

# Get the right position

The new CJ1W-CTL41-E counter unit provides easy connection of up to 4 incremental encoders or high-speed pulse-train inputs to any CJ1 PLC system.



## Encoder inputs

Incremental encoders remain the most economical way to accurately acquire fast-changing position data in machine automation. These encoders provide speed, direction and position information through quadrature outputs consisting of phase-offset A- and B-pulse signals. Optionally, there may be a Z-pulse or index signal to mark the encoder's 'zero' position.

With the addition of the CJ1W-CTL41-E 4-channel counter unit, Omron's powerful CJ1 Programmable controller range now offers a wide choice of functionality and performance levels to choose from, to always exactly meet your application's needs; up to 24 of these units can be controlled by a single CJ1 CPU.

## Fast response

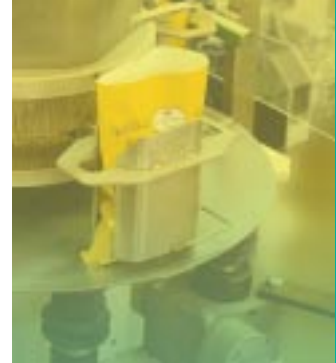
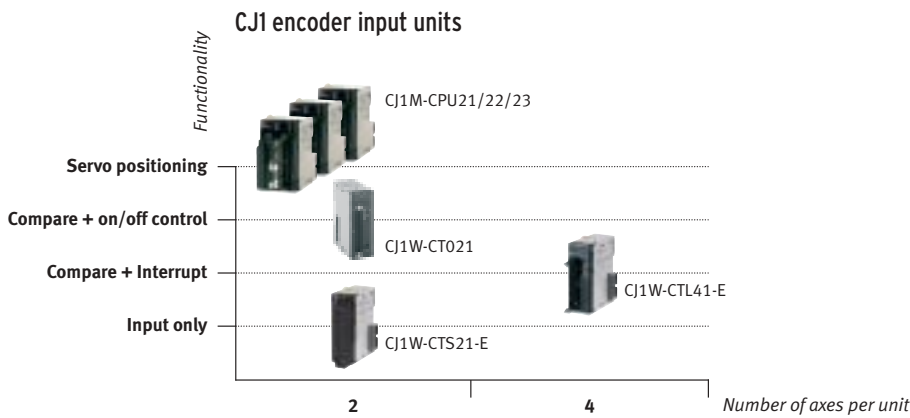
The A/B/Z counter inputs of the CTL41-E can process pulse signals up to 100 kHz, effectively allowing count frequencies up to 400,000 counts per second on all 4 channels simultaneously. The resulting counter data is copied to the CPU each PLC scan cycle as four 32-bit values. By internally comparing the counter values with 8 preset values (or 4 ranges) per channel, the CTL41-E can also issue interrupts to the CPU for sub-millisecond response.

## Flexible

Linear or circular counter modes can be selected for each channel individually. And besides processing A/B/Z or quadrature encoder signals, each channel can also be configured for up/down pulse counting, or pulse+direction signals. Reconfiguration of counter properties, like ranges or comparison values or control hysteresis, can be made on-the-fly by issuing commands from the PLC program. For efficient commissioning and troubleshooting, the unit has an internal error log of 30 messages that can be accessed from CX-Programmer, Omron's universal PLC programming software.

## Easy to connect

To provide fast and easy connection of any incremental encoder to the new 4-channel counter unit, there is a new optional terminal block. This links to the CJ1W-CTL41-E by means of a standard 40-point cable, available in several standard lengths. Conveniently grouped terminal blocks allow full wiring of A/B/Z and power supply for 4 encoders, at either 24V- or line-driver signal levels. Screwless technology will reduce the time required for installation and maintenance, and assure that even thin-gauge encoder wires are reliably connected, even under harsh vibration conditions.



- CJ1W-CTS21-E:** 2-channel SSI-encoder interface unit. Configurable to accept all known variations of the Synchronous Serial Interface protocol. Transfers position data to the PLC, but has no ranges/comparison values, no local I/O.
- CJ1W-CT021:** 2-channel high-speed counter unit. For 2 A/B/Z encoders with pulse frequencies up to 500 kHz. Built-in digital in- and outputs allow control actions to be configured that are executed autonomously (i.e. without delay due to communication with the CPU)
- CJ1M-CPU21/22/23:** CJ1M CPU units with 2 built-in counter inputs (100 kHz) and 2 pulse outputs. Include special instructions for positioning control using servo drives. Available in 3 different memory capacities.

**CJ1W-CTL41-E key features:**

- 4 Encoder inputs
- 100 kHz pulse frequency
- 32-bit counter values
- Linear + circular mode
- 32 comparison values
- Interrupts to PLC CPU
- On-the-fly reconfiguration
- Easy wiring

Model name	Description	Key features
<b>CJ1W-CTS21-E</b>	2-Channel SSI input unit	Fully configurable SSI communication parameters per channel
<b>CJ1W-CTL41-E</b>	4-Channel Counter Unit	100 kHz line driver inputs (or 24V through XW2G terminal block), 32 comparison values, interrupt to PLC CPU
	<b>XW2Z-xxxK</b>	Cable for CJ1W-CTL41-E xxx = cable length in cm (100, 150, 200, 300, 500)
	<b>XW2G-40G7-E</b>	Terminal block for CJ1W-CTL41-E Screwless connection of encoder wiring, 24 V or line driver selection per channel, DIN rail or screw mounting
<b>CJ1W-CT021</b>	2-Channel High-speed Counter Unit	500 kHz inputs (24 V, 5V, line driver), 32 comparison values, 2 control inputs, 2 control outputs, interrupt to PLC CPU
	<b>XW2Z-xxxB</b>	Cable for CJ1W-CT021 xxx = cable length in cm (050, 100, 150, 200, 300, 500)
	<b>XW2D-40G6</b>	General-purpose 40-pt terminal block 1:1 connection, 40 M3 screw terminals, DIN rail or screw mounting
<b>CJ1M-CPU21/22/23</b>	2-Channel Positioning CPU	100 kHz inputs, 2 pulse frequency / pulse width control outputs Program memory: 5 / 10 / 20 kSteps Max. I/O points: 160 / 320 / 640 Max. I/O units: 10 / 10 / 20 (with expansion rack)
	<b>XW2Z-xxxK</b>	Cable for CJ1M-CPU21/22/23 xxx = cable length in cm (100, 150, 200, 300, 500)
	<b>XW2B-40J6-9A</b>	Terminal block for CJ1M-CPU21/22/23 Connection for 2 servo axes including encoders, limit switches and pulse control signals. M3 screw terminals

**OMRON EUROPE B.V.** Wegalaan 67-69, NL-2132 JD, Hoofddorp, The Netherlands. Tel: +31 (0) 23 568 13 00 Fax: +31 (0) 23 568 13 88 www.europe.omron.com

**Austria**  
Tel: +43 (0) 1 80 19 00  
www.omron.at

**Finland**  
Tel: +358 (0) 9 549 58 00  
www.omron.fi

**Italy**  
Tel: +39 02 32 681  
www.omron.it

**Portugal**  
Tel: +351 21 942 94 00  
www.omron.pt

**Switzerland**  
Tel: +41 (0) 41 748 13 13  
www.omron.ch

**Belgium**  
Tel: +32 (0) 2 466 24 80  
www.omron.be

**France**  
Tel: +33 (0) 1 56 63 70 00  
www.omron.fr

**Netherlands**  
Tel: +31 (0) 23 568 11 00  
www.omron.nl

**Russia**  
Tel: +7 095 745 26 64  
www.omron.ru

**Turkey**  
Tel: +90 (0) 216 474 00 40  
www.omron.com.tr

**Czech Republic**  
Tel: +420 234 602 602  
www.omron.cz

**Germany**  
Tel: +49 (0) 2173 680 00  
www.omron.de

**Norway**  
Tel: +47 (0) 22 65 75 00  
www.omron.no

**Spain**  
Tel: +34 913 777 900  
www.omron.es

**United Kingdom**  
Tel: +44 (0) 870 752 08 61  
www.omron.co.uk

**Denmark**  
Tel: +45 43 44 00 11  
www.omron.dk

**Hungary**  
Tel: +36 (0) 1 399 30 50  
www.omron.hu

**Poland**  
Tel: +48 (0) 22 645 78 60  
www.omron.com.pl

**Sweden**  
Tel: +46 (0) 8 632 35 00  
www.omron.se

For the Middle East, Africa and other countries in Eastern Europe, Tel: +31 (0) 23 568 13 00 www.europe.omron.com

Although we strive for perfection, Omron Europe BV and/or its subsidiary and affiliated companies do not warrant or make any representations regarding the correctness or completeness of the information contained herein. We reserve the right to make any changes at any time without prior notice.  
SF2P\_CJ1W\_CTL41-E\_EN\_INT01\_0305