

IT'S EASY TO BUILD YOUR OWN POTENTIOMETER

Simply pick the code number from each of the sections below and combine them to build your part number.

Potentiometer Operators

22POTO - -
I II III IV

Example: To build one of our most popular Potentiometer Operators, the part number would be **22POTO + II + III + IV** or **22POTO5K-TBW**



I. OPERATOR TYPE

CODE	DESCRIPTION	LIST
22POTO	Potentiometer	\$58.00

II. RESISTANCE

CODE	DESCRIPTION	LIST
(Blank)	Operator only	—
1K	1k Potentiometer	\$22.00
2.5K	2.5k Potentiometer	\$22.00
5K	5k Potentiometer	\$22.00
10K	10k Potentiometer	\$22.00

Special order values available—consult factory (not available for guaranteed same day shipping).

III. CLAMP RING

CODE	DESCRIPTION	LIST
(Blank)	Polyester (Type 4X)	—

IV. TERMINAL BLOCK

CODE	DESCRIPTION	LIST
(Blank)	Operator only	—
TBW	Terminal Block installed and wired*	\$16.00

NOTE: Available for 1K, 2.5K, 5K and 10K potentiometers.

Terminal block kit may be ordered separately (part number TBK, List price \$9.60) or installed and wired at the factory to the potentiometer operator.

DISCOUNT
SCHEDULE **E**

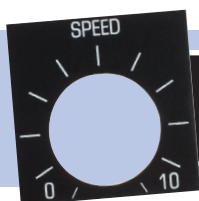
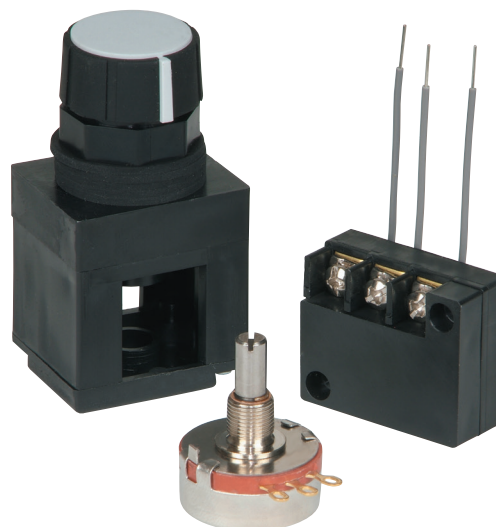
SEE PAGE 22 FOR WIRING DIAGRAM.

UNIQUE PRODUCT FEATURES

Our single-turn Potentiometer Operators utilize standard 2 watt potentiometers with 1/4" (6.4mm) bushing and 7/8" (22.5mm) long slotted shafts. 5/64" allen wrench is required for installation. All c3controls 22mm NEMA operators are UL Listed and are rated Type 4/4X standard for watertight and corrosion resistance. In addition, operators are also listed for Type 1, 2, 3, 3R, 12 and 13, and meet global standards requirements.

Product features include:

- Polyester construction for superior corrosion resistance, moisture rejection and electrical insulation.
- Three point terminal block and hardware.
- Single-turn standard 2 watt potentiometer.
- All frictional parts are molded with an internal self-lubricant to provide outstanding wear without troublesome greases used by others that attracts dust and other particles in the area.
- Our revolutionary U-Cup seal is infused with a Teflon coating to eliminate cracking when exposed to harsh conditions such as heat, dryness and sunlight.
- #6 terminal screws with self-lifting captive wire clamps accommodate #22 through two #12 AWG wires (0.5 - 4mm²) per terminal.
- Operators conveniently mount in a round 7/8" (22.5mm) hole that is directly interchangeable with competitors units.

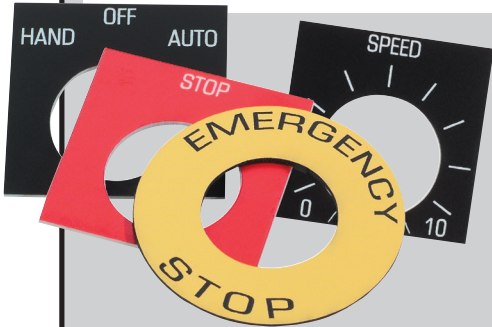


LEGEND PLATES FOR POTENTIOMETER OPERATORS are available for same day shipping. See pages 17 & 18 for complete selection.

IT'S EASY TO BUILD YOUR OWN LEGEND PLATE

Simply pick the code number from each of the sections below and combine them to build your part number.

Legend Plates



Legend plates feature 2 lines of text with approximately 16 characters per line. Uppercase is standard unless specified. The Potentiometer legend plate comes standard with a scale and one or two lines of text, see chart D below.

I. LEGEND PLATE TYPE

CODE	DESCRIPTION	LIST
22LP	Standard 1-3/4" h x 1-3/4" w	\$ 4.00
22LPN	Narrow 1-3/4" h x 1-1/2" w	\$ 4.00
22LPS	Short 1-1/2" h x 1-3/4" w*	\$ 4.00
22LPT	Tall 2" h x 1-3/4" w	\$ 5.00
22LPJ	Jumbo 2" h x 2" w	\$ 5.00
22LPR	Standard Round 2-13/32" Dia.	\$ 9.00
22LPRM	Medium Round 2-3/4" Dia.	\$ 11.00
22LPRJ	Jumbo Round 3-3/4" Dia.	\$ 12.00

*NOTE: The short legend plate (22LPS) features 1 line of text with approximately 16 characters.

II. FACE AND LETTER COLOR

CODE	FACE COLOR	LETTER COLOR
AL	Aluminum	Black
(Blank)	Black	White
BE	Blue	White
GN	Green	White
RD	Red	White
WE	White	Black
YW	Yellow	Black

III. LEGEND DESIGNATION

A. PUSH BUTTONS AND LIGHTS

CODE	DESCRIPTION
00	(Blank)
01	AUTO
02	CLOSE
31	CYCLE START
100	CYCLE STOP
03	DOWN
102	EMERGENCY
04	EMERGENCY STOP
06	FAST
101	FAULT
07	FORWARD
08	HAND
32	HIGH
33	IN
09	INCH
10	JOG
38	JOG FORWARD
39	JOG REVERSE
34	LOW
35	LOWER
11	MANUAL
26	MOTOR RUN
12	OFF
13	ON
14	OPEN
36	OUT
27	OVERLOAD
15	POWER OFF
16	POWER ON
30	PUSH TO RESET
17	PUSH TO TEST
37	RAISE
109	READY
18	RESET
19	REVERSE
20	RUN
21	SLOW
22	START
23	STOP
24	TEST
29	TRIP
25	UP

B. 2-POSITION SELECTOR

CODE	LEGEND LEFT	LEGEND RIGHT
00	(Blank)	(Blank)
50	AUTO	HAND
68	AUTO	MANUAL
51	DOWN	UP
63	FAST	SLOW
52	FWD	REV
53	HAND	AUTO
73	HIGH	LOW
54	INCH	RUN
75	LEFT	RIGHT
70	LOCAL	REMOTE
55	MANUAL	AUTO
56	OFF	ON
57	ON	OFF
58	OPEN	CLOSE
65	PULL START	PUSH STOP
66	PUSH OFF	PULL ON
64	PUSH ON	PUSH OFF
67	PUSH TO STOP	PULL TO START
71	RAISE	LOWER
59	REV	FWD
60	RUN	JOG
69	SLOW	FAST
61	START	STOP
62	STOP	START
74	SUMMER	WINTER
72	UP	DOWN

C. 3-POSITION SELECTOR

CODE	LEGEND LEFT	LEGEND CENTER	LEGEND RIGHT
00	(Blank)	(Blank)	(Blank)
108	A	0	H
92	AUTO	OFF	HAND
93	AUTO	MAN	OFF
80	DOWN	OFF	UP
81	FWD	AUTO	REV
82	FWD	OFF	REV
107	H	0	A
83	HAND	OFF	AUTO
94	HIGH	OFF	LOW
99	JOG	OFF	AUTO
90	LOCAL	OFF	REMOTE
84	MANUAL	OFF	AUTO
89	OFF	RUN	START
85	OFF	START	RUN
86	OFF	1	2
95	OPEN	OFF	CLOSE
91	RAISE	OFF	LOWER
96	SLOW	OFF	FAST
97	SUMMER	OFF	WINTER
98	UP	OFF	DOWN
87	1	OFF	2
88	1	2	3

D. POTENTIOMETER

CODE	DESCRIPTION
40	Blank Legend 0 - 10
41	"SPEED" 0 - 10
43	Blank Legend 0 - 100
44	"SPEED" 0 - 100

IV. ADHESIVE BACK

CODE	DESCRIPTION
(Blank)	No Adhesive Back
A	Adhesive Back

DISCOUNT
SCHEDULE

E

IT'S EASY TO BUILD YOUR OWN LEGEND PLATE

Simply pick the code number from each of the sections below and combine them to build your part number.

Special Legend Plates



All legend plates are a 2-ply laminated plastic, laser engraved for a permanent and quality appearance. Uppercase is standard unless specified.



I. LEGEND PLATE TYPE

CODE	DESCRIPTION	LIST
22LP	Standard 1-3/4" h x 1-3/4" w	\$ 4.00
22LPN	Narrow 1-3/4" h x 1-1/2" w	\$ 4.00
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22LPT	Tall 2" h x 1-3/4" w	\$ 5.00
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22LPR	Standard Round 2-13/32" Dia.	\$ 9.00
22LPRM	Medium Round 2-3/4" Dia.	\$11.00
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Legend plates feature 2 lines of text with approximately 16 characters per line.

*The short legend plate (22LPS) features 1 line of text with 16 characters.

DISCOUNT
SCHEDULE **E**

II. FACE AND LETTER COLOR

CODE	FACE COLOR	LETTER COLOR
AL	Aluminum	Black
(Blank)	Black	White
BE	Blue	White
GN	Green	White
RD	Red	White
WE	White	Black
YW	Yellow	Black

III. LEGEND DESIGNATION

CODE	DESCRIPTION	LIST
SP	Special Legend	\$14.00

IV. ADHESIVE BACK

CODE	DESCRIPTION
(Blank)	No Adhesive Back
A	Adhesive Back

Upon receipt of your order, legend plates will be set-up as specified and a proof will be sent to you prior to production to ensure accuracy.

To order, submit your drawing to:

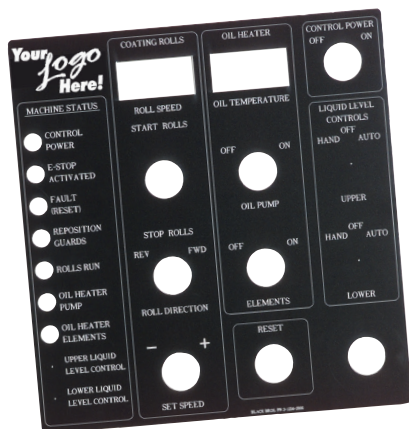
Mail: c3controls
Attn: Customer First
PO Box 496
Beaver, PA 15009

Fax: 724.775.5283

Email: legendplates@c3controls.com

To help simplify your order process, templates are available by calling our factory at 724.775.7926 or reference one of the drawings shown on page 24.

Special legend plates are not available for same day shipping.



(Sample custom plate)

CUSTOM LEGEND PLATES

- **Add your Corporate Logo!** Send us your corporate logo electronically to promote your company image in a clean professional legend plate.
- Available in 2-ply 12" x 24" (304.8mm x 609.6mm) sheets of laminated plastic for custom laser engraving.
- To order, specify part number 22LP-CP (no adhesive back) or 22LP-CP-A (adhesive back).
- Initial Set-Up Fee Per Legend Plate: \$50/hour (minimum fee \$50.00).
- \$2.00/Square Inch (minimum \$18.00).
- Design services available. Consult factory for details and hourly rate.
- Custom legend plates are not available for same-day shipping.

To order, submit your drawing to:

Mail: c3controls
Attn: Customer First
PO Box 496
Beaver, PA 15009

Fax: 724.775.5283

Email: legendplates@c3controls.com

22MM NEMA PILOT DEVICES

ELECTRICAL RATINGS

Lamp	Industry Number	Rated Volts	Lumens (MSCD)	Design Life (Hrs.)	Current Draw (mA)	Lamp Type	Shock & Vibration	Leakage Protection
LED12	**	12V†	Varies w/ Color 2000 mcd Typical	100,000	<20	LED	Excellent	4 mA
LED24	**	24V†			<20			4 mA
LED130	**	130V†			<10			2 mA

** Designates a lamp design optimized for c3controls Illuminated Devices. See LED replacement lamps on page 15.

† LED voltage tolerance is +/- 10%

DIELECTRIC STRENGTH (MECHANICAL CONTACTS)

2200V for 1 Minute

STANDARD CONTACTS

		Utilization Category		Make Rating	Break Rating	Ith-Thermal Current
		IEC	UL			
	AC	AC-15	A600	7200VA	720VA	10A
	DC	DC-13	P300	138VA	138VA	5A

NOTE: For AC voltage below 72VAC the maximum allowed switching current is 10A = Ith

For DC voltages below 28VDC the maximum allowed switching current is 5A = Ith

	UNITS	
ENVIRONMENTAL RATINGS		
Operators		Rated and Certified for use in Type 1, 2, 3, 3R, 4/4X, 12, & 13 and IP65
Operating Temperature	°F / °C	-40 to +131 / -40 to +55
Storage Temperature	°F / °C	-40 to +185 / -40 to +85

NOTE: Operating environments below freezing temperatures are assumed to be absent of freezing liquids or pollutants.

TERMINAL & WIRING CONSIDERATION

AWG Conductor		22-12 CU (Copper only - Solid & Stranded) [.5 ~ 4mm ²] One or two wires permitted per termination
Recommended Torque	Lb.-in. [Nm]	7 (+3.0/-0.0) [.8]

CONSTRUCTION

OPERATING FORCES

PUSH BUTTONS (1 CONTACT/2 CONTACT)		
Momentary	lbs. [N]	3.5/4.0 [15.5/17.8]
Illuminated	lbs. [N]	4.0/5.0 [17.8/22.0]
Maintained (1NC)	lbs. [N]	8.5 [37.8]
SELECTOR SWITCHES (2 CONTACTS)		
Maintained	in.-lbs. [Nm]	3.5 [.4]
Momentary	in.-lbs. [Nm]	4.5 [.51]
POTENTIOMETER		
2 Watt "J" Series	in.-oz. [Nm]	3-12 [.11 Max.] (300° Rotation)
CONTACT ADD-A-BLOCK (SINGLE POLE)	lbs. [N]	.5/pole [2.2]
INDICATING LIGHTS		Refer to the appropriate Lamp Data
MECHANICAL ENDURANCE		
PUSH BUTTONS		
Momentary	Ops.	5,000,000
Maintained	Ops.	1,000,000
SELECTOR SWITCHES	Ops.	500,000
ALL OTHER DEVICES	Ops.	250,000
CONTACT BLOCKS	Ops.	5,000,000
INDICATING LIGHTS		Refer to the appropriate Lamp Data

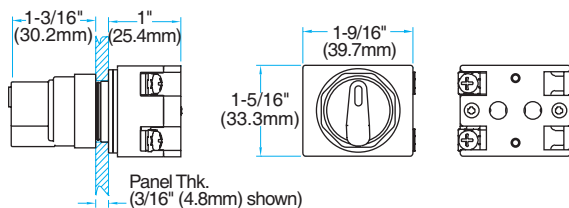
22MM NEMA PILOT DEVICES

	UNITS	
MATERIALS		
Operator Housings		Thermoplastic Polyester and Polyester Blends (UV Stabilized for outdoor use)
Operator Caps and Handles - Non-Illuminated (Glass Reinforced Grades)		Thermoplastic Polyester and Polyester Blends (UV Stabilized for outdoor use)
Mounting Rings and Nuts		Thermoplastic Polyester and Polyester Blends (UV Stabilized for outdoor use)
Thrust Washer		Thermoplastic Polyester and Polyester Blends (UV Stabilized for outdoor use)
Trim Washer		Thermoplastic Polyester and Polyester Blends (UV Stabilized for outdoor use)
Pilot Light Lens		High Impact Polycarbonate (UV Stabilized for outdoor use)
Transparent Push Button and Mushroom Caps		High Impact Polycarbonate (UV Stabilized for outdoor use)
Certain CAM and Bearing Parts		Custom Polymers: Teflon, Silicon and Moly-Disulfide impregnated for improved wearability
Rubber Boots		Custom Polymers: Thermoplastic Neoprene
Seals		Neoprene Gaskets
		Thermoplastic - Molded Neoprene and Alloy Derivitives
		BUNA N - Rubber - Teflon Coated
		Thermoplastic - Elastomer Molded Seals
Push Pull Bushings		Brass (plated and un-plated)
Detents for Maintained Devices		Brass (plated and un-plated)
Springs		Stainless Steel throughout
Optional Mounting Nut		Aluminum
ROHS COMPLIANCE		For RoHS compliance documentation by product, refer to www.c3controls.com

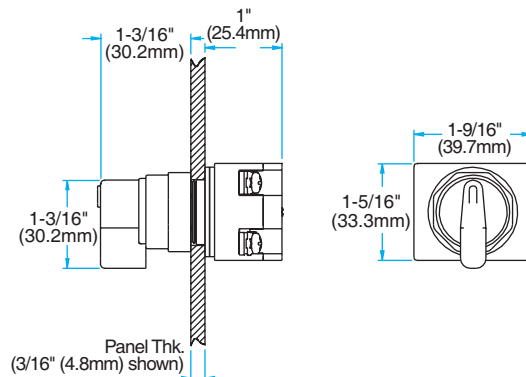
SELECTOR SWITCHES

Fully-assembled operators come standard with five 1/16" (1.6mm) gaskets.
See page 24 for mounting gasket specifications.

SELECTOR SWITCH OPERATOR
(SHOWN WITH STANDARD HANDLE)



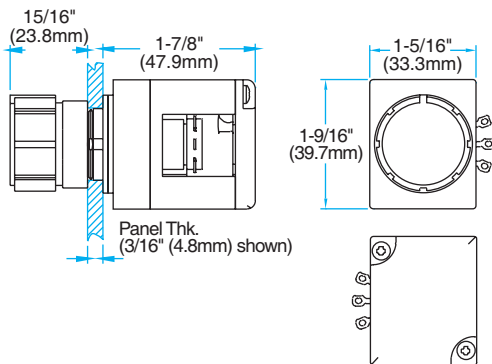
SELECTOR SWITCH OPERATOR
(SHOWN WITH LEVER HANDLE)



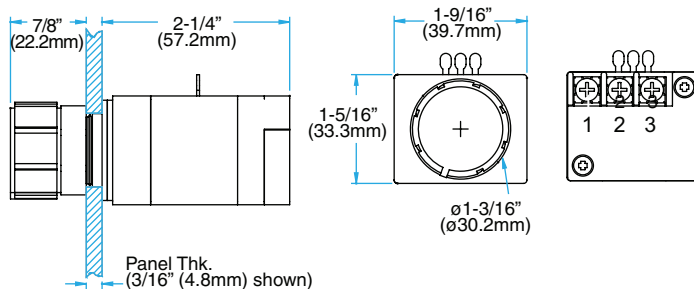
POTENTIOMETER WITH & WITHOUT TERMINAL BLOCK

Fully-assembled operators come standard with five 1/16" (1.6mm) gaskets.
See page 24 for mounting gasket specifications.

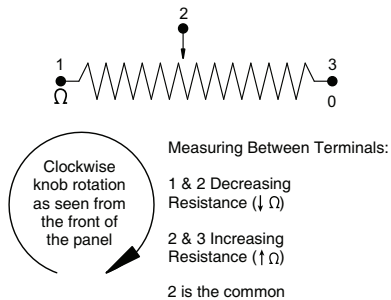
POTENTIOMETER OPERATOR
(SHOWN WITHOUT TERMINAL BLOCK)



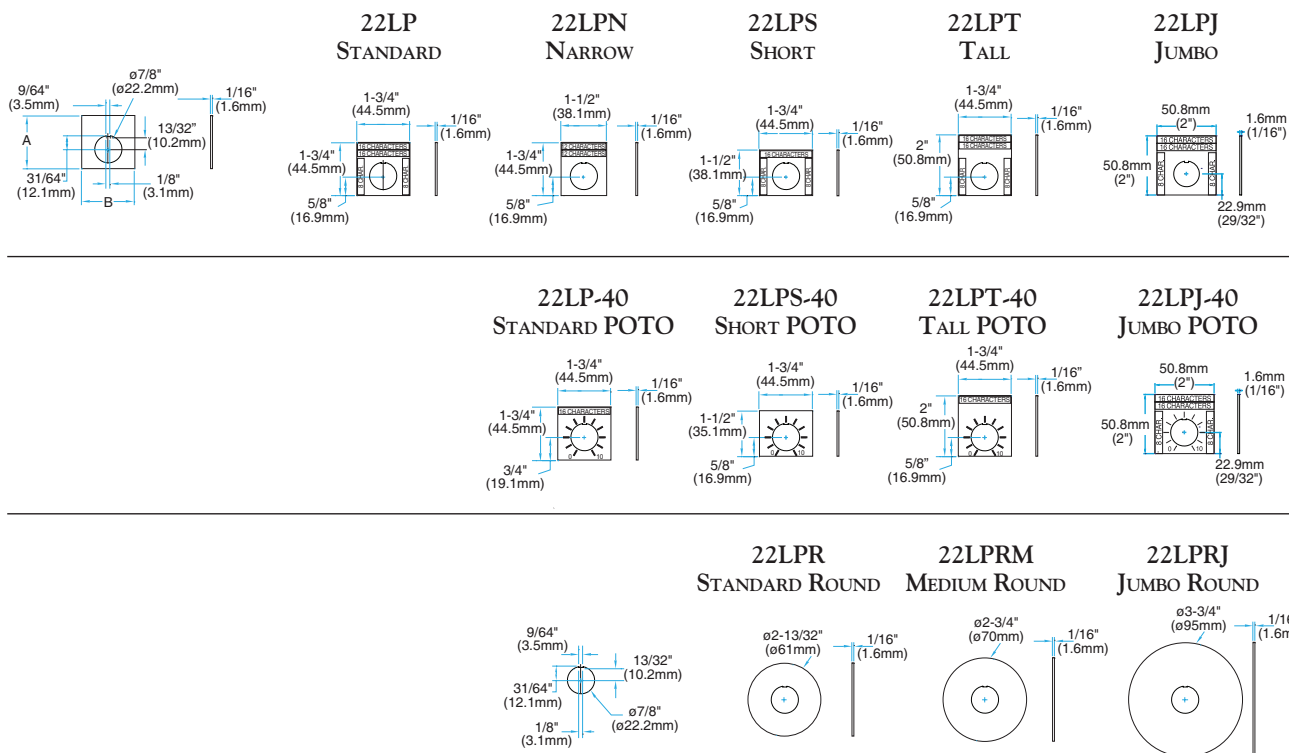
POTENTIOMETER OPERATOR
(SHOWN WITH TERMINAL BLOCK)



WIRING DIAGRAM



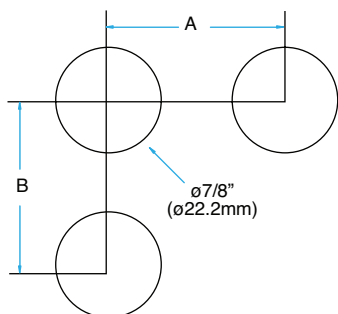
LEGEND PLATES



Note: Legend plates feature a tab for optional break-away positioning and can be used in conjunction with the Thrust & Trim Washer accessory.

MOUNTING HOLE PATTERN

MOUNTING HOLE PATTERN		
SPACING	A	B
Minimum	1-3/4" (44.5mm)	1-3/4" (44.5mm)
Standard	2" (50.8mm)	2" (50.8mm)



MOUNTING GASKETS

MOUNTING GASKETS	
PANEL THICKNESS IN DECIMALS	# OF 1/16" (1.6mm) GASKETS NEEDED
.040 – .060	5
.061 – .115	4
.116 – .170	3
.171 – .220	2
NOTE: Remove one 1/16" (1.6mm) gasket when using a legend plate.	