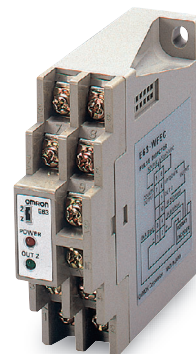


## Detects the Rotary Encoder Direction

- Input phase difference signal from the Encoder to detect the direction of rotation.
- High-speed response at 120 kHz.
- Mounts to DIN Track. Thin design enables superb mounting efficiency.
- Front-panel switch enables reversing phase Z logic. Enables connecting either voltage outputs or open-collector outputs.



Be sure to read *Safety Precautions* on page 3.

## Ordering Information

Power supply voltage	Output configuration	Model
12 to 24 VDC	Open-collector output	<b>E63-WF5C</b>

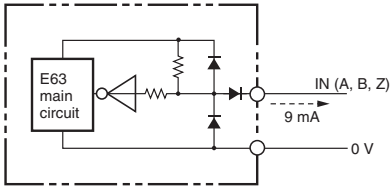
## Ratings and Specifications

### Direct Discrimination Unit [Refer to *Dimensions* on page 4.]

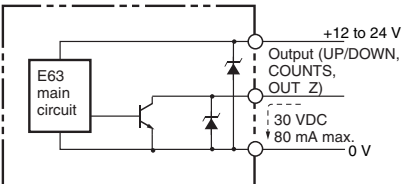
Item	Model	E63-WF5C
Power supply voltage		12 VDC –10% to 24 VDC +15%, ripple (p-p): 5% max.
Current consumption		50 mA max.
Input	Input signal	Phases A, B, and Z (phase difference signals)
	Phase difference	90° ±45° max.
	ON	6 mA max. at 0 to 2 V
	OFF	1.5 mA max. at 8 to 24 V
	Input short current	9 mA
	Max. applied voltage	30 V max.
Input impedance		Approx. 1 Ω
Output	Output signal	UP/DOWN (direction detection), COUNTS output (count), OUT Z
	Output configuration	Open-collector output
	Output capacity	Applied voltage: 30 VDC max. Sink current: 80 mA max. Residual voltage: 1 V max. (at sink current of 80 mA) Residual voltage: 0.4 V max. (at sink current of 20 mA)
Maximum response frequency		120 kHz
Output response time		2 μs max.
Indicators		Power indicator (red), Phase Z output indicator (green)
Ambient temperature range		Operating: –10 to 55°C (with no icing), Storage: –25 to 80°C (with no icing)
Ambient humidity range		Operating/Storage: 35% to 85% (with no condensation)
Vibration resistance		Destruction: 10 to 55 Hz, 1.5-mm double amplitude for 2 hours each in X, Y, and Z directions
Shock resistance		Destruction: 300 m/s <sup>2</sup> 3 times each in X, Y, and Z directions
Connection method		Terminal block
Material		Case: ABS
Weight (packed state)		Approx. 100 g
Accessories		Instruction manual

I/O Circuit Diagrams

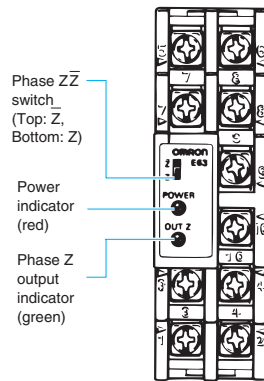
Input Circuits (IN A, IN B, IN Z)



Output Circuits (UP/DOWN, COUNTS, OUT Z)



Operate

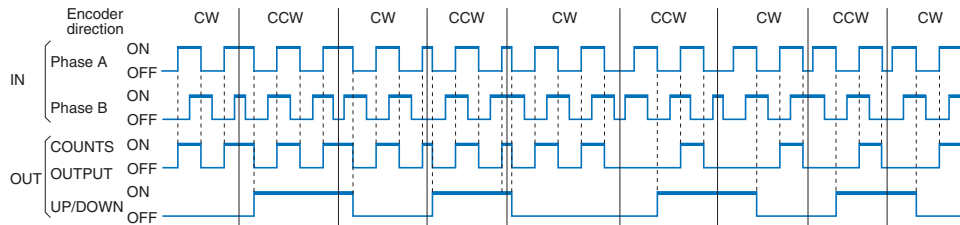


Terminal No.	Signal
1	0 V (common)
2	Encoder power supply: 12 to 24 VDC
3	IN A
4	IN B
5	0 V (common)
6	Power supply: 12 to 24 V
7	COUNTS output
8	UP/DOWN
9	OUT Z
10	IN Z

Note: Terminals 2 and 6 are connected internally.

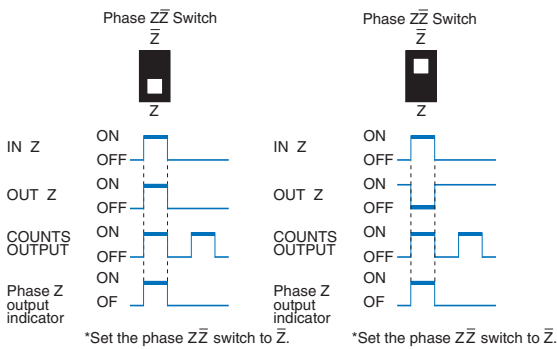
Timing Charts

Relation between Inputs (phase A and phase B) and Outputs (COUNTS, UP/DOWN)

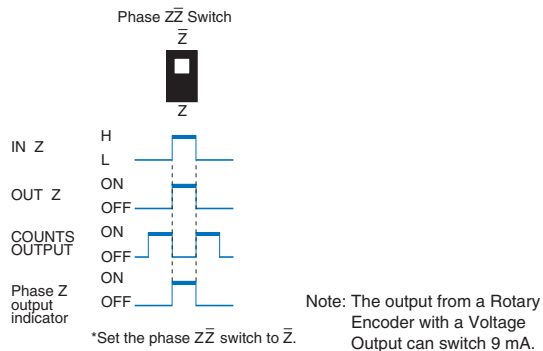


Relation between IN Z and OUT Z

Using a Rotary Encoder with an Open-collector Output



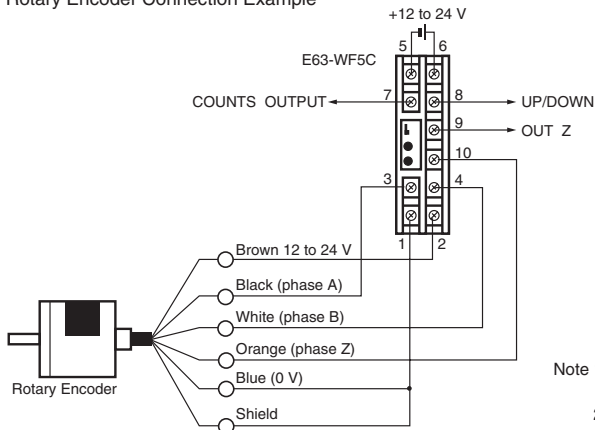
Using a Rotary Encoder with a Voltage Output



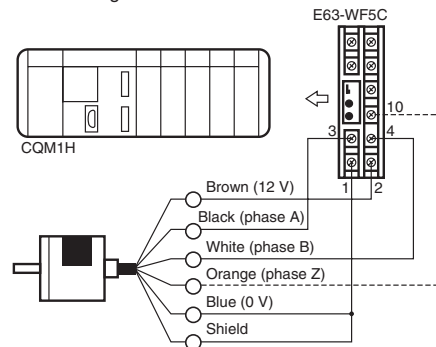
Note: The output from a Rotary Encoder with a Voltage Output can switch 9 mA.

Connection

Rotary Encoder Connection Example



CQM1H Programmable Controller Connection Example



- Note 1: Used only to reset the counter using phase Z. When doing so, set the phase Z Z-bar switch to Z-bar and use a Rotary Encoder with an Open-collector Output.
- Note 2: When using phase Z, be sure that the width of phase Z is the same as or wider than the width of phase A.
- Note 3: Use one of the following Rotary Encoders: E6A2-CW3C, E6A2-CW5C, E6A2-CWZ3C, E6B2-CWZ6C, E6H-CWZ6C, E6C2-CWZ6C, or E6D-CWZ2C.

## Safety Precautions

Refer to *Warranty and Limitations of Liability*.

### WARNING

This product is not designed or rated for ensuring safety of persons either directly or indirectly.  
Do not use it for such purposes.

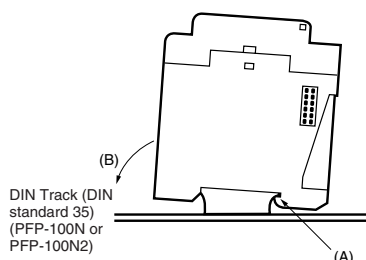


### Precautions for Correct Use

Do not use the Encoder under ambient conditions that exceed the ratings.

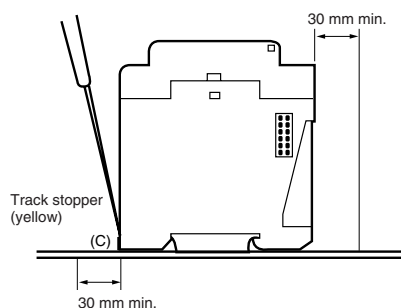
#### ● Mounting

- Mount to DIN Track as shown in the following diagram.
- Hook part (A) at the top of the E63-WF on the DIN Track first and then press in on the E63-WF in the direction indicated by (B).



#### ● Removal from DIN Track

Pull down on the track stopper (C) with a flat-blade screwdriver and then remove the E63-WF from the DIN Track. When using DIN standard 35 track, keep other devices on the track separated from the E63-WF by at least 30 mm to facilitate mounting and removal.



- Do not place the connection cable together with high-voltage cables. Keep it isolated from other cables whenever possible.
- The response speed of the E63-WF is 120 kHz. Do not allow the Rotary Encoder to exceed this speed.

#### ● Connection

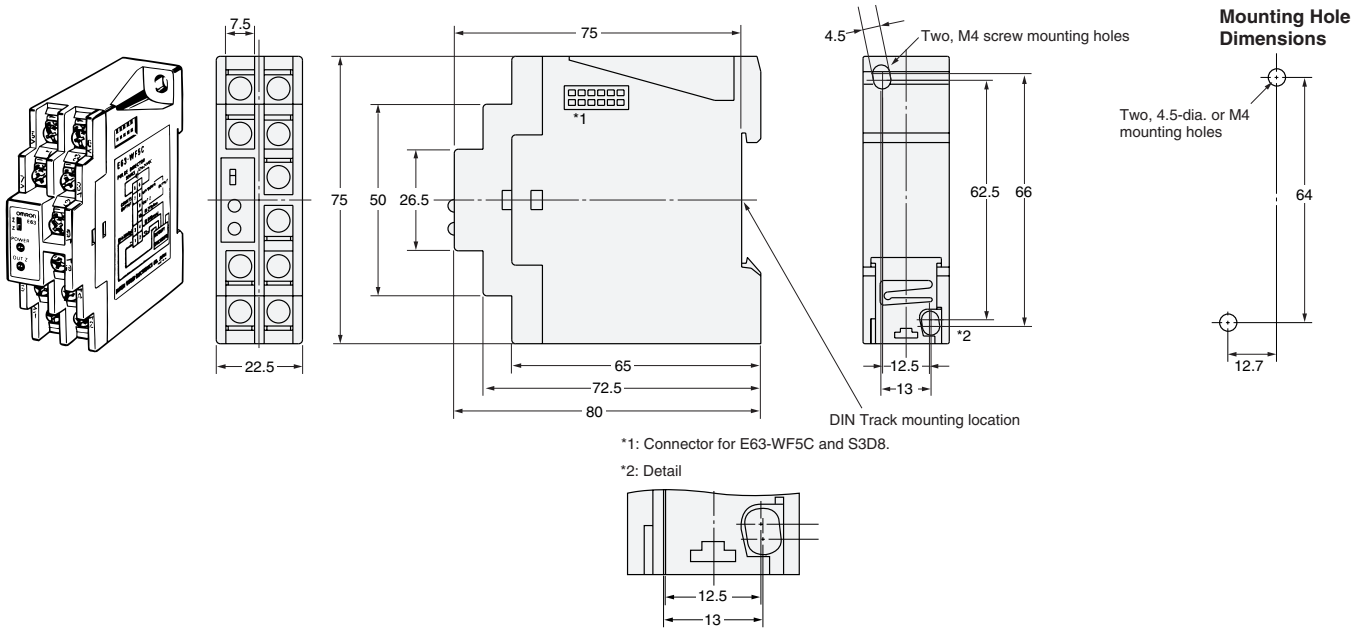
Spurious pulses may be generated when power is turned ON and OFF. Wait at least 0.1 s after turning ON the power to the Encoder before using the connected device, and stop using the connected device at least 0.1 s before turning OFF the power to the Encoder. Also, turn ON the power to the load only after turning ON the power to the Encoder.

(Unit: mm)

## Dimensions

Tolerance class IT16 applies to dimensions in this datasheet unless otherwise specified.

### E63-WF



## Read and Understand This Catalog

Please read and understand this catalog before purchasing the products. Please consult your OMRON representative if you have any questions or comments.

## Warranty and Limitations of Liability

### WARRANTY

OMRON's exclusive warranty is that the products are free from defects in materials and workmanship for a period of one year (or other period if specified) from date of sale by OMRON.

OMRON MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, REGARDING NON-INFRINGEMENT, MERCHANTABILITY, OR FITNESS FOR PARTICULAR PURPOSE OF THE PRODUCTS. ANY BUYER OR USER ACKNOWLEDGES THAT THE BUYER OR USER ALONE HAS DETERMINED THAT THE PRODUCTS WILL SUITABLY MEET THE REQUIREMENTS OF THEIR INTENDED USE. OMRON DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED.

### LIMITATIONS OF LIABILITY

OMRON SHALL NOT BE RESPONSIBLE FOR SPECIAL, INDIRECT, OR CONSEQUENTIAL DAMAGES, LOSS OF PROFITS OR COMMERCIAL LOSS IN ANY WAY CONNECTED WITH THE PRODUCTS, WHETHER SUCH CLAIM IS BASED ON CONTRACT, WARRANTY, NEGLIGENCE, OR STRICT LIABILITY.

In no event shall the responsibility of OMRON for any act exceed the individual price of the product on which liability is asserted.

IN NO EVENT SHALL OMRON BE RESPONSIBLE FOR WARRANTY, REPAIR, OR OTHER CLAIMS REGARDING THE PRODUCTS UNLESS OMRON'S ANALYSIS CONFIRMS THAT THE PRODUCTS WERE PROPERLY HANDLED, STORED, INSTALLED, AND MAINTAINED AND NOT SUBJECT TO CONTAMINATION, ABUSE, MISUSE, OR INAPPROPRIATE MODIFICATION OR REPAIR.

## Application Considerations

### SUITABILITY FOR USE

OMRON shall not be responsible for conformity with any standards, codes, or regulations that apply to the combination of products in the customer's application or use of the products.

At the customer's request, OMRON will provide applicable third party certification documents identifying ratings and limitations of use that apply to the products. This information by itself is not sufficient for a complete determination of the suitability of the products in combination with the end product, machine, system, or other application or use.

The following are some examples of applications for which particular attention must be given. This is not intended to be an exhaustive list of all possible uses of the products, nor is it intended to imply that the uses listed may be suitable for the products:

- Outdoor use, uses involving potential chemical contamination or electrical interference, or conditions or uses not described in this catalog.
- Nuclear energy control systems, combustion systems, railroad systems, aviation systems, medical equipment, amusement machines, vehicles, safety equipment, and installations subject to separate industry or government regulations.
- Systems, machines, and equipment that could present a risk to life or property.

Please know and observe all prohibitions of use applicable to the products.

NEVER USE THE PRODUCTS FOR AN APPLICATION INVOLVING SERIOUS RISK TO LIFE OR PROPERTY WITHOUT ENSURING THAT THE SYSTEM AS A WHOLE HAS BEEN DESIGNED TO ADDRESS THE RISKS, AND THAT THE OMRON PRODUCTS ARE PROPERLY RATED AND INSTALLED FOR THE INTENDED USE WITHIN THE OVERALL EQUIPMENT OR SYSTEM.

### PROGRAMMABLE PRODUCTS

OMRON shall not be responsible for the user's programming of a programmable product, or any consequence thereof.

## Disclaimers

### CHANGE IN SPECIFICATIONS

Product specifications and accessories may be changed at any time based on improvements and other reasons.

It is our practice to change model numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the products may be changed without any notice. When in doubt, special model numbers may be assigned to fix or establish key specifications for your application on your request. Please consult with your OMRON representative at any time to confirm actual specifications of purchased products.

### DIMENSIONS AND WEIGHTS

Dimensions and weights are nominal and are not to be used for manufacturing purposes, even when tolerances are shown.

### PERFORMANCE DATA

Performance data given in this catalog is provided as a guide for the user in determining suitability and does not constitute a warranty. It may represent the result of OMRON's test conditions, and the users must correlate it to actual application requirements. Actual performance is subject to the OMRON Warranty and Limitations of Liability.

### ERRORS AND OMISSIONS

The information in this document has been carefully checked and is believed to be accurate; however, no responsibility is assumed for clerical, typographical, or proofreading errors, or omissions.

2008.11

In the interest of product improvement, specifications are subject to change without notice.

**OMRON Corporation**  
Industrial Automation Company

<http://www.ia.omron.com/>

(c)Copyright OMRON Corporation 2008 All Right Reserved.



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.