

EN: This Datasheet is presented by the manufacturer.

Please visit our website for pricing and availability at www.hestore.hu.

11mm Size Metal Shaft Type Encoder Variety

EC11 Series

Compact and highly reliable type available in many varieties.





Level controls for car audio and car navigation system.

• Controls for image/sound devices, including DVD players,

mini component stereos, CD players and portable audio

Various controls for devices in automotive

Applications

Push

Power

Slide

Rotary

Encoders

Jog Shuttle

Telephone -hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Features

- Compact and highly reliable, sliding contact type.
- 4.5mm-body height with a 1.5mm-travel push switch is available.
- Incremental type.

Typical Specifications

Items	Specifications
Rating	10mA 5V DC
Operating life	15,000 cycles

Products Line

Style	Operating section	Length of operating section (mm)	torque	Number of detent	Resolution	Operating direction	Push-on switch	Travel of push-on switch (mm)	Minimum packing uni (pcs.)	Products No.	Drawing No .		
				30	15		Without			EC11B15203AD	1		
			12±7 mN・m	20	20		vvitilout			EC11B20203A3	'		
				30	15	20 15					EC11B15243BB		
			16±7 mN・m	30		Vertical		0.5	1,000	EC11B15243BC	2		
			12±7 mN ⋅ m	20	20	Vertical	With		1,000	EC11B2024304			
Standard				30	15		***************************************			EC11B15243BD			
			16±7 mN・m	- 50	15			1.5			EC11B15243BE	3	
				20	20					EC11B2024305			
			12±7 mN ⋅ m				Without			EC11B15202AA	4		
			12 - 7 1111 111	30	15	Horizontal	With	0.5	700	EC11B15242AE	5		
							*******	1.5		EC11B15242AF	6		
				18	9					EC11E09204A4			
	Flat	20		30	15					EC11E15204A3			
				Without			'	Witho	Without			EC11E1530401	7
				36	18					EC11E1820402			
				Without						EC11E1830401			
				18	9					EC11E09244AW			
Low-				30	15					EC11E15244C0			
profile			10±7 mN⋅m	Without		Vertical		0.5	1,200	EC11E153440D	.		
				36	18					EC11E18244AE			
				Without			With			EC11E1834404	8		
				18	9					EC11E09244AQ			
				30	15			1.5		EC11E15244B2			
				Without						EC11E1534408			
				36	18					EC11E18244A5			
				Without						EC11E1834403			

Incremental Type Absolute Type

11mm Size Metal Shaft Type Encoder Variety | EC11 Series

Products Line

Style	Operating section	Length of operating section (mm)	torque	Number of detent	Resolution	Operating direction	Push-on switch	Travel of push-on switch (mm)	Minimum packing unit (pcs.)	Products No.	Drawing No.
Low- profile	Flat	20	6±4 mN⋅m				Without		1,600	EC11E1540503	9
(Reflow)	riat	20	6±4 miN•m	30	15		With	0.5	1,000	EC11E154450G	10
Push	20-tooth	25	10±7 mN⋅m	30	15		Without		1,000	EC11E152T409	11
lock	serration	26.4	10±7 IIIN • III				With	8	800	EC11E152U402	12
							Without			EC1110120001	13
Self- return	Flat	20	3 to 30 mN • m		Self-return switch	Vertical		0.5		EC1110120103	14
							With	1.5	1,200	EC1110120201	14
	Flat	Inner-shaft=25						0.5		EC11EBB24C03	15
Dual-	Slotted	Outer-shaft=15	10±7 mN・m	30	15					ECTIEBB24C03	15
shaft	Flat	Inner-shaft=25					With	1.5	700	EC11E0B2LB01	16
	Slotted	Outer-shaft=15	3 to 30 mN • m		Self-return switch				700	LCTILOBZLBOT	10

Note

We have many other products in stock. Please contact our sales department if you are interested.

Dimensions

No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting face)
1	Standard	3.5 5.4 20 7 12 12.3 12.3 12.3 12.3 12.3 12.3 12.3 1	11.1 1.8 1.8 4CB 3-Ø1 hole
2	Standard with push-on switch (travel 0.5mm)	3.5 6.6 20 Travel (Switch02)	11.1 1.8 D E Z 4.C B 5 5-Ø1 hole

Dual-in-line Package Type Multi Control

Detector

Vibration Sensors

Power

Push

Slide

Rotary

Jog Shuttle Telephone -hook

Devices

TACT

Incremental Type
Absolute

Type

For other products, check varieties on **P.189**For other detailed specifications, see **P.192**, **193**For attached parts, see **P.233**

Dimensions

Di	mensions		
No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting side)
3	Standard with push-on switch (travel 1.5mm)	3.5 7.55 20 Travel (Switch02) (Switch01) (Switch01) (Switch01) (Switch01) (Switch01)	1.8 D E S S S 1 hole
	Standard		
4		5.5 20 7 12 (Switch01) 0.8 M7×0.75	3.7 2.1 Mounting surface See See See See See See See See See S
	Standard with push-on switch		
5	(travel 0.5mm)	(Switch02) (Switch01) (Switch01) (Switch02) (Switch01)	Mounting surface Solution of A 2.5 3.8 5-ø1 hole
	Standard with push-on switch (travel 1.5mm)	7.75 20 Travel	5.1.1.1.1.
6		(Switch02) (Switch01) M7×0.75	Mounting surface Mounting surface D A 2.5 S-Ø1 hole

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone -hook

Detector

Vibration Sensors

Dual-in-line Package Type Multi Control Devices

TACT

Incremental Type

Dimensions Unit: mm PC board mounting hole No. Model Style dimensions (Viewed from mounting side) Low-profile type Dummy 11.7 7 ACB (Switch01) R0.5 5-ø1 hole Low-profile type with push-on switch (travel 0.5/1.5mm) Travel 11.7 0.5 or 1.5 8 (Switch01) 3.5 5-ø1 hole Low-profile type and reflow applicable parts ø2.05 hol Dummy 9 D D D 2-R0.8. 1.55 PC board Mounting detail A slant line part shows the solder land Black part:Do not solder and no wiring for electrical contact Low-profile type and reflow applicable parts Switch trave with push-on switch ø2.05 hole (travel 0.5mm) (SW02) 10 (SW01) R0.5 2-R0.8 PC board Mounting detail A slant line part shows the solder land Black part:Do not solder and no wiring for electrical contact

Power

Push

Slide

Rotary

Encoders

Jog Shuttle Telephone

-hook

Detector

Vibration Sensors Dual-in-line

Package Type Multi Control

Devices

TACT

Incremental

Type
Absolute
Type

Dimensions Unit: mm

Di	mensions		Unit : mm
No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting side)
11	Low-profile type with push-lock mechanism	Dummy terminal 5.1 Lock travel Lock travel 11.7 A C B 9.2	12.5 Dummy 1.5 AC'B 5-ø1 hole
12	Low-profile type with push-lock switch	3.5 26.4 Total travel Lock travel 11.7 (Switch02) A C B D E	12.5 D
13	Low-profile type with self-return switch	3.5 5 20 Dummy terminal 7 12	12.5 Dummy 5 1.5 A C B 5-Ø1 hole
14	Low-profile type with self-return switch (travel 0.5mm /1.5mm)	3.5	12.5 5 D D E 1.5 S ACB 5-Ø1 hole

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone -hook

Detector

Vibration Sensors

Dual-in-line Package Type Multi Control Devices

TACT

Incremental

Туре

D i	mensions		Unit : mm
No.	Model	Style	PC board mounting hole dimensions (Viewed from mounting side)
15	Low-profile dual-shafts type Inside shaft: encoder Outside shaft: encoder	3.5 8 25 Switch travel 11.7 7 5 7 0.5 A C B Switch03 3.5 Ro.5 Co.5 E G D E	12.5 5 A C B A C B A C B 8-ø1 hole
16	Low-profile dual-shafts type Inside shaft: encoder Outside shaft : self-return switch	3.5 8.5 25 Switch travel 11.7 7 5 7 1.5 8.6 Co.5 8.7 A'C'B' A'C	12.5 5 1.5 7 1.5 1.5 1.5 1.5 2. 2. 3. 4. C. B. 9. 4. C. B. 9. 7. 8. Ø. 8. Ø.

Multi Control Devices

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone -hook

Vibration Sensors Dual-in-line Package Type

Incremental Type

Products Specifications

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone -hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Incremental Type

Absolute Type

	Items			rd type 11B	Low-pro EC		Low-profile type EC111	20mm size		
	items		Standard type	Double torque type	Standard type	Reflow type	Self-return switch	EC20A		
Operation	ng temperat	ture range			–30 to +85°C			-30 to +80°C		
	um operatin Resistive lo				10mA			0.5mA		
	Rat	ting			10mA 5V DC			0.5mA 5V DC		
Electrical performance	Outpu	t signal	Output of A ar	nd B signals, pro	portionate to ph	ase difference	Self-return switch	Output of A and B signals, proportionate to phase difference		
periormance	Insulation	resistance	250V DC 100M Ω min.					50V DC 10M Ω min.		
	Voltag	e proof	300V AC					50V AC		
	Rotation	al torque	— 3 to 30mN⋅m				_			
	Detent	torque	12±7mN•m	16±7mN∙m	10±7mN•m	6±4mN•m	_	40±20mN•m		
Mechanical	Push-pul	strength	100N							
performance		Manual soldering			300°C or less	, or within 3s				
	Resistance to soldering heat	Dip soldering	:	260±5℃,5±1	6	_	260±5°	C,5±1s		
	lleat	Reflow soldering		Please see P.190				_		
Durability	Rotatio	onal life	15,000 cycles					30,000 cycles		
	Co	old	-40±3°C for 240h							
Environmental performance	Dry	heat			85±3℃	for 240h				
	Damı	heat		6	60±2℃, 90 to 9	95%RH for 240	h			

Push-on Switch Specifications

Items	Standa EC1	, .	Low-pro EC11E		20mm size EC20A		
Switch circuit • the number of contact	Single pole and single throw (Push-on)						
Travel of switch	0.5 ^{+ 0.4} / _{- 0.3} mm	1.5±0.5mm	0.5±0.3mm	1.5±0.5mm			
Operating force of switch	6±3N	5±2N	6 + 2.5 N	4±2N			
Rating	DC 16 (10mA 16V DC	SV 3A C min ratings)	DC 16V 0.5A	A (1mA 16V DC n	nin ratings)		
Contact resistance		100m Ω for initial	al period; 200m Ω after rotational life				
Operating life	25,000 times min.		20,000 tii	mes min.			

Products Specifications

Output Wave

Standar EC1			file type 11E	Low-profile type EC111		20mm size		
Standard type	Heavy torque type	Standard type	Reflow type	Self-return switch	EC20A			
EC11B, EC1	11E 30 detents, 15 puls	se EC11B 20 deten	ts, 20 pulse					
A signal	OFF ON	A signal ON O	FF			Shaft rotational Direction	Signal	Output
B signal	OFF ON	B signal ON OF	F	Counter- Clockwise Clockwise		Clockwise	A (Terminal A–C)	OFF ON
	Detent stabillity point direction	Detent sta CW direction	billity point	0°		Ciockwise	B (Terminal B-C)	OFF
	etent position cannot etents 9 pulse etents 18 pulse	be identified in phase	В.			Counter-clockwise	A (Terminal A–C)	OFF ON
A signal C	OFF ON			B C A		Sounter-clockwise	B (Terminal B-C)	OFF ON
B signal	OFF ON						1	The broken line shows Detent stability position
CW direction	Detent stabillity p	point						

Sliding Noise

Standa EC		Low-pro EC	file type 11E	Low-profile type EC111	20mm size		
Standard type	Heavy torque type	Standard type	Reflow type	Self-return switch	EC20A		
V1=V2=1.5\					V1=V2=1.5V max.		
Test circuit SV DC Output waveform Output waveform Output waveform V1 ON OFF ON Sliding direction Measurement condition: Rotation speed 360'/s t: Masking time to avoid chattering					Test circuit 5V DC R OTerminal A OTerminal B Encoder ON Sliding direction Measurement condition: Rotation speed 360's t: Masking time to avoid chattering		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$					At R = 5kΩ Chattering :8ms max. Bounce :5ms max.		

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone -hook

Detector

Vibration Sensors Dual-in-line

Package Type
Multi Control

Devices

TACT

Incremental Type

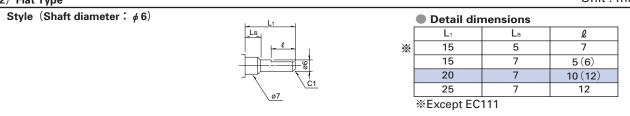
Variety

Standard Dimensions of Shaft

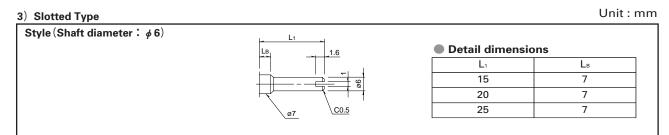
1. Single-shaft Type

Unit: mm 1) Knurled Type Style (Shaft diameter : ϕ 6) Detail dimensions Lв 18 teeth knurl Sı 7 15 5 6 1 _0.5 or 1 15 4 1 5 7 20 6 1 2 25 10 11 **Except EC111** Style (Shaft diameter: ϕ 9) 20 teeth knurl Applicable to models with a push lock mechanism only.

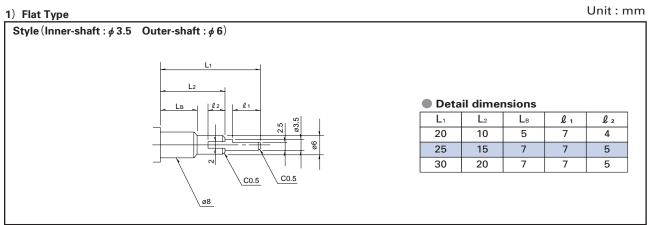
2) Flat Type Unit : mm



Dimensions in parentheses ($\,\,$) are given for the type without a push-on switch.



2. Standard Dimensions of Dual-shaft Type



Notes

- 1. The parts in the shaft type are applied to the specifications for the product line described in p. 183 and 184.
- 2. Additional switches not included in the above list are also available. Contact us for details.

Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone -hook

Detector

Vibration Sensors

Dual-in-line Package Type Multi Control

Devices

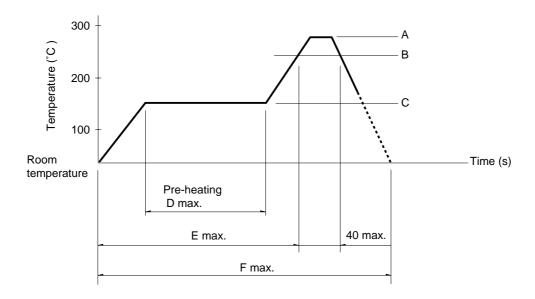
TACT

Incremental Type

Soldering Condition

Example of Reflow Soldering Condition

- 1. Heating method: Double heating method with infrared heater.
- 2. Temperature measurement: Thermocouple 0.1 to 0.2 ϕ CA (K) or CC (T) at soldering portion (copper foil surface). A heat resisting tape should be used for fixed measurement.
- 3. Temperature profile



Series(Reflow type)	A (℃) 10s max.	B (℃)	c (℃)	D(s)	E(s)	F(s)
EC11E154⊡5	240±10	200	150	120		240

Incremental Type Absolute

Power

Push

Slide

Rotary

Encoders

Jog

-hook

Detector

Vibration

Dual-in-line Package Type

Multi Control Devices

TACT

Sensors

Shuttle Telephone

Notes

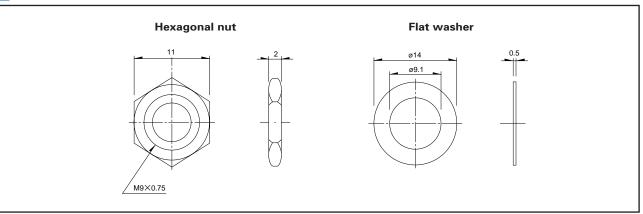
- 1. The condition mentioned above is the temperature on the mounting surface of a PC board. There are cases where the PC board's temperature greatly differs from that of the switch, depending on the PC board's material, size, thickness, etc. The above-stated conditions shall also apply to switch surface temperatures.
- 2. Soldering conditions differ depending on reflow soldering machines. You are requested to verify the soldering conditions thoroughly beforehand.

Type

Attached Parts

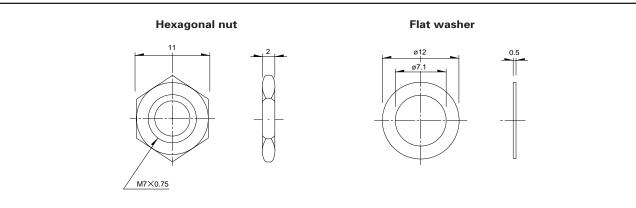
These parts are attached to the following products.

SRGH Series Unit : mm



RK09710E, EC11B Series

Unit : mm



Power

Push

Slide

Rotary

Encoders

Jog Shuttle

Telephone -hook

Detector

Vibration Sensors

Dual-in-line Package Type

Multi Control Devices

TACT

Incremental Type Absolute

Type