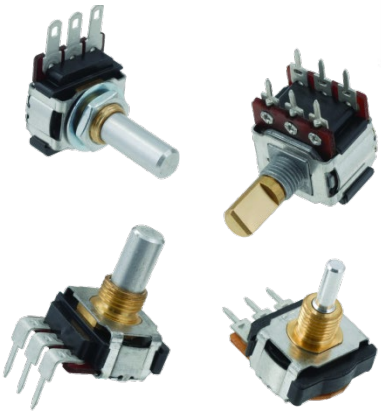
Series 288

Commercial Miniature 16mm Size

Rotary Encoder

- Robust Construction
- 2-bit Incremental or 4-bit Absolute Encoder
- Optional Momentary Switch
- Available with 16 Detents
- Continuous Rotation
- Bushing Mount
- Solder Lug or PCB Terminals
- RoHS Compliant



Description

The 288 Series robust construction provides the user with flexible options of incremental and absolute outputs. A long life, highly reliable precision product provides users comfortable and robust feelings. As a standard, the 288 series comes with solder lug terminals, PC and PC formed to rear. Options include various shaft and bushing lengths, shaft styles, encoder codes, detents and switches to meet your design requirements.

Ordering Information

Series	Terminal Styles	Bushing Length "A"	Shaft Length "L"	Shaft Trim	Combination Resolution	Encoder Code	Rotational Angle	Detent
288	T	2	A	R	16	2	A	1

Code	Spec.
*T	Solder lug
X	PC
**V	PC formed to rear

*Not available in switch construction

**Not available with 4 bit code

Code	Spec.
A0	10mm, 6.0mm Dia.
A5	15mm, 6.0mm Dia.
B0	20mm, 6.0mm Dia.
B5	25mm, 6.0mm Dia.
C0	30mm, 6.0mm Dia.
20	.625", .250" Dia.
24	.750", .250" Dia.
28	.875", .250" Dia.
32	1.000", .250" Dia.

Code	Spec.
16	16 COM (4 PULSES- 2 bit)
	16 COM (1 PULSE- 4 bit)
24	24 COM (6 PULSES)
32	32 COM (8 PULSES)

Code	Spec.
1	2 bit Binary
*2	4 bit Gray

*16 Combination only

Code	Spec.
1	None
2	16 Detents

Code	Bushing Length
2	.250" (3/8"-32UNEF)
3	.375" (3/8"-32UNEF)
4	.500"(3/8"-32UNEF)
A	5.0mm(M8x.75P)
B	6.35mm(M8x.75P)
D	9.53mm(M8x.75P)

Code	Spec.
R	Round
F	Flatted
K	Knurled & Slotted
S	Slotted

Code	Spec.
A	None
*B	Momentary switch

*2 Bit models only

Electrical Specifications

Parameter	Conditions & Remarks	Min	Max	Unit
Operating Temperature Range		-25	+100	°C

Encoder Function

Contact Resistance			500	ohms
Detent Points		0	16	detents
Rotational Life			50,000	cycles
Resolution	2 bit: 4,6,8 pulses 4 bit: 16 combinations		360 360	degrees degrees
Insulation Resistance	50 VDC	10		Megohms
Rotational Torque	No Detent With Detent	36 100	216 500	gf.cm gf.cm
Push-Pull Strength of Shaft	10 seconds	8		kg

Mechanical and Environmental

Reflow Soldering	Maximum temperature of 260°C for 5 seconds
Vibration	15G, 10 to 2000 Hz
Shock	50G
RoHS	Lead-Free. Fully compliant to RoHS Directive
Packaging :	Standard tray packaging
Storage Temperature:	-30°C to +100°C

Optional Momentary Switch Function:

Contact Resistance	Initial After life cycles		100 200	mΩ
Switch Rating	16 VDC		20	mA
Switch Bounce			5	milliseconds
Switch Operating Force		350-150 12.3-5.3	350+150 12.3+5.3	g oz.
Switch Life			15,000	operations
Switch Travel			.020 0.5	inch mm

Truth Table

2 BIT BINARY CODE

DENOTES CONTACT CLOSURE TO COMMON																				
	B	0	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	1	1
	A	0	1	1	0	0	1	1	0	0	1	1	0	0	1	1	0	1	1	0
POS. NO.		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	30	31	32

4 BIT GRAY CODE

POS. NO.	DENOTES CONTACT CLOSURE TO COMMON						
	A	B	E	F			
1	0	0	0	0			
2	0	0	0	1			
3	0	0	1	1			
4	0	0	1	0			
5	1	0	1	0			
6	1	0	1	1			
7	1	1	1	1			
8	1	1	1	0			
9	0	1	1	0			
10	0	1	1	1			
11	0	1	0	1			
12	0	1	0	0			
13	1	1	0	0			
14	1	1	0	1			
15	1	0	0	1			
16	1	0	0	0			

Mechanical Specifications

Figure 1 – 288X – Typical 2-bit Encoder parallel to P.C. Board

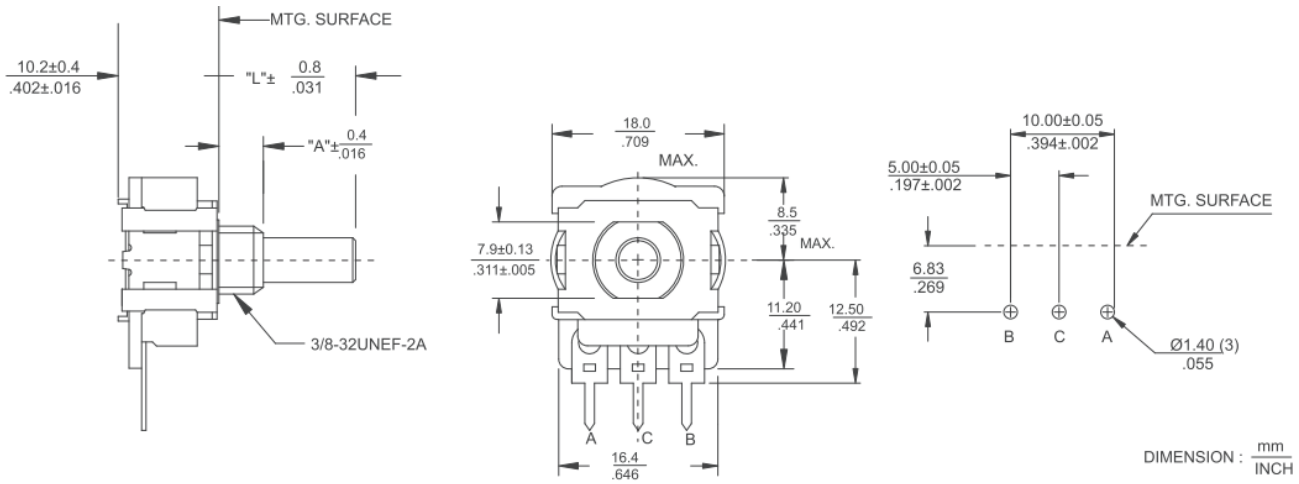


Figure 2 – 2-288X – Typical 4-bit Encoder parallel to P.C. Board

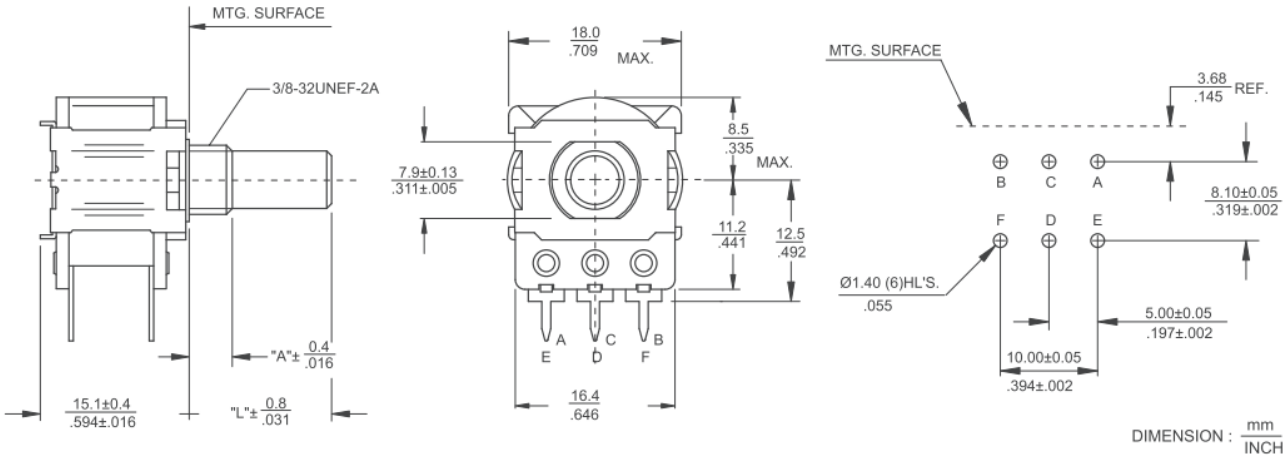


Figure 3 – 288T – Typical 2-bit Encoder With Solder Lug Terminals

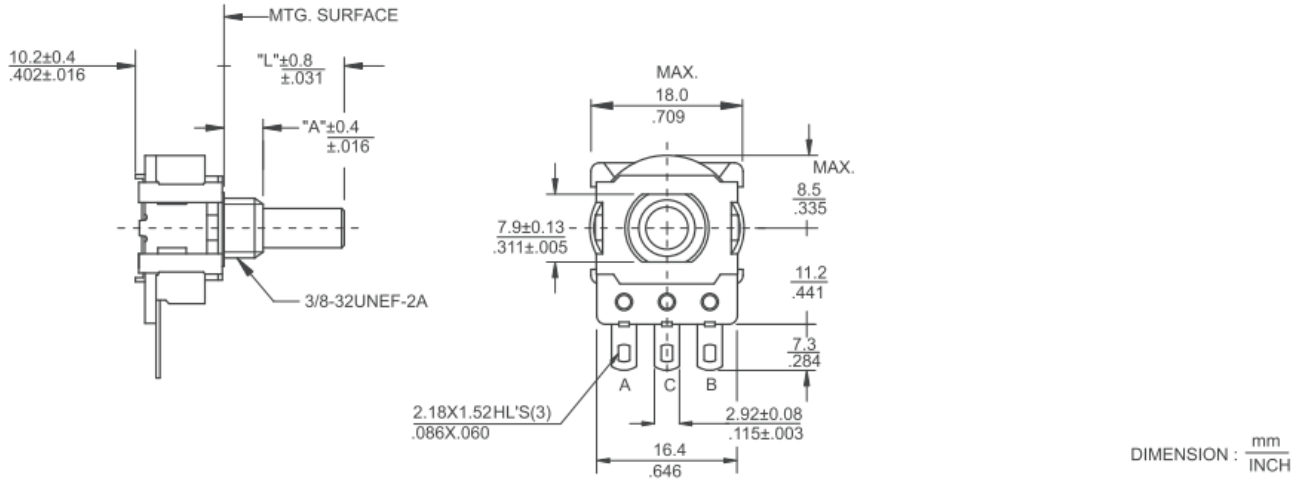


Figure 4 – 288V – Typical 2-bit Perpendicular to P.C. Board

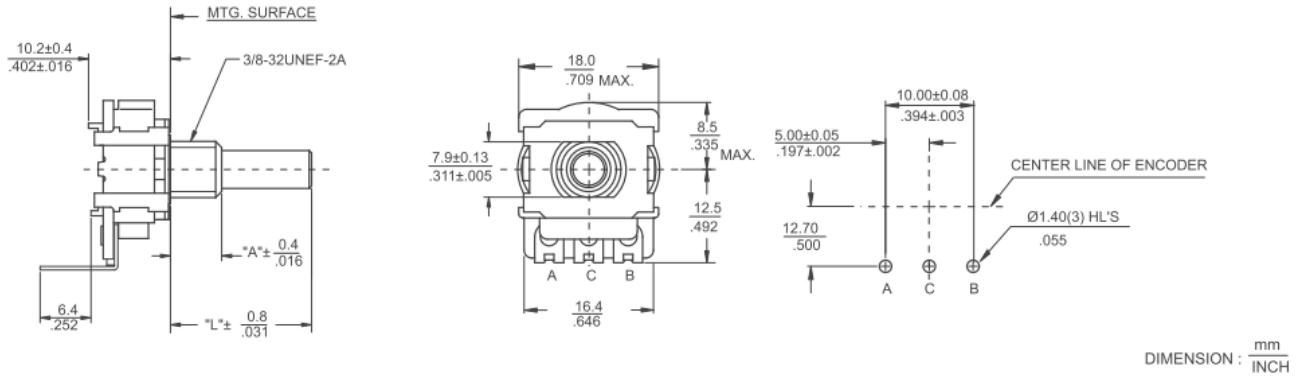


Figure 5 – MC-288V – Typical 2-bit Encoder With Momentary Switch Perpendicular to P.C. Board

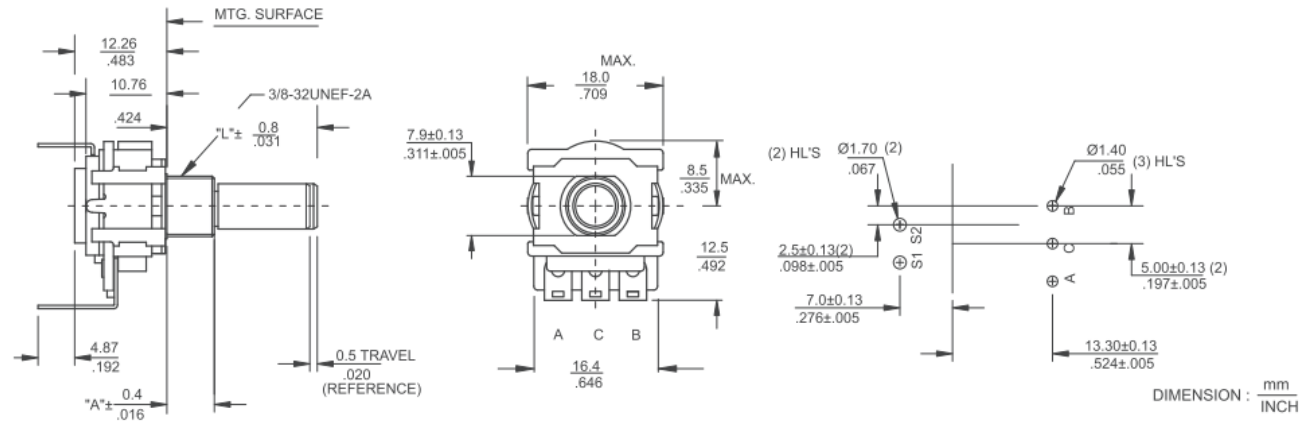
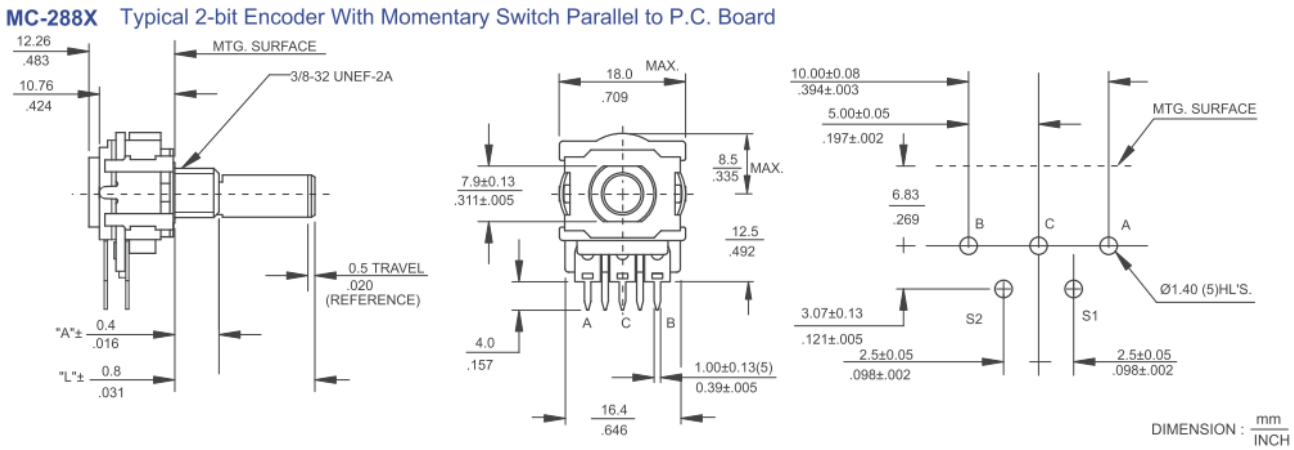
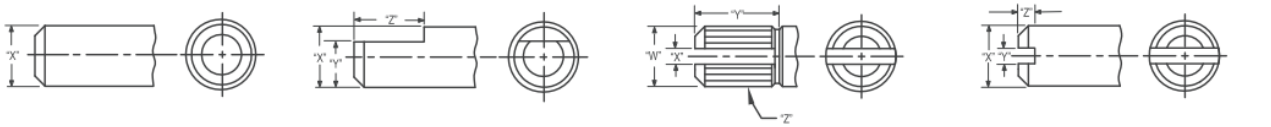


Figure 6 – MC-288X – Typical 2-bit Encoder With Momentary Switch Perpendicular to P.C. Board



Shaft Trim



R - ROUND

	X
Imperial Shaft	.250"
Metric Shaft	6.00

F - FLATTED

	X	Y	Z
Imperial Shaft	.250"	.156"	.375"
Metric Shaft	6.00	4.50	7.00

K - KNURLED & SLOTTED

	W	X	Y	Z
Imperial Shaft	.236"	.062"	.344"	24 TEETH
Metric Shaft	6.00	1.57	7.0	18 TEETH

S - SLOTTED

	X	Y	Z
Imperial Shaft	.250"	.046"	.062"
Metric Shaft	6.00	1.17	1.57

DIMENSION: inch / mm