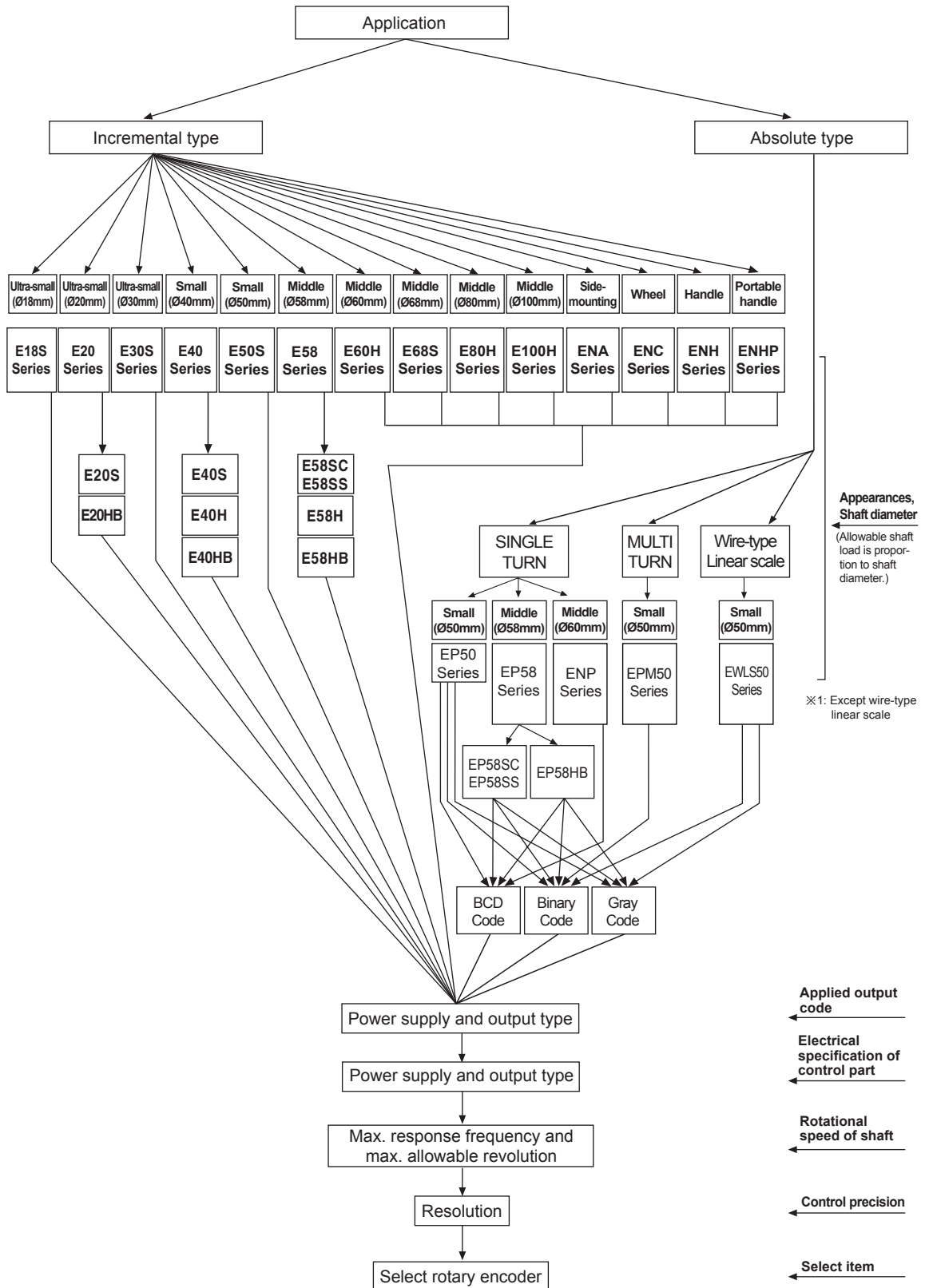


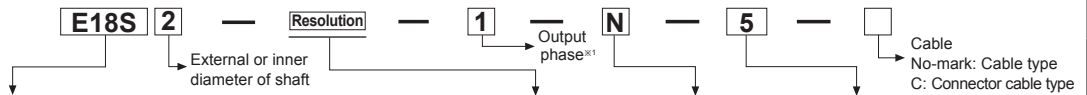
# Product Overview








## Rotary Encoder Selection



# Product Overview

## Incremental Type



| Appearances  | Model   | Resolution  | Control output   | Power supply  | Reference  |
|--|---|---|--|---|------------|
| Ø18mm Shaft type<br>                      | E18S2 - <b>Resolution</b> -1-N-5<br>E18S2.5 V   | 100P/R<br>200P/R<br>300P/R<br>400P/R  | <b>T (1):<br/>Totem pole<br/>output</b>                                |   | F-8 to 9   |
| Ø20mm Shaft type<br>                      | E20S2 - <b>Resolution</b> -3-N-5, 12<br>V<br>-6-L-5<br><br>* Cable<br>R:Axial cable type<br>S:Radial cable type                         | 100P/R<br>200P/R<br>320P/R<br>360P/R  |  |   |            |
| Ø20mm Hollow shaft<br>built-in type<br>   | E20HB2 - <b>Resolution</b> -3-N-5, 12-<br>E20HB2.5 V<br>E20HB3 -6-L-5-<br><br>* Cable<br>R:Axial cable type<br>S:Radial cable type      | 100P/R<br>200P/R<br>320P/R<br>360P/R  | <b>N (2):<br/>NPN open<br/>collector<br/>output</b>                    | <b>5:</b><br>5VDC ±5%                                   | F-10 to 11 |
| Ø30mm Shaft type<br>                    | E30S4 - <b>Resolution</b> -3-T-5, 24<br>N<br>V<br>-6-L-5  | 100P/R      360P/R<br>1000P/R    3000P/R<br>200P/R      500P/R<br>1024P/R   | <b>V (3):<br/>Voltage output</b>                                       | <b>24:</b><br>12-24VDC ±5%<br>(Ripple P-P:<br>Max. 5%)  |            |
| Ø40mm Shaft type<br>                    | E40S6 - <b>Resolution</b> -2-T-5, 24<br>(Standard item) N<br>E40S8 V<br>(Option) -3-T-5, 24<br>N<br>V<br>-4-L-5<br>-6                   | *1P/R      240P/R<br>*2P/R      250P/R<br>*5P/R      256P/R<br>10P/R      300P/R<br>*12P/R    360P/R<br>15P/R      400P/R<br>20P/R      500P/R<br>23P/R      512P/R<br>25P/R      600P/R<br>30P/R      800P/R<br>35P/R      1000P/R<br>40P/R      1024P/R<br>45P/R      1200P/R<br>50P/R      1500P/R<br>60P/R      1800P/R<br>75P/R      2000P/R<br>100P/R     2048P/R<br>120P/R     2500P/R<br>125P/R     3000P/R<br>150P/R     3600P/R<br>192P/R     5000P/R<br>200P/R | <b>L:<br/>Line driver<br/>output<br/>(except CE<br/>certification)</b> | (note)The output of<br>Line driver is only for<br>5VDC. | F-14 to 16 |
| Ø40mm Hollow shaft<br>type<br>          | E40H8 - <b>Resolution</b> -2-T-5, 24<br>(Standard item) N<br>E40H6 V<br>E40H10 -3-T-5, 24<br>E40H12 N<br>(Option) V<br>-4-L-5<br>-6     |   | <b>※ The number of<br/>( ) is<br/>former name.</b>                     |   |            |
| Ø40mm Hollow shaft<br>built-in type<br> | E40HB8 - <b>Resolution</b> -2-T-5, 24<br>(Standard item) N<br>E40HB6 V<br>E40HB10 -3-T-5, 24<br>E40HB12 N<br>(Option) V<br>-4-L-5<br>-6 |   |  |   |            |

※The '\*' marked pulse is only for A, B phase in resolution. (Line Driver output is for A,  $\bar{A}$ ,  $\bar{B}$ ,  $\bar{B}$  phase.)

※Not indicated pulses in this chart are customizable.

(A) Photoelectric Sensors

(B) Fiber Optic Sensors

(C) Door/Area Sensors

(D) Proximity Sensors

(E) Pressure Sensors

(F) Rotary Encoders

(G) Connectors/ Sockets

(H) Temperature Controllers

(I) SSRs / Power Controllers

(J) Counters

(K) Timers

(L) Panel Meters

(M) Tacho / Speed / Pulse Meters

(N) Display Units

(O) Sensor Controllers

(P) Switching Mode Power Supplies





(Q) Stepper Motors & Drivers & Controllers

(R) Graphic/ Logic Panels

(S) Field Network Devices

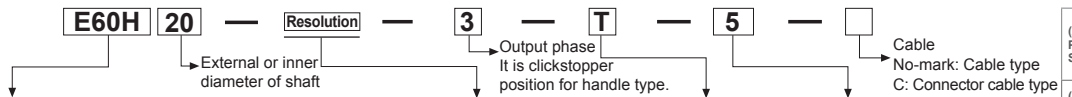
(T) Software







# Product Overview

| Appearances   | Model   | Resolution  | Control output   | Power supply   | Reference         |
|---|---|---|--|--|-------------------|
| <p><b>E50S</b> <b>8</b> — <b>Resolution</b> — <b>2</b> — <b>T</b> — <b>5</b> — <input type="checkbox"/> Cable</p> <p>External or inner diameter of shaft →      Output phase →</p> <p>No-mark: Cable type<br/>C: Connector cable type</p> |   |   |  |  |                   |
| <p><b>Ø50mm Shaft type</b></p> <p><b>CE</b></p>    | <p><b>E50S8</b> - <b>Resolution</b> - <b>2-T-5, 24</b></p> <p>N<br/>V<br/>-3-T-5, 24<br/>N<br/>V<br/>-4-L-5<br/>-6</p> <p>*Cable<br/>CR:Axial connector type<br/>CS:Radial connector type</p>   | <p>*1P/R 75P/R 600P/R<br/>*2P/R 100P/R 800P/R<br/>*5P/R 120P/R 1000P/R<br/>10P/R 125P/R 1024P/R<br/>*12P/R 150P/R 1200P/R<br/>15P/R 192P/R 1500P/R<br/>20P/R 200P/R 1800P/R<br/>23P/R 240P/R 2000P/R<br/>25P/R 250P/R 2048P/R<br/>30P/R 256P/R 2500P/R<br/>35P/R 300P/R 3000P/R<br/>40P/R 360P/R 3600P/R<br/>45P/R 400P/R 5000P/R<br/>50P/R 500P/R 6000P/R<br/>60P/R 512P/R 8000P/R</p>                                 | <p><b>T (1):<br/>Totem pole output</b></p>                                   |  | <p>F-17 to 19</p> |
| <p><b>Ø58mm Shaft type</b></p> <p><b>CE</b></p>    | <p><b>E58SC10</b> - <b>Resolution</b> - <b>2-T-5, 24</b><br/>(Shaft Clamping) N<br/><b>E58SS6</b><br/>(Shaft Synchro) V<br/>-3-T-5, 24<br/>N<br/>V<br/>-4-L-5<br/>-6</p> <p>*Cable<br/>CR:Axial connector type<br/>CS:Radial connector type</p> |   | <p><b>N (2):<br/>NPN open collector output</b></p>                           | <p><b>5:</b><br/>5VDC ±5%</p>                                |                   |
| <p><b>Ø58mm Hollow shaft type</b></p> <p><b>CE</b></p>   | <p><b>E58H12</b> - <b>Resolution</b> - <b>2-T-5, 24</b></p> <p>N<br/>V<br/>-3-T-5, 24<br/>N<br/>V<br/>-4-L-5<br/>-6</p>   | <p>*1P/R 250P/R<br/>*2P/R 256P/R<br/>*5P/R 300P/R<br/>10P/R 360P/R<br/>*12P/R 400P/R<br/>15P/R 500P/R<br/>20P/R 512P/R<br/>23P/R 600P/R<br/>25P/R 800P/R<br/>30P/R 1000P/R<br/>35P/R 1024P/R<br/>40P/R 1200P/R<br/>45P/R 1500P/R<br/>50P/R 1800P/R<br/>60P/R 2000P/R<br/>75P/R 2048P/R<br/>100P/R 2500P/R<br/>120P/R 3000P/R<br/>125P/R 3600P/R<br/>150P/R 5000P/R<br/>192P/R 6000P/R<br/>200P/R 8000P/R<br/>240P/R</p> | <p><b>V (3):<br/>Voltage output</b></p>                                      | <p><b>24:</b><br/>12-24VDC ±5%<br/>(Ripple P-P: Max. 5%)</p> | <p>F-20 to 23</p> |
| <p><b>Ø58mm Hollow shaft built-in type</b></p> <p><b>CE</b></p>    | <p><b>E58HB12</b> - <b>Resolution</b> - <b>2-T-5, 24</b></p> <p>N<br/>V<br/>-3-T-5, 24<br/>N<br/>V<br/>-4-L-5<br/>-6</p> <p>*Cable<br/>CR:Axial connector type<br/>CS:Radial connector type</p>   |   | <p><b>L:<br/>Line driver output</b><br/>(except <b>CE</b> certification)</p> | <p>(note)The output of Line driver is only for 5VDC.</p>     |                   |
|   |   |   | <p>※ The number of ( ) is former name.</p>                                   |  |                   |

※ The '\*' marked pulse is only for A, B phase in resolution. (Line Driver output is for A,  $\bar{A}$ , B,  $\bar{B}$  phase.)  
 ※ Not indicated pulses in this chart are customizable.

# Product Overview





| Appearances   | Model  | Resolution   | Control output  | Power supply                                      | Reference  |
|---|--|--|---|---|------------|
| <br>Ø60mm Hollow shaft type<br>CE    | E60H20 - Resolution -3-T-5, 24<br>N<br>V<br>-6-L-5   | 100P/R<br>1024P/R<br>5000P/R<br>8192P/R  |   |   | F-24 to 26 |
| <br>Ø68mm Shaft type                 | E68S15 - Resolution -6-L-5   | 500P/R<br>600P/R<br>1024P/R  | T (1):<br>Totem pole output                           |   | F-27 to 28 |
| <br>Ø80mm Hollow shaft type<br>CE    | E80H30 - Resolution -3-T-5, 24<br>(Standard item) N<br>E80H32 - Resolution -3-T-5, 24<br>(Option) V<br>-6-L-5  | 60P/R<br>100P/R<br>360P/R<br>500P/R<br>512P/R<br>1024P/R<br>3200P/R  | N (2):<br>NPN open collector output                   | 5:<br>5VDC ±5%                                    | F-29 to 31 |
| <br>Ø100mm Hollow shaft type<br>CE | E100H35 - Resolution -3-T-5, 24<br>N<br>V<br>-6-L-5  | 512P/R<br>1024P/R<br>10000P/R  | V (3):<br>Voltage output                              | 24:<br>12-24VDC ±5%<br>(Ripple P-P: Max. 5%)      | F-32 to 34 |
| <br>Side-mounting type<br>CE       | ENA - Resolution -2-T-5, 24<br>N<br>V<br>-3-T-5, 24<br>N<br>V<br>※ ENA - Resolution -2- □ - □<br>: Output the A, B phase<br>※ ENA - Resolution -3- □ - □<br>: Output the A, B, Z phase | *1P/R 60P/R<br>*2P/R 75P/R 512P/R<br>*5P/R 100P/R 600P/R<br>10P/R 120P/R 800P/R<br>*12P/R 125P/R 1000P/R<br>15P/R 150P/R 1024P/R<br>20P/R 192P/R 1200P/R<br>23P/R 200P/R 1500P/R<br>25P/R 240P/R 1800P/R<br>30P/R 250P/R 2000P/R<br>35P/R 256P/R 2048P/R<br>40P/R 300P/R 2500P/R<br>45P/R 360P/R 3000P/R<br>50P/R 400P/R 3600P/R<br>500P/R 5000P/R | L:<br>Line driver output<br>(except CE certification) | (note)The output of Line driver is only for 5VDC. | F-35 to 37 |
| <br>Measuring wheel type<br>CE     | ENC-1 - Resolution -T-5, 24<br>N<br>V<br>(output phase)  | 1 : 1mm/1Pulse<br>2 : 1cm/1Pulse<br>3 : 1m/1Pulse<br>4 : 0.01yd/1Pulse<br>5 : 0.1yd/1Pulse<br>6 : 1yd/1Pulse   |   |   | F-38 to 39 |

- (A) Photoelectric Sensors
- (B) Fiber Optic Sensors
- (C) Door/Area Sensors
- (D) Proximity Sensors
- (E) Pressure Sensors
- (F) Rotary Encoders
- (G) Connectors/ Sockets
- (H) Temperature Controllers
- (I) SSRs / Power Controllers
- (J) Counters
- (K) Timers
- (L) Panel Meters
- (M) Tacho / Speed / Pulse Meters
- (N) Display Units
- (O) Sensor Controllers
- (P) Switching Mode Power Supplies
- (Q) Stepper Motors & Drivers & Controllers
- (R) Graphic/ Logic Panels
- (S) Field Network Devices
- (T) Software

※ The '\*' marked pulse is only for A, B phase in resolution. (Line Driver output is for A,  $\bar{A}$ , B,  $\bar{B}$  phase.)  
 ※ Not indicated pulses in this chart are customizable.

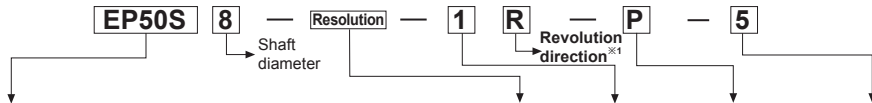
# Product Overview




| Appearances  | Model   | Resolution      | Control output   | Power supply   | Reference         |
|--|---|-----------------|--|--|-------------------|
| <b>Manual handle type</b><br>           | <b>ENH</b> - Resolution -1-T-5, 24<br>2<br>-1-V-5, 24<br>2<br>-1-L-5<br>2 | 25P/R<br>100P/R | <b>T (1):</b><br><b>Totem pole output</b><br><b>N (2):</b><br><b>NPN open collector output</b><br><b>V (3):</b><br><b>Voltage output</b><br><b>L:</b><br><b>Line driver output</b><br>(except CE certification)<br>※ The number of ( ) is former name. | <b>5:</b><br>5VDC ±5%<br><br><b>24:</b><br>12-24VDC ±5%<br>(Ripple P-P: Max. 5%) | <b>F-40 to 41</b> |
| <b>Portable encoder with handle</b><br> | <b>ENHP</b> - Resolution -1-L-5<br>2                                      | 100P/R          | <b>V (3):</b><br><b>Voltage output</b><br><b>L:</b><br><b>Line driver output</b><br>(except CE certification)<br>※ The number of ( ) is former name.   | (note)The output of Line driver is only for 5VDC.                                | <b>F-42 to 43</b> |

※ The '\*' marked pulse is only for A, B phase in resolution. (Line Driver output is for A,  $\bar{A}$ , B,  $\bar{B}$  phase.)

※ Not indicated pulses in this chart are customizable.

## ■ Absolute Type (Single-Turn)



| Appearances  | Model   | Resolution  | Output code   | Control output   | Power supply   | Reference         |
|--|---|---|---|--|--|-------------------|
| <b>Ø50mm Shaft type</b><br>                  | <b>EP50S8</b> - Resolution -1R-N (P)-5, 24<br>2R<br>3R<br>1F<br>2F<br>3F  | 6P/R<br>8P/R<br>12P/R<br>16P/R<br>24P/R<br>32P/R<br>40P/R<br>45P/R<br>64P/R<br>90P/R<br>128P/R<br>180P/R<br>256P/R<br>360P/R<br>512P/R<br>720P/R<br>1024P/R |   |  |  | <b>F-44 to 48</b> |
| <b>Ø58mm Shaft type</b><br>                 | <b>EP58SC10</b> - Resolution -1R-N (P)-5, 24<br>(Shaft Clamping)<br><b>EP58SS6</b><br>(Shaft Synchro)<br>2R<br>3R<br>1F<br>2F<br>3F | 45P/R<br>64P/R<br>90P/R<br>128P/R<br>180P/R<br>256P/R<br>360P/R<br>512P/R<br>720P/R<br>1024P/R  | <b>1:</b><br><b>BCD</b><br><br><b>2:</b><br><b>Binary</b><br><br><b>3:</b><br><b>Gray</b><br>(customizable) | <b>P (1):</b><br><b>PNP open collector output</b><br><br><b>N (2):</b><br><b>NPN open collector output</b> | <b>5:</b><br>5VDC ±5%<br><br><b>24:</b><br>12-24VDC ±5%<br>(Ripple P-P: Max. 5%) | <b>F-49 to 52</b> |
| <b>Ø58mm Hollow shaft built-in type</b><br> | <b>EP58HB8</b> - Resolution -1R-N (P)-5, 24<br>2R<br>3R<br>1F<br>2F<br>3F   | 256P/R<br>360P/R<br>512P/R<br>720P/R<br>1024P/R   |   |  |  | <b>F-49 to 52</b> |

※ 1. R: CCW as from the shaft, F: CW as from the shaft


※ Not indicated numbers of-division in this chart are customizable.

※ The number of ( ) is former name in control output.

# Product Overview

ENP — 1 1 1 R —   — P

Output\*1      Revolution direction\*2


| Appearances   | Model   | Output code     | Power supply   | Resolution  | Control output                   | Reference  |
|---|---|-----------------|--|---|----------------------------------|------------|
| <br>Ø60mm Shaft type | ENP-111R- <span style="border: 1px solid black; padding: 1px;">Resolution</span> -P<br>111F | 1 :<br>BCD Code | 1: 12-24VDC ±5%<br>(Ripple P-P: Max. 5%)<br><br>0: 5-12VDC ±5%<br>(Ripple P-P: Max. 5%)<br>(note) only for 360-divisions of resolution | 6P/R<br>8P/R<br>12P/R<br>16P/R<br>24P/R<br><br>360P/R | P (1): PNP open collector output | F-53 to 56 |
|   | ENP-101R- <span style="border: 1px solid black; padding: 1px;">Resolution</span> -N<br>101F |                 |  |   | N (2): NPN open collector output |            |
|   | ENP-110R-360-P<br>110F  |                 |  |   | P (1): PNP open collector output |            |
|   | ENP-100R-360-N<br>100F  |                 |  |   | N (2): NPN open collector output |            |

※1. 0: Negative logic, 1: Positive logic      ※2. R: CCW as from the shaft, F: CW as from the shaft  
 ※ The number of ( ) is former name in control output.

## ■ Absolute Type (Multi-Turn)


EPM50S — 8 — 10 13 — B — PN — 24 —  

Shaft diameter      Cable  
 No-mark: Axial cable type  
 C: Radial cable type



| Appearances   | Single-turn              | Multi-turn               | Output code | Control output                                       | Power supply                          | Reference  |
|---|--------------------------|--------------------------|-------------|--|---------------------------------------|------------|
| <br>ø50mm Shaft type | 10bit<br>(1024-division) | 13bit<br>(8192-division) | Binary code | PN: Parallel NPN open collector output<br><br>S: SSI | 12-24VDC ±5%<br>(Ripple P-P: Max. 5%) | F-57 to 61 |

## ■ Absolute Type (Wire-Type)

EWLS — 50 — 512 — B — PN — P

| Series  | Body size | Measuring range | Output code                    | Control output                     | Power supply                          | Reference  |
|---|-----------|-----------------|--------------------------------|------------------------------------|---------------------------------------|------------|
| <br>Ø50mm Linear Scale | 50mm×50mm | 512mm           | B: Binary Code<br>G: Gray Code | Parallel NPN open collector output | 12-24VDC ±5%<br>(Ripple P-P: Max. 5%) | F-62 to 63 |

## ■ Flexible Coupling

| Model                                 | ERB-F-19C-□   | ERB-F-19S-□ | ERB-F-26C-□  | ERB-F-26S-□ |
|---------------------------------------|---|-------------|--|-------------|
| Appearance                            |  |             |  |             |
| Connection type                       | Clamp   | Set screw   | Clamp  | Set screw   |
| Max. revolutions                      | 8000rpm   | 20000rpm    | 6000rpm  | 15000rpm    |
| Max. torque                           | 1.2 N·m (12.17kgf·cm)   |             | 3.0 N·m (30.42 kgf·cm)   |             |
| Rated torque                          | 0.6 N·m (6.08kgf·cm)  |             | 1.5 N·m (15.21 kgf·cm)   |             |
| Max. allowable misalignment           | Angular misalignment  | 2.5°        |  |             |
|                                       | Parallel misalignment   | 0.15mm      |  | 0.2mm       |
|                                       | End-play  | ±0.3mm      |  |             |
| Standard bore diameter (tolerance h7) | Ø4, Ø5, Ø6mm  |             | Ø6, Ø8mm   |             |
| Material                              | Aluminum (AL 7075-T6), Alumite surface  |             |  |             |
| Reference                             | F-64 to 65  |             |  |             |

(A) Photoelectric Sensors

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(C) Door/Area Sensors

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