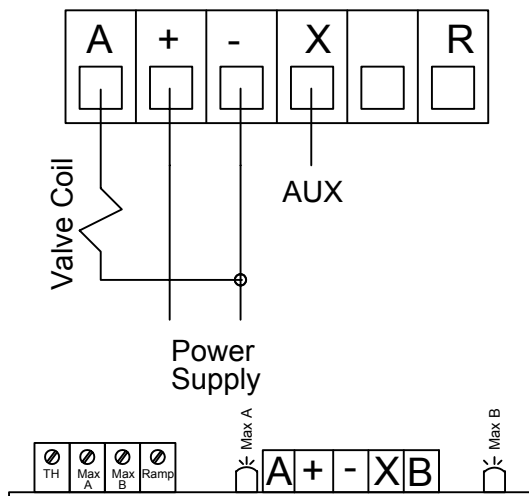
Dual Coil



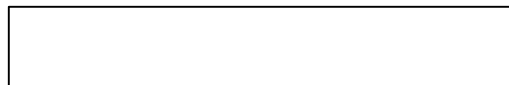
Single Coil



Flow Control



Voltage:  12VDC  24VDC



**Threshold Adjustment (TH)**

Adjust the "Threshold" Trimpot for the desired minimum speed/flow. Move the handle slowly until the LED just comes ON. If speed is too slow, turn the adjustment screw CW. If the speed is too fast, turn the adjustment screw CCW.

**Maximum Adjustment (Single Max)**

Adjust the "Maximum" Trimpot for desired maximum speed/flow when the handle is at full travel. Assure that the speed decreases when the handle is moved away from fully deflected position.

**Dual Max Adjustment (Max A, Max B)**

See adjustment for "Maximum adjustment". Max A and Max B provide the joystick controller with separate maximum adjustments for each of the two directions.

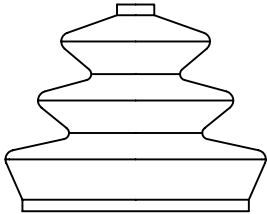
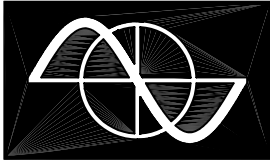
**Ramping**

Adjusts the rate of change of output current as the handle is changing position. To increase the Ramp time, turn the adjustment CCW; to decrease the ramp time, turn the adjustment CW. To turn the Ramping completely off, turn the adjustment to minimum. (20 times CW).

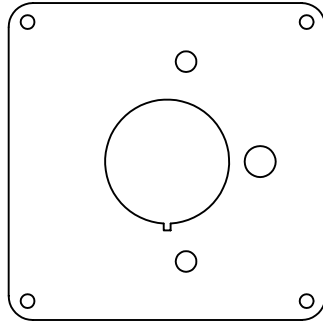
**Dual Range Adjustment (DR)**

When power is applied to the R terminal, the joystick is in dual range mode. Adjust the "maximum setting" potentiometer for desired maximum current when the handle is deflected to its full travel position. Assure that the speed decreases when the handle is moved away from fully deflected position.

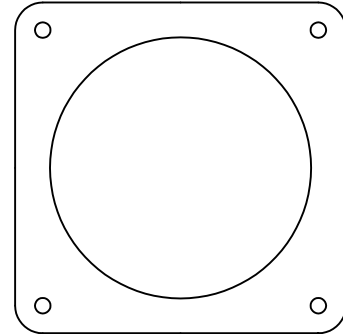
CW Clockwise CCW Counter-Clockwise



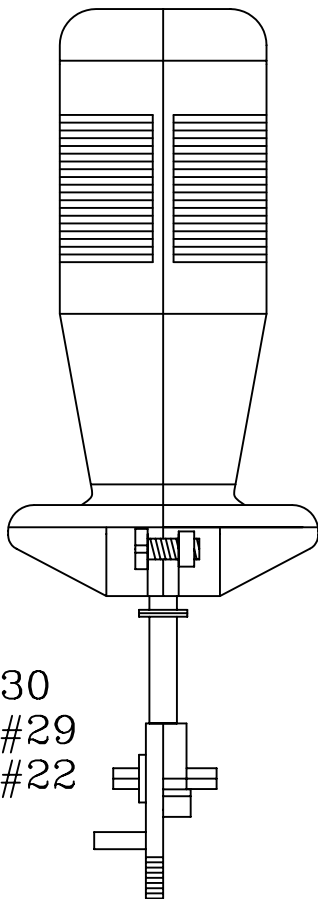
S2#28  
S22#28  
S24#25



S2#14  
S22#15  
S24#23



S2#25  
S22#22  
S24#24



S2#30  
S22#29  
S24#22



S2#87  
S22#90  
S24#68



S2#86  
S22#91  
S24#67

FOR THE REST OF THE  
PARTS REFER TO SECTIONS  
S2,S22 & S24  
FOR PARTS.





<b>S2</b>	<b>S22</b>	<b>S24</b>	<b>DESCRIPTION</b>
30	29	22	SHAFT ASSEMBLY FOR B_
14	15	23	METAL FLANGE PLATE
25	22	24	PLASTIC FLANGE PLATE
28	28	25	RUBBER BOOT
86	91	67	OVAL HEAD SCREW M5x15
87	90	68	FLAT HEAD SCREW M5x12