

# knitter-switch Encoder



anglia

MEOP 19	3
MER 9 / MERP 9	4 – 5
MER 10-12 R7	6
MER 11 / MERS 11 / MERP 11 / MERPS 11	7 – 9
MER 12 / MERP 12 illuminated	10 – 12
MER 23	13
MER 1045-24	14
MRP 1	15



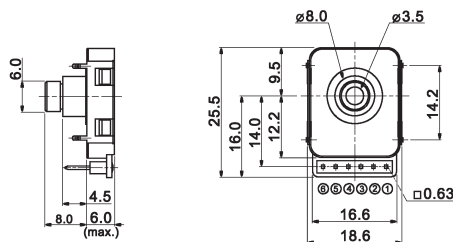
# Optical Encoder

## Specifications:

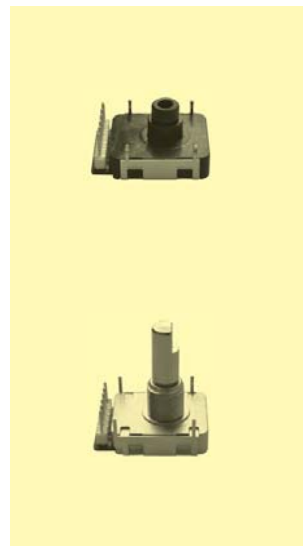
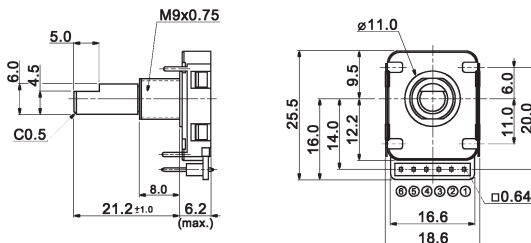
Power supply:	3.3 to 5 V DC, 10 mA max.
Insulation resistance:	> 100 MΩ
Dielectric strength:	300 V, 50 Hz for the duration of 1 minute
Operating temperature:	-10 °C to +50 °C
Rotational torque:	0.45 ± 0.2 Ncm
Pulses/Detents per turn:	6/0, 6/6, 24/0, 24/24
Frequency response:	100 Hz max.
Electrical life:	> 1 000 000 turns
Pushbutton:	Contact rating: 12 V DC, 10 mA, min. 0.1 mA
	Contact resistance: < 10 Ω
	Operating force: 4 ± 2 N
	Electrical Life: > 1 000 000 cycles
	Travel: 0.3 ± 0.05 mm, 1 ± 0.2 mm
Mounting:	on pc-board with pin-contact
	single hole mounting M 9 x 0.75
Soldering conditions:	wave soldering, max. 3 sec, 280 °C, pre-heat max. 60 sec, 100 °C

## Models:

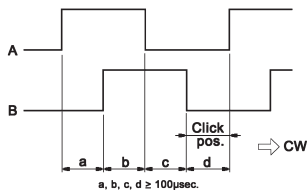
MEOP 19 VG06CR08MTFM1



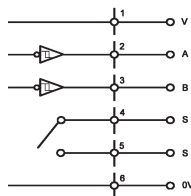
MEOP 19 VG24CF21MTFM2



### Output signal format:



### Pin assignment:



## Ordering code:

MEOP 19 [ ] [ ] [ ] [ ] [ ] [ ] [ ] [ ] T [ ] M [ ]

### Switch direction:

- H horizontal
- V vertical

### Pulses:

- 06
- 24

### Detents:

- C with detent
- N no detent

### Switch travel:

- D 1 ± 0.2 mm
- V 0.3 ± 0.05 mm

### Shaft type:

- F flat
- R round

### Shaft length:

- 08
- 17
- 21

### Connector type:

- F female
- M male

### Connector direction:

- F front
- R rear



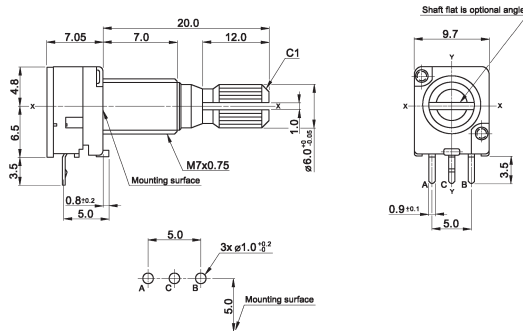
# Encoder

## Specifications:

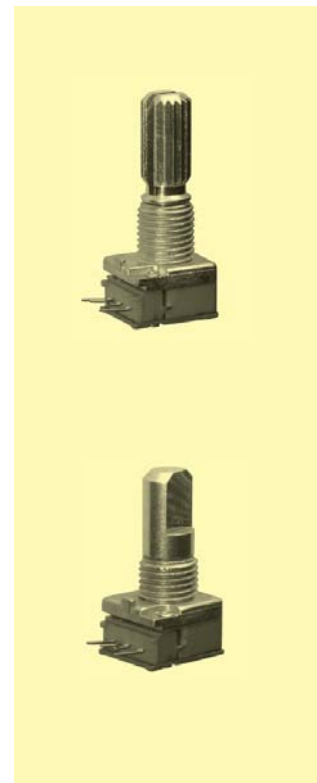
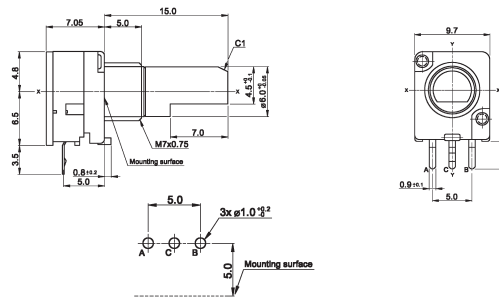
Contact rating:	5 V DC, 10 mA
Contact resistance:	< 100 mΩ
Insulation resistance:	> 100 MΩ
Dielectric strength:	300 V, 50 Hz for the duration of 1 minute
Operating temperature:	-10 °C to +65 °C
Rotational/Detent torque:	0,5/1,0 Ncm
Pulses/Detents per turn:	15/30
Mechanical life:	>15 000 cycles
Pushbutton (optional):	actuation force 5 N, travel 0,5 mm, life >10 000 operations
Contacts:	silver-plated
Terminals:	silver-plated
Mounting:	on pc-board single hole mounting M 7 x 0,75
Soldering conditions:	auto-soldering – max.: 5 sec, 260 °C

## Models:

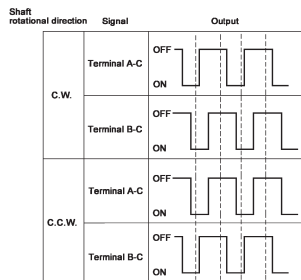
MER9-15220BM7R



MER9-15115AM7R



## Output signal format:

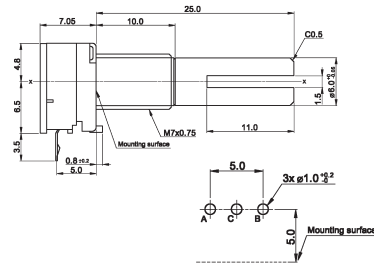




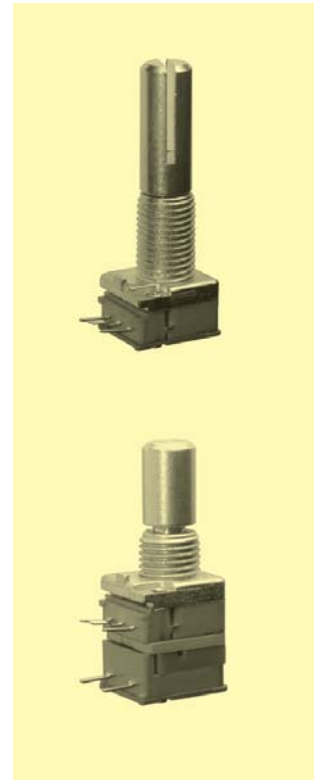
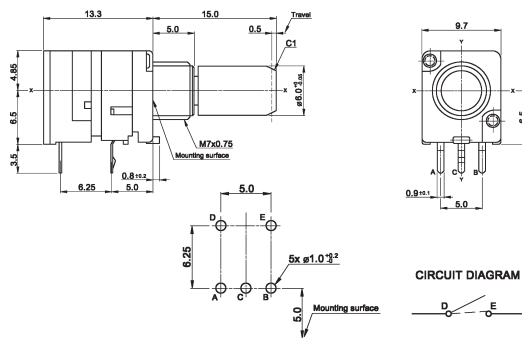
# Encoder

## Models:

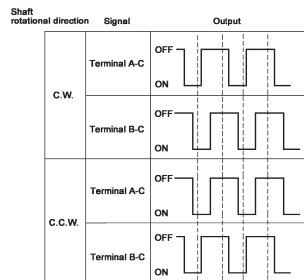
MER9-15325CM7R



MERP9-15415AM7R



## Output signal format:



## Ordering code 9 mm Encoder:

MER  9      -

**Switch function:**  
 no switch  
 switch

**Number of pulses:**  
 12 12 pulses  
 15 15 pulses

**Shaft type:**  
 1 flat shaft  
 2 knurled shaft  
 3 cut shaft  
 4 round shaft

**Shaft length:**  
 15 15 mm  
 20 20 mm  
 25 25 mm

**Bushing:**  
 A 5 mm  
 B 7 mm  
 C 10 mm

**Bushing thread:**  
 M7 M7  
 no thread

**Orientation:**  
 R horizontal

# Encoder

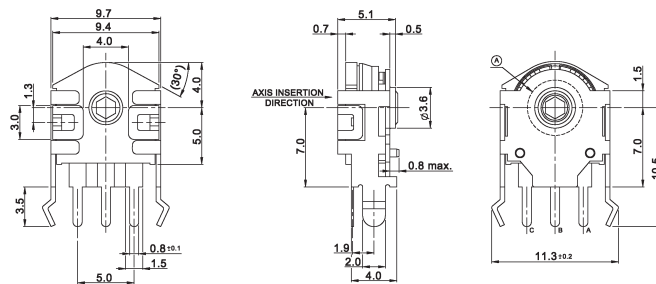


## Specifications:

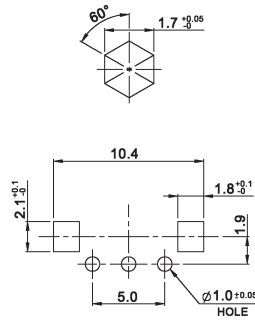
Contact rating:	5 V DC, 1 mA
Contact resistance:	< 1 Ω
Insulation resistance:	> 10 MΩ
Dielectric strength:	50 V, 50 Hz for the duration of 1 minute
Operating temperature:	-5 °C to +45 °C
Rotational torque:	0.5 ± 0.3 Ncm
Pulses/Detents per turn:	12/24
Mechanical life:	minimum 100 000 turns
Contacts and terminals:	silver-plated
Mounting:	on pc-board with pin-contact
Soldering conditions:	wave soldering, max. 3 s max. 260 °C, pre-heat max. 60 s max. 100 °C

## Models:

MER10-12 R7



DETAIL "A"



## Output signal format:

Shaft rotational direction	Signal	Output
C.W.	Terminal A-C	OFF ON
	Terminal B-C	OFF ON
C.C.W.	Terminal A-C	OFF ON
	Terminal B-C	OFF ON



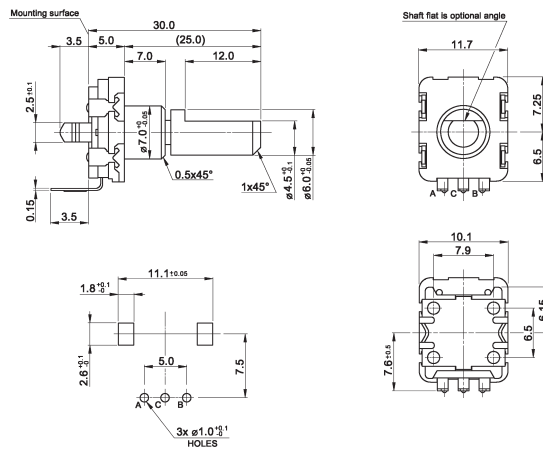
# Encoder

## Specifications:

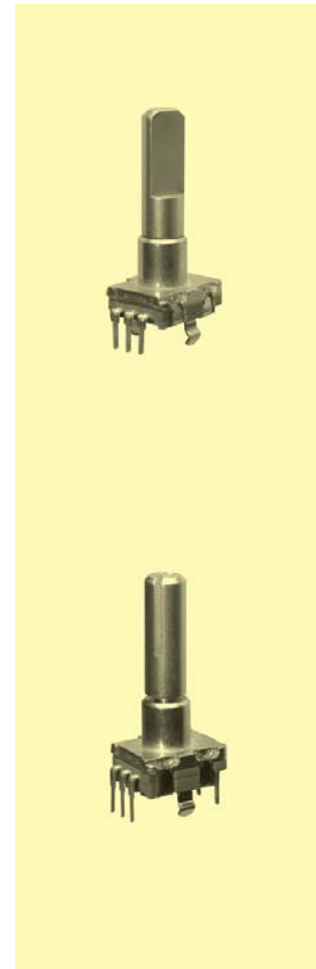
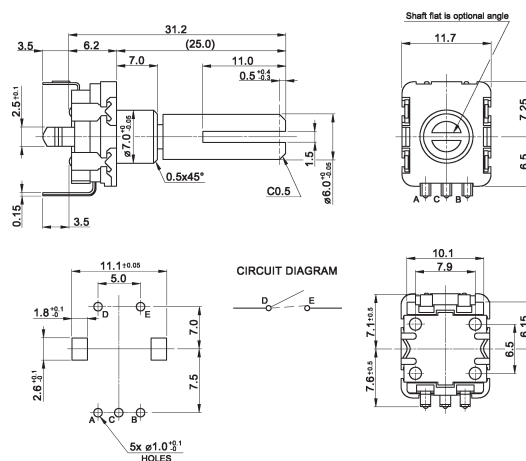
Contact rating:	5 V DC, 10 mA
Contact resistance:	< 100 mΩ
Insulation resistance:	> 100 MΩ
Dielectric strength:	300 V, 50 Hz for the duration of 1 minute
Operating temperature:	-10 °C to +85 °C
Rotational/Detent torque:	0,5/1,2 Ncm
Pulses/Detents per turn:	15/30 or 20/20
Mechanical life:	> 15 000 cycles
Pushbutton (optional):	actuation force 6 N, travel 0,5 mm, life > 25 000 operations
Contacts:	silver-plated
Terminals:	silver-plated
Mounting:	on pc-board single hole mounting, bushing M 7 x 0,75
Soldering conditions:	auto-soldering – max.: 5 sec, 260 °C

## Models:

MER11-15125B



MERP11-15325B

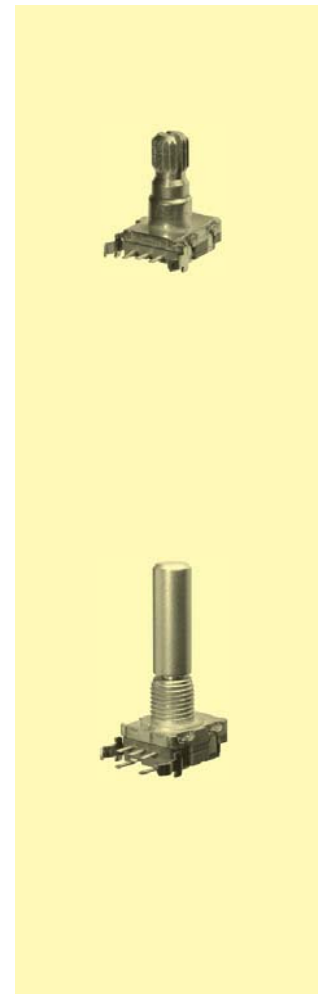
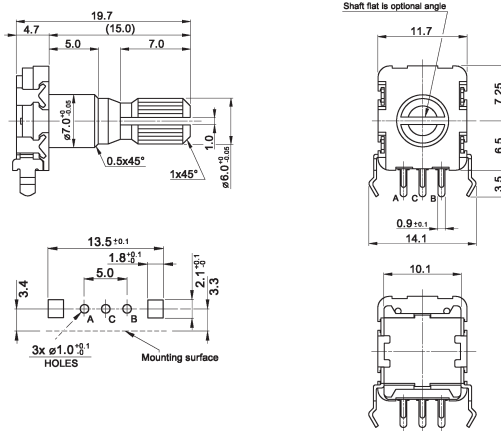


# Encoder

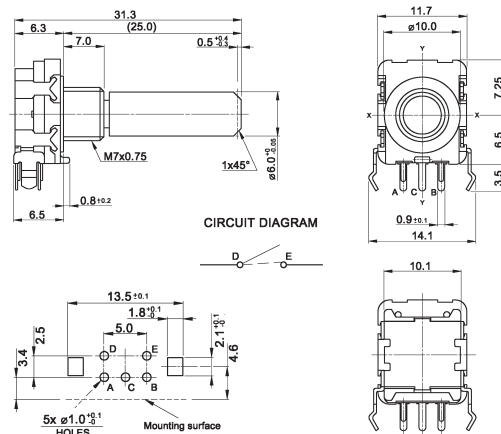


## Models:

MER11-15215A-R



MERP11-20420BM7-R



## Output signal format:

Shaft rotational direction	Signal	Output
C.W.	Terminal A-C	OFF ON
	Terminal B-C	OFF ON
C.C.W.	Terminal A-C	OFF ON
	Terminal B-C	OFF ON

## Ordering code 11 mm Encoder:

**MER**    **11**       -

**Switch function:**  
 no switch  
 switch

**Number of pulses:**  
 15 15 pulses  
 20 20 pulses

**Shaft type:**  
 1 flat  
 2 knurled  
 3 cut  
 4 round

**Bushing:**  
 A 5 mm  
 B 7 mm

**Orientation:**  
 R horizontal  
 vertical

**PCB mounting:**  
 through hole  
 S SMD

**Shaft length:**  
 15 15 mm  
 20 20 mm  
 25 25 mm

**Bushing thread:**  
 M7 M7  
 no thread

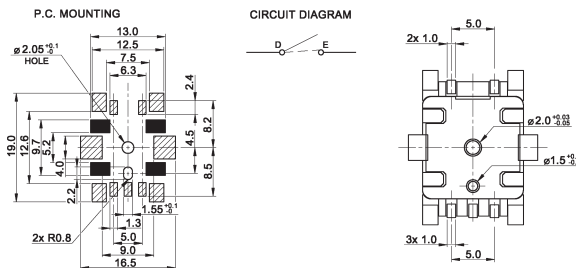
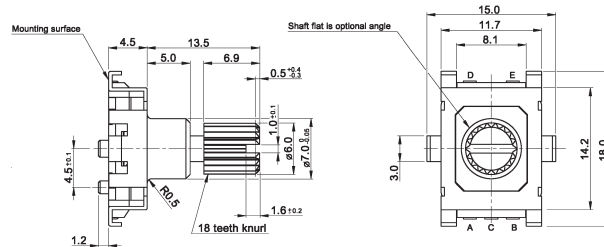


## Specifications:

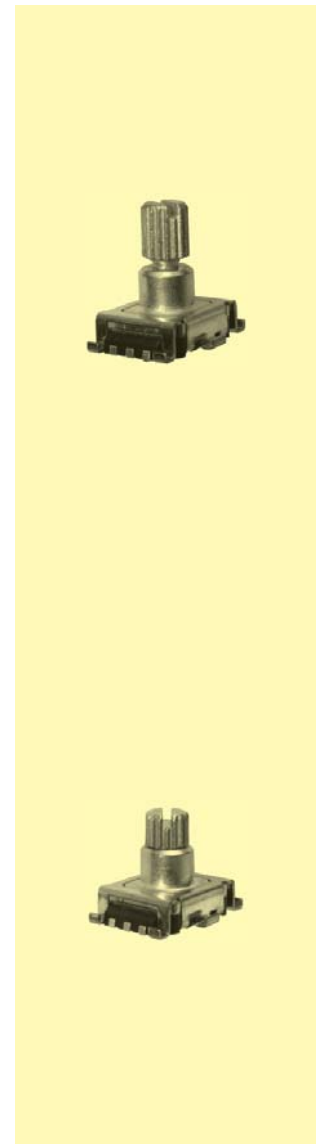
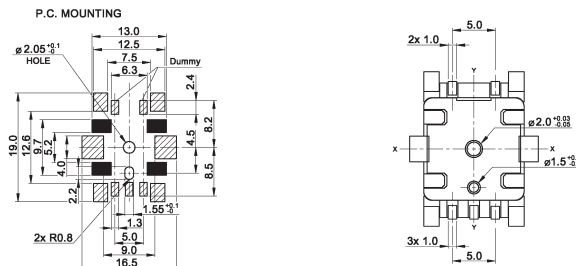
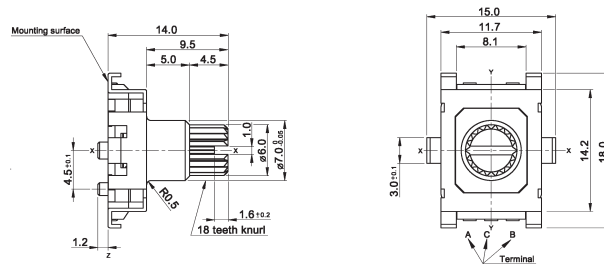
Contact rating:	5 V DC 10 mA
Contact resistance:	< 100 mΩ
Insulation resistance:	> 100 MΩ
Dielectric strength:	300 V, 50 Hz for the duration of 1 minute
Operating temperature:	-40 °C to +85 °C
Rotational/Detent torque:	0,5/1,0 Ncm
Pulses/Detents per turn:	15/30 or 20/20
Mechanical life:	> 15000 cycles
Pushbutton (optional):	actuation force 4 N, travel 0,5 mm, life > 25000 operations
Contacts:	silver-plated
Terminals:	silver-plated
Mounting:	on pc-board – SMD

## Models:

MERPS11-15213



MERS11-15295



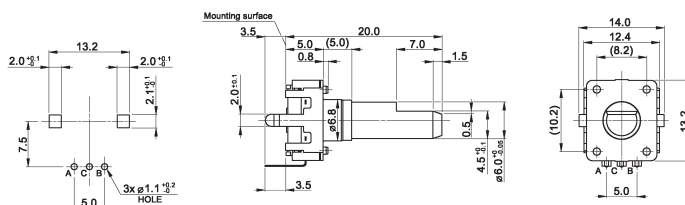
# Encoder

## Specifications:

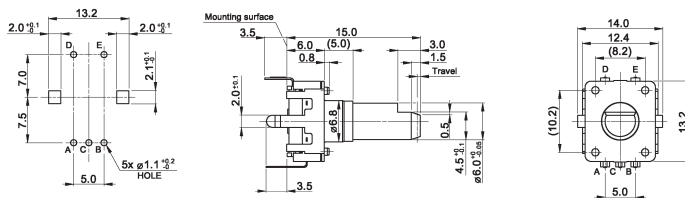
Contact rating:	5 V DC, 10 mA
Contact resistance:	< 100 mΩ
Insulation resistance:	> 100 MΩ
Dielectric strength:	300 V, 50 Hz for the duration of 1 minute
Operating temperature:	-40 °C to +85 °C
Rotational/Detent torque:	0,5 N/2,0 Ncm
Pulses/Detents per turn:	24/24
Mechanical life:	> 30 000 cycles
Pushbutton (optional):	actuation force 3 N, travel 0,5 mm, life > 20000 operations
Contacts:	silver-plated
Terminals:	silver-plated
Mounting:	on pc-board single hole mounting, bushing M 9 x 0,75
Soldering conditions:	auto-soldering – max.: 5 sec, 260 °C

## Models:

MER12-24120



MERP12-24115



CIRCUIT DIAGRAM



## Output signal format:

Shaft rotational direction	Signal	Output
C.W.	Terminal A-C	OFF
	Terminal B-C	ON
C.C.W.	Terminal A-C	OFF
	Terminal B-C	ON

## Ordering code 12 mm Encoder:

MER  12   -

**Switch function:**  
 no switch  
 switch

**Number of pulses:**  
 12 12 pulses  
 24 24 pulses

**Shaft type:**  
 1 flat shaft

**Orientation:**  
 horizontal  
 vertical

**Shaft length:**  
 8.5 8.5 mm  
 15 15.0 mm  
 17.5 17.5 mm  
 20 20.0 mm  
 25 25.0 mm



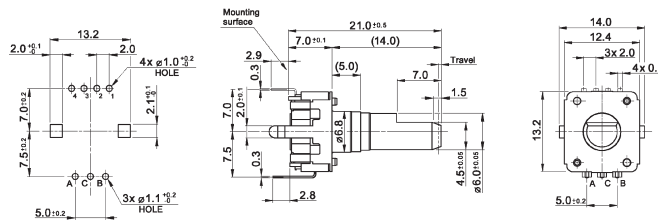
# Illuminated Encoder

## Specifications:

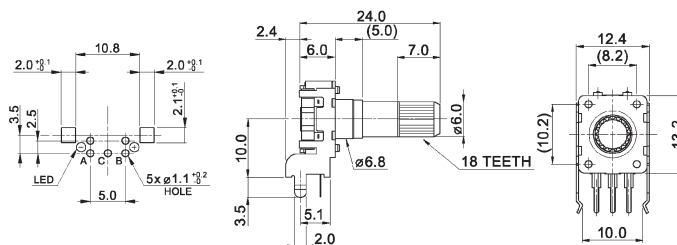
Contact rating:	5 V DC, 10 mA (1 mA min.)
Contact resistance:	< 100 mΩ
Insulation resistance:	> 100 MΩ at 250 V DC / 1 mA
Dielectric strength:	300 V AC for 1 minute
Operating temperature:	-40 °C to +85 °C
Rotational/Detent torque:	0,5 Ncm/2,0 Ncm
Pulse/Detents per turn:	12/12 or 24/24, version "N": no detent
Mechanical life (cycle function):	minimum 30000 cycles
Pushbutton (optional):	Operating force: 4 N, travel 0,5 mm, mechanical life > 20000 operations
Contacts:	silver-plated
Terminals:	silver-plated
Mounting:	on pc-board with pin-contact optional single hole mounting, bushing M 9 x 0,75
Illuminating:	Types with push button: 2 LED; types without push button: 1 LED
Soldering conditions:	260 °C ± 5 °C, 3 ± 1 sec.

## Models:

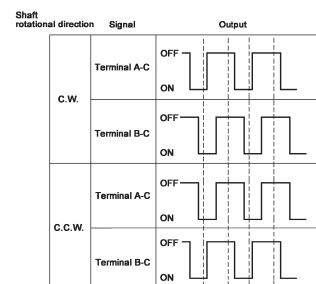
MERP12-24121BG



MER12-12224RE



## Output signal format:



## Ordering code 12 mm Encoder:

MER  12        -

**Switch function:**  
 no switch  
 switch

**Detent:**  
 with  
 without

**Shaft type:**  
 flat shaft  
 knurled shaft

**Orientation:**  
 horizontal  
 vertical

**Number of pulses:**  
 12 pulses  
 24 pulses

**Shaft length:**  
 on demand

**Bushing thread:**  
 M9 M9  
 no thread

**LED colour:**  
 BL blue (for MER)  
 RE red (for MER)  
 GN green (for MER)  
 OA orange (for MER)  
 WH white (for MER)  
 OB orange, blue (for MERP)  
 BG blue, green (for MERP)  
 GR red, green (for MERP)

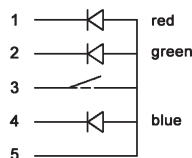
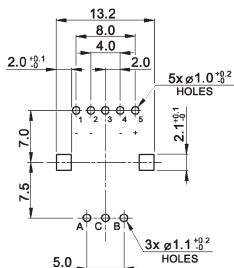
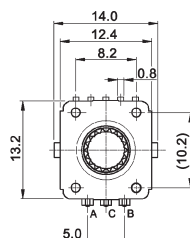
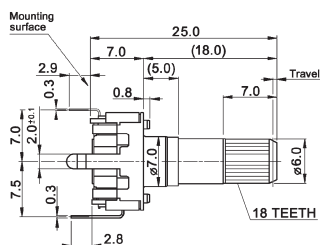
# Illuminated Encoder

## Specifications:

Contact rating:	5 V DC, 10 mA
Contact resistance:	< 100 mΩ
Insulation resistance:	> 100 MΩ
Dielectric strength:	300 V, 50 Hz for the duration of 1 minute
Operating temperature:	-40 °C to +85 °C
Rotational/Detent torque:	0.5 Ncm / 2.0 Ncm
Pulses/Detents per turn:	12/12 or 24/24, version „N“: no detent
Mechanical life (cycle function):	minimum 30 000 turns
Pushbutton function:	Actuation force 4.5 ± 2 N, travel 0.5 mm, mechanical life > 20 000 operations
Material:	Contacts: stainless steel, silver-plated
Contacts and terminals:	silver-plated
Mounting:	on pc-board with pin-contact
Illuminating:	RGB-LED
Soldering conditions:	wave soldering, max. 5 sec max. 260 °C, pre-heat max. 60 sec max. 100 °C

## Models:

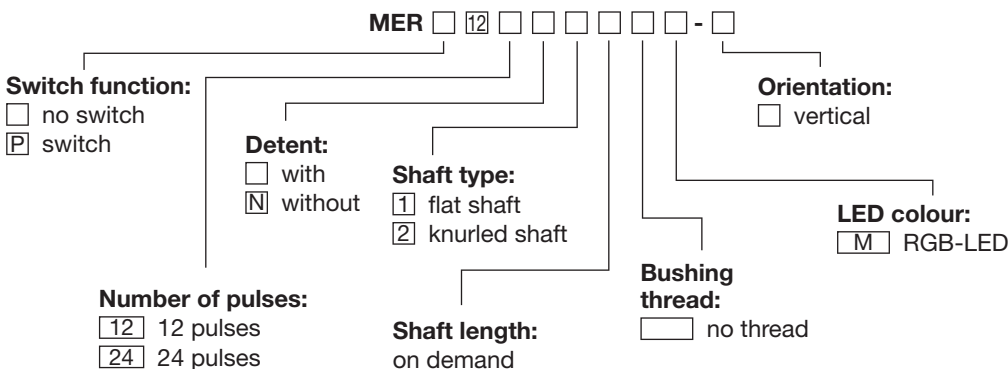
MERP12-24225M



## Output signal format:

Shaft rotational direction	Signal	Output
C.W.	Terminal A-C	OFF
	Terminal B-C	ON
C.C.W.	Terminal A-C	ON
	Terminal B-C	OFF

## Ordering code 12 mm Encoder:





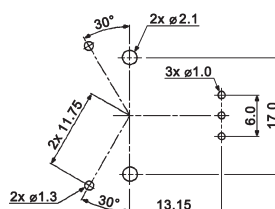
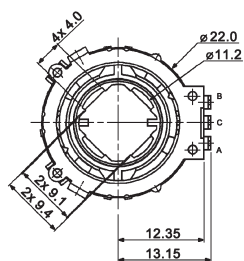
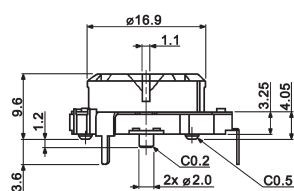
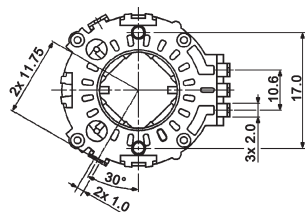
# Encoder

## Specifications:

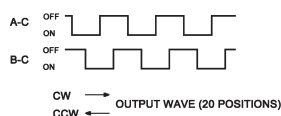
Contact rating:	5 V DC, 10 mA
Contact resistance:	< 1 Ω
Insulation resistance:	> 100 MΩ
Dielectric strength:	100 V, 50 Hz for the duration of 1 minute
Operating temperature:	-10 °C to +70 °C
Rotational torque:	0.6 ± 0.41 Ncm
Pulses/Detents per turn:	20/20
Mechanical life:	minimum 30 000 turns
Material:	Contacts: stainless steel, silver-plated
Contacts and terminals:	silver-plated
Mounting:	on pc-board with pin-contact
Soldering conditions:	wave soldering, max. 5 s max. 250 °C, pre-heat max. 60 s max. 100 °C

## Models:

MER23-20



## Output signal format:



# Encoder

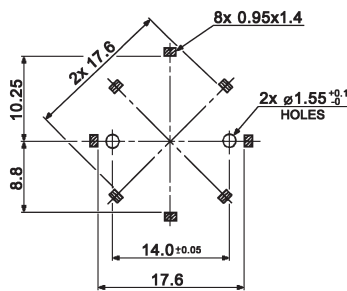
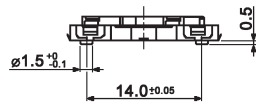
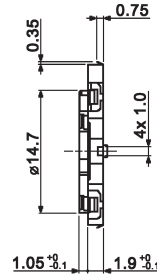
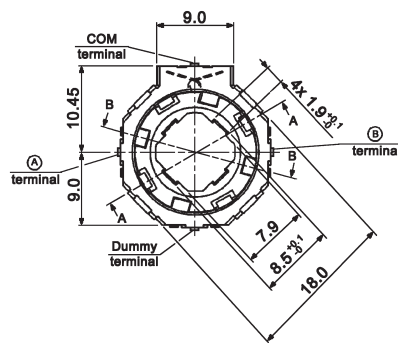


## Specifications:

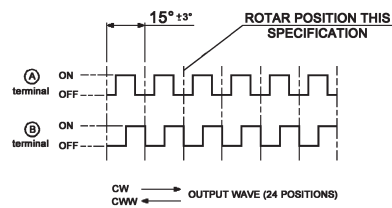
Contact rating:	5 V DC, 10 mA
Contact resistance:	< 1 Ω
Insulation resistance:	> 100 MΩ
Dielectric strength:	100 V, 50 Hz for the duration of 1 minute
Operating temperature:	-10 °C to +60 °C
Rotational torque:	0.3 ± 0.05 Ncm
Pulses/Detents per turn:	24/24
Mechanical life:	minimum 50 000 turns
Contacts and terminals:	silver-plated
Mounting:	on pc-board – SMD
Soldering conditions:	reflow soldering, max. 10 sec max. 240 °C

## Models:

MER1045-24



## Output signal format:





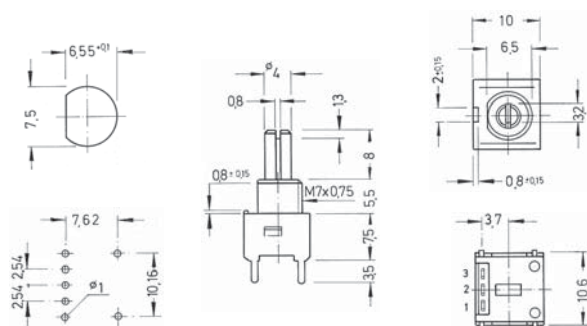
# Encoder

## Specifications:

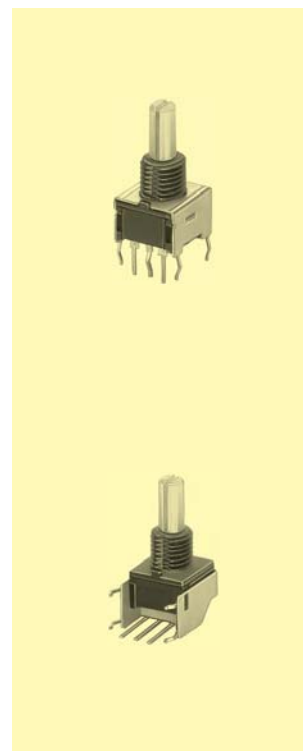
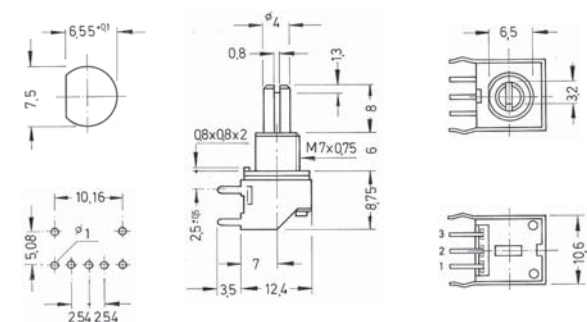
Contact rating:	5 V DC, 10 mA
Contact resistance:	< 100 mΩ
Insulation resistance:	> 100 MΩ
Dielectric strength:	250 V, 50 Hz for the duration of 1 minute
Operating temperature:	-25 °C to +70 °C
Mechanical life:	minimum 10 000 operations
Contacts:	phosphor bronze, gold-plated
Terminals:	PC terminals
Material:	case: PBT black; frame: steel, tin-plated; rotor: PA
Mounting:	on pc-board or single hole mounting, bushing M 7 x 0,75, key 11 mm
Soldering conditions:	auto-soldering – max.: 5 sec, 250 °C ± 5 °C

## Models:

MRP 1 – 20



MRP 1 – 20 – R



Mounting set for single hole mounting

1 nut M 7 x 0,75, key 11 mm

1 washer Ø 12 mm

Order number

RR 775

Circuit diagram – 20 pulses/circle ± 2 pulses

Contact between pulse	Angle					
	0	18°	36°	324°	342°	360°
2-1 on off						
2-3 on off						

# knitter-switch Encoder



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