## Panasonic

### 12 mm Square GS Encoders

Type: EVEG/EVEH/EVEK/EVEL

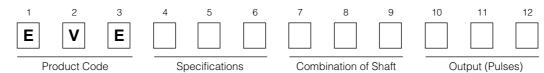
#### Features

- Lineup of high rotation-torque-type (50 mN·m)
- A wide range of standard products

#### Recommended Applications

- Volume for audio/visual equipment
- Tuner for communication units
- Mode selection for measurement instruments

#### Explanation of Part Numbers



#### Product Chart

	Combination of Bushing			Height						Detents (Resolution/Pulses)		
Torque type			Thickness	15.0 mm	17.5 mm	20.0 mm	22.5 mm	25.0 mm	30.0 mm	12 points (12 pulses)	24 points (24 pulses)	Without detents (12 pulses, 24 pulses)
Heavy-rotation		(7.0,12.0 mm)	5.5 mm					0	0			0
torque (10 mN·m to 50 mN·m)	Sleeve	(7.0,12.0 mm)	5.5 mm					0	0			0
	Barling	(5.0 mm)	5.0 mm		0	0	0	0		0	0	0
Standard type	Barling	(1.6 mm)	5.0 mm	0						0	0	0
(3 mN·m to 20 mN·m)	Die-cast	(7.0 mm)	5.5 mm			0	0	0		0	0	0
	Sleeve	(7.0 mm)	5.5 mm			0	0	0		0	0	0

#### Specifications

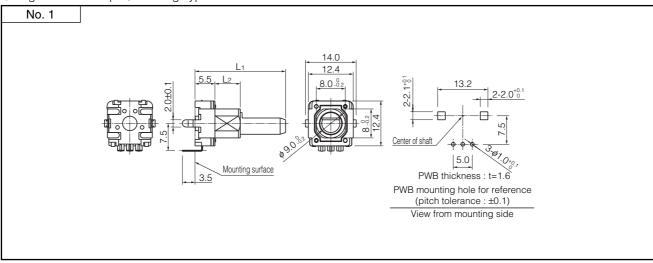
Rotation Angle $360 \circ (Endless)$ Shaft Pull/Push Strength $80 \ N \ min.$ Shaft Wobble $0.7 \times L/30 \ mm \ max.$ Rotation Torque $0.7 \times L/30 \ mm \ max.$ Rotation Torque $0.7 \times L/30 \ mm \ max.$ Detents $12 \ points, 20 \ points, 24 \ points, without detents (Heavy rotation-torque without detents)Output SignalsPhase A and BResolution12, 20, 24 \ pulses/360 \circ$ Rating1 mA 5 \ Vdc, 1 mA 10 \ VdcContact Resistance1 0 \ MQ \ min. (at 50 \ Vdc)Dielectric Withstarding Voltage50 \ Vac for 1 minuteBouncing5 ms max.Insulation Resistance10 MQ \ min. (at 50 \ Vdc)Dielectric Withstarding Voltage50 \ Vac for 1 minuteBouncing5 ms max.Operating LifeStandard TypeOperating Temperature-10 \cdot C to +66 \cdot CStorage Temperature-40 \cdot C to +85 \cdot CMinimum Quatity/Packing UnitL \ged 20 \cdot mm 1000 \pos. Folyethylere Bag(Buk)Quantity/CartonL \ged 20 \cdot mm 1000 \pos. So \cdot 20 \cdot mm 2000 \pos. So \cdot 20 \cdot									
Mechanical   Shaft Wobble   0.7xL/30 mm max.     Rotation Torque   Standard Type   3 mN·m to 20 mN·m     Detents   10 mN·m to 50 mN·m     Detents   12 points, 20 points, 24 points, without detents (Heavy rotation-torque without detents)     Besolution   12 points, 20 points, 24 points, without detents     Rating   12, 20, 24 pulses/360 °     Rating   1 mA 5 Vdc, 1 mA 10 Vdc     Contact Resistance   1 Ω max.     Chattering   2 ms max.     Insulation Resistance   10 MΩ min. (at 50 Vdc)     Dielectric Withstanding Voltage   50 Vac for 1 minute     Bouncing   5 ms max.     Operating Life   Standard Type     Operating Life   Standard Type     Minimum Quantity/Packing Unit   L≦25.0 mm		Rotation Angle		360 ° (Endless)					
$ \begin{array}{ c c c c } \mbox{Mechanical} & \begin{tabular}{ c c c c } \hline \mbox{Mechanical} \\ \hline \mbox{Rotation Torque} & \begin{tabular}{ c c c c } \hline \mbox{Standard Type} & \begin{tabular}{ c c c c } \hline \mbox{Standard Type} & \begin{tabular}{ c c c c } \hline \mbox{Standard Torque} & \begin{tabular}{ c c c c } \hline \mbox{Standard Torque} & \begin{tabular}{ c c c c } \hline \mbox{Standard Torque} & \begin{tabular}{ c c c c } \hline \mbox{Standard Torque} & \begin{tabular}{ c c c c } \hline \mbox{Standard Torque} & \begin{tabular}{ c c c c } \hline \mbox{Standard Torque} & \begin{tabular}{ c c c c } \hline \mbox{Standard Torque} & \begin{tabular}{ c c c c c } \hline \mbox{Standard Torque} & \begin{tabular}{ c c c c c } \hline \mbox{Standard Standard Torque} & \begin{tabular}{ c c c c c c c } \hline \mbox{Standard Standard Type} & \begin{tabular}{ c c c c c c c } \hline \mbox{Standard Resistance} & \begin{tabular}{ c c c c c c c } \hline \mbox{Standard Type} & \begin{tabular}{ c c c c c c c c } \hline \mbox{Standard Type} & \begin{tabular}{ c c c c c c c c c c c c c } \hline \mbox{Standard Type} & \begin{tabular}{ c c c c c c c c c c c c c c c c c c c$	Mechanical	Shaft Pull/Push S	Strength	80 N min.					
Rotation TorqueRotation TorqueRotation Torque10 mN·m to 50 mN·mDetents12 points, 20 points, 24 points, without detents (Heavy rotation-torque without detents)Output SignalsPhase A and BResolution12, 20, 24 pulses/360 °Rating1 mA 5 Vdc, 1 mA 10 VdcContact Resistance1 0 MΩ min. (at 50 Vdc)Dielectric Withstanding Voltage50 Vac for 1 minuteBouncing5 ms max.Endurance10 MΩ min. (at 50 Vdc)Operating LifeStandard TypeOperating LifeStandard TypeOperating Temperature-10 °C to +60 °CStorage Temperature-10 °C to +85 °CMinimum Quantity/Packing UnitL≤25.0 mm 100 pcs. Polyethylene Bag(Buk)L=25.0 mm 100 pcs. Polyethylene Bag(Buk)L>26.0 mm 200 pcs. Polyethylene Bag(Buk)		Shaft Wobble		0.7×L/30 mm max.					
$ \begin{array}{ c c c c c } \hline \mbox{Heavy Rotation lorque} & 10 mN·m to 50 mN·m \\ \hline \mbox{Detents} & 12 points, 20 points, 24 points, without detents (Heavy rotation-torque without detents) \\ \hline \mbox{Detents} & 12 points, 20 points, 24 points, without detents (Heavy rotation-torque without detents) \\ \hline \mbox{Output Signals} & Phase A and B \\ \hline \mbox{Resolution} & 12, 20, 24 pulses/360 ° \\ \hline \mbox{Rating} & 1 mA 5 Vdc, 1 mA 10 Vdc \\ \hline \mbox{Contact Resistance} & 10 M\Omega max. \\ \hline \mbox{Chattering} & 2 ms max. \\ \hline \mbox{Insulation Resistance} & 10 M\Omega min. (at 50 Vdc) \\ \hline \mbox{Dielectric Withstanding Voltage} & 50 Vac for 1 minute \\ \hline \mbox{Bouncing} & 5 ms max. \\ \hline \mbox{Bouncing Life} & \hline \mbox{Standard Type} & 30000 cycles min. \\ \hline \mbox{Operating Temperature} & -10 °C to +60 °C \\ \hline \mbox{Storage Temperature} & -40 °C to +85 °C \\ \hline \mbox{Minimum Quantity/Packing Unit} & L \leq 25.0 mm 100 pcs. Polyethylene Bag(Bulk) L>26.0 mm 200 pcs. Polyethylene Bag(Bulk) \\ \hline \mbox{Contact Resistance} & 10 max Participation $		Detetion Terrerus	Standard Type	3 mN·m to 20 mN·m					
Detents   (Heavy rotation-torque without detents)     (Heavy rotation-torque without detents)     (Heavy rotation-torque without detents)     Phase A and B     Resolution   12, 20, 24 pulses/360 °     Rating   1 mA 5 Vdc, 1 mA 10 Vdc     Contact Resistance   1 Ω max.     Chattering   2 ms max.     Insulation Resistance   10 MΩ min. (at 50 Vdc)     Dielectric Withstanding Voltage   50 Vac for 1 minute     Bouncing   5 ms max.     Operating Life   Standard Type     Heavy Rotation Torque   15000 cycles min.     Operating Temperature   -10 °C to +60 °C     Storage Temperature   -40 °C to +85 °C     Minimum Quantity/Packing Unit   L≤25.0 mm   100 pcs. Polyethylene Bag(Bulk)		Rotation Torque	Heavy Rotation Torque	10 mN·m to 50 mN·m					
$ \begin{array}{c c c c c c c c c c c c c c c c c c c $		Detents	•	12 points, 20 points, 24 points, without detents (Heavy rotation-torque without detents)					
Rating   1 mA 5 Vdc, 1 mA 10 Vdc     Contact Resistance   1 Ω max.     Chattering   2 ms max.     Insulation Resistance   10 MΩ min. (at 50 Vdc)     Dielectric Withstanding Voltage   50 Vac for 1 minute     Bouncing   5 ms max.     Performance   Operating Life     Variable Vertic Verti Vertic Verti Vertic Vertic Verti Vertic Vertic Verti		Output Signals		Phase A and B					
Electrical   Contact Resistance   1 Ω max.     Chattering   2 ms max.     Insulation Resistance   10 MΩ min. (at 50 Vdc)     Dielectric Withstanding Voltage   50 Vac for 1 minute     Bouncing   5 ms max.     Perturbed   5 ms max.     Operating Life   Standard Type     Heavy Rotation Torque   15000 cycles min.     Operating Temperature   -10 °C to +60 °C     Operating Temperature   -40 °C to +85 °C     Minimum Quantity/Packing Unit   L≤25.0 mm   100 pcs. Polyethylene Bag(Bulk)		Resolution		12, 20, 24 pulses/360 °					
Electrical   Chattering   2 ms max.     Insulation Resistance   10 MΩ min. (at 50 Vdc)     Dielectric Withstanding Voltage   50 Vac for 1 minute     Bouncing   5 ms max.     Operating Life   Standard Type     Operating Life   Standard Type     Operating Temperature   -10 °C to +60 °C     Storage Temperature   -40 °C to +85 °C     Minimum Quantity/Packing Unit   L≤25.0 mm   100 pcs. Polyethylene Bag(Bulk)		Rating		1 mA 5 Vdc, 1 mA 10 Vdc					
Chattering   2 ms max.     Insulation Resistance   10 MΩ min. (at 50 Vdc)     Dielectric Withstanding Voltage   50 Vac for 1 minute     Bouncing   5 ms max.     Operating Life   Standard Type     Heavy Rotation Torque   15000 cycles min.     Operating Temperature   -10 °C to +60 °C     Storage Temperature   -40 °C to +85 °C     Minimum Quantity/Packing Unit   L≤25.0 mm   100 pcs. Polyethylene Bag(Bulk)	<u>Electrical</u>	Contact Resistar	nce	1 Ω max.					
Dielectric Withstanding Voltage   50 Vac for 1 minute     Bouncing   5 ms max.     Bouncing Life   Standard Type     Operating Life   Standard Type     Heavy Rotation Torque   15000 cycles min.     Operating Temperature   -10 °C to +60 °C     Storage Temperature   -40 °C to +85 °C     Minimum Quantity/Packing Unit   L≤25.0 mm   100 pcs. Polyethylene Bag(Bulk)	Electrical	Chattering		2 ms max.					
Bouncing   5 ms max.     Bouncing   5 ms max.     Operating Life   Standard Type     Heavy Rotation Torque   15000 cycles min.     Operating Temperature   -10 °C to +60 °C     Storage Temperature   -40 °C to +85 °C     Minimum Quantity/Packing Unit   L≤25.0 mm   100 pcs. Polyethylene Bag(Bulk)		Insulation Resist	ance	10 M $\Omega$ min. (at 50 Vdc)					
Endurance   Operating Life   Standard Type   30000 cycles min.     Heavy Rotation Torque   15000 cycles min.     Operating Temperature   -10 °C to +60 °C     Storage Temperature   -40 °C to +85 °C     Minimum Quantity/Packing Unit   L≦25.0 mm   100 pcs. Polyethylene Bag(Bulk)		Dielectric Withsta	anding Voltage	50 Vac for 1 minute					
Endurance Operating Life Heavy Rotation Torque 15000 cycles min.   Operating Temperature -10 °C to +60 °C   Storage Temperature -40 °C to +85 °C   Minimum Quantity/Packing Unit L≤25.0 mm 100 pcs. Polyethylene Bag(Bulk)		Bouncing			5 ms	max.			
Endurance   Heavy Rotation Torque   15000 cycles min.     Operating Temperature   -10 °C to +60 °C     Storage Temperature   -40 °C to +85 °C     Minimum Quantity/Packing Unit   L≤25.0 mm   100 pcs. Polyethylene Bag(Bulk)	Endurance	Operating Life	Standard Type	30000 cycles min.					
Operating Temperature     -10 °C to +60 °C       Storage Temperature     -40 °C to +85 °C       Minimum Quantity/Packing Unit     L≤25.0 mm     100 pcs. Polyethylene Bag(Bulk)     L>26.0 mm     200 pcs. Polyethylene Bag(Bulk)			Heavy Rotation Torque	15000 cycles min.					
Minimum Quantity/Packing Unit L≤25.0 mm 100 pcs. Polyethylene Bag(Bulk) L>26.0 mm 200 pcs. Polyethylene Bag(Bulk)		Operating Temp	erature	-10 °C to +60 °C					
		Storage Tempera	ature	-40 °C to +85 °C					
Quantity/Carton L≤25.0 mm 1000 pcs. L>26.0 mm 2000 pcs.	Minimum Quantity/Packing Unit			L≦25.0 mm	100 pcs. Polyethylene Bag(Bulk)	L>26.0 mm 2	200 pcs. Polyethylene Bag(Bulk)		
	Quantity/Carton			L≦25.0 mm	1000 pcs.	L>26.0 mm	2000 pcs.		

Design and specifications are each subject to change without notice. Ask factory for the current technical specifications before purchase and/or use. Should a safety concern arise regarding this product, please be sure to contact us immediately.

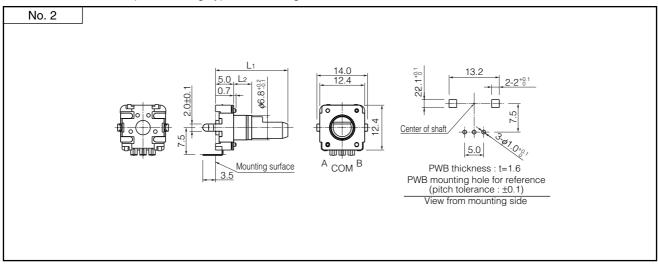
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# **Panasonic**

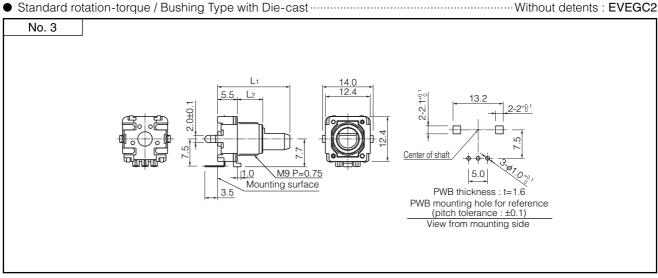
#### Dimensions in mm (not to scale)



### With detents : EVEGA1



## With detents : EVEGC1



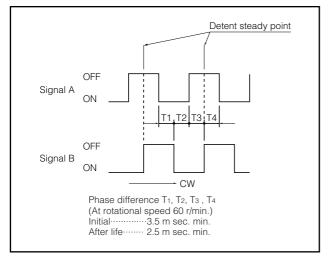
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#### ■ Shaft Trims and Dimensions in mm

Duching Tupo		Dime	nsions		
Bushing Type	Lı	L2	L3	Corner Cut	
Barling	15.0 mm	1.6 mm	7.0 mm	1.5 mm	
	17.5 mm	5.0 mm	5.0 mm	1.5 mm	]  + <u>L1</u> , ,
	20.0 mm	5.0 mm	7.0 mm	1.5 mm	
	22.5 mm	5.0 mm	7.0 mm	1.5 mm	
	25.0 mm	.0 mm 5.0 mm 12.	12.0 mm	1.5 mm	
Sleeve	20.0 mm	7.0 mm	7.0 mm	1.5 mm	
	22.5 mm	7.0 mm	7.0 mm	1.5 mm	
	25.0 mm	7.0 mm	12.0 mm	1.5 mm	
	<b>*</b> 30.0 mm	7.0 mm	<b>*</b> 12.0 mm	<b>*</b> 1.5 mm	
Die-cast	20.0 mm	7.0 mm	7.0 mm	1.5 mm	
	22.5 mm	7.0 mm	7.0 mm	1.5 mm	
	25.0 mm	7.0 mm	12.0 mm	1.5 mm	]
	<b>*</b> 30.0 mm	12.0 mm	<b>*</b> 12.0 mm	<b>*</b> 1.5 mm	*High-rotation torque

#### Phase Difference



### Test Circuit Diagram

