Mitutoyo

EJ Counter Compact Display Unit for Linear Gage

EJ-102N

EJ-102NE

Quick Start Guide

No. 99MBC140B3

(en)

This document is a simplified guide to use of the EJ-102N/EJ-102NE EJ Counter For further details about the product and its use, please refer to the downloadable User's Manual at the Mitutoyo website.

User's Manual No.99MBC139

https://manual.mitutoyo.co.jp

Read this document thoroughly before operating the product. After reading, retain it close at hand for future reference

Safety Precautions

When using this product, be sure to observe all precautions regarding indicated specifications, functions and use. Using this product in any other manner may be detrimental to safety.

In the event that the product is damaged, take all appropriate measures to avoid accidents and maintain safety.

CAUTION Shows risks that could result in minor or moderate injury.



Electromagnetic Compatibility (EMC)

This product complies with the EMC Directive and the UK Electromagnetic Compatibility Regulations; however, if this receives electromagnetic interference that exceeds these requirements, it will be out of warranty and require appropriate measures.

This product is an industrial product, and is not intended to be used in resi dential environment. If this product is used in residential environment, this product may cause electromagnetic interference with other instruments. In such a case, it is required to take appropriate measures for preventing such electromagnetic interference.

Export Control Compliance

This product falls into the Catch-All-Controlled Goods and/or Catch-All-Controlled Technologies (including Programs) under Category 16 of Appended Table 1 of Export Trade Control Order or under Category 16 of Appended Table of Foreign Exchange Control Order, based on Foreign Exchange and Foreign Trade Act of Japan.

If you intend re-export of the product from a country other than Japan, re sale of the product in a country other than Japan, or re-providing of the technology (including Programs), you shall observe the regulations of your country

Also, if an option is added or modified to add a function to this product, this product may fall under the category of List-Control Goods, List-Control Tech nology (including Programs) under Category 1 - 15 of Appended Table 1 of Export Trade Control Order or under Category 1 - 15 of Appended Table of Foreign Exchange Control Order, based on Foreign Exchange and Foreign Trade Act of Japan. In that case, if you intend re-export of the product from a country other than Japan, re-sale of the product in a country other than Japan, or re-providing of the technology (including Programs), you shall observe the regulations of your country. Please contact Mitutoyo in advance.

2.2. Supported Linear Gages

Supported Linear Gage series	Adapter cable (optional)
LG100	Not required
LG200	Not required
LGF-Z	Required (Part No. 21HZA194)
LGF/LGK/LGB/LG	Required (Part No. 21HZA193)

Tips

When using this product connected to a LGF-series Linear Gage with resolution of 0.0001 mm (0.1 µm), please use with a DC power noise filter. (The noise filter used for testing by Mitutoyo is the Cosel ESP-06-472-D.)

2.3. Optional Accessories

Part No.	Name
21HZA157	DIN rail fixing bracket *1
— *2	Various interface unit *2
21HZA193	Connector adapter cable (for P gages)
21HZA194	Connector adapter cable (for Z gages)
21HZA209	DC jack with pin terminals
357651	AC adapter (12 V DC, 4.1 A)
02ZAA000	AC cable (Japanese type)
02ZAA010	AC cable (UL, CSA, US type)
02ZAA020	AC cable (CEE, European type)
02ZAA030	AC cable (BS, UK type)
02ZAA040	AC cable (CCC compliant: S type, Chinese type)
02ZAA050	AC cable (P-023+IS14, Korean type)

*1 The screw provided with the bracket is suitable for fastening to a TH35-7.5 rail.A different screw (M4) must be used for fastening to a TH35-15 rail. *2 Refer to catalog or downloadable User's manual.

2.4. Part Names

Mitutoyo Corporation

20-1. Sakado 1-Chome.

Takatsu-ku, Kawasaki-shi,

2.4.1. Main Unit Front side (with cover)



Disposal of Old Electrical & Electronic Equipment (Applicable in the European Countries with Separate **Collection Systems**)

This symbol on the product or on its packaging is based on WEEE Directive (Directive on Waste Electrical and Electron-ic Equipment), and this symbol indicates that this product shall not be treated as household waste. To reduce the environmental impact and minimize the vol-

ume of landfills, please cooperate in reuse and recycle. For how to dispose of the product, please contact the agent where you purchased the product or a Mitutoyo sales office.

China RoHS Compliance Information

This product meets China RoHS requirements. See the table below. ^立品中有害物质的名称及含量

有害物质 部件 铅 汞 镉 六价铬 多溴联苯 多溴二苯醚 名称 (Pb) (Hg) (Cd) (Cr(VI)) (PBB) (PBDE) 本体 × O O O O 0 0

本表格依据 SJ/T 11364 的规定编制):表示该有害物质在该部件所有均质材料中的含量均在 GB/T 26572 规定的限量要求以下 :表示该有害物质至少在该部件的某一均质材料中的含量超出 GB/T 26572 规定的限量要求。



环保使用期限标识是根据《电器电子产品有害物质限 制使用管理办法》以及《电子电气产品有害物质限制 使用标识要求(SJ/T11364-2014)》制定的,适用于中 国境内销售的电子电气产品的标识。 电器电子产品只要按照安全及使用说明内容在正常 使用情况下,从生产日期算起,在此期限内产品中含 有的有毒有害物质不致发生外泄或突变,不致对环境 造成严重污染或对其人身、财产造成严重损害。 产品使用后,要废弃在环保使用年限内或者刚到年限

的产品,请根据国家标准采取适当的方法进行处置。 另外,此期限不同于质量/功能的保证期限。

1. Unpacking and Verification of Package Components Before using the product, verify that the following items are present.

Name	Quantity
EJ Counter	1
Connector plug	1
Ground plate	1
Ground Lead	1
Quick Start Guide (this document), 99MBC140B	1
WEEE User's Manual	1
Warranty	1

2. Overview

2.1. System Configuration

Linear Gage (Two Linear Gages can be connected to EJ Counter each EJ Counter, allowing a maximum of 16 connections.) (Up to eight units can be Interface unit (optional) connected.)

Milutoyo E.J. Colley	Mitskoyo	Mitsioyo	Mituloyo	Milutoyo	Mfutoyo	Mfutoyo III.J+CHIP/	Mflutoyo Biurcoarr	Mildoyo	Free downloada application LG QuickSetup (https://www.mit	able Tool tutoyo.co.jp)	РС
										PLC	

No.	Name	Description
1	Linear Gage input connector (INPUT A/B)	Linear Gages can be connected to each of inputs A and B. The Linear Gage connected to INPUT A is referred to as the A-axis, and that connected to INPUT B as the B-axis.
2 5	Connector for link- ing counter	Allows connection to another EJ Counter or optional interface unit.
3	I/O connector	For connection to the power supply or external equipment using the provided connector plug.
4	Grounding terminal	For connection to ground using the provided ground lead and ground plate.
6	DIN rail attach- ment point	Used for attaching the counter to a DIN rail.

2.4.2. Display (Under Cover)



Operation key

For the UK Regulation -

CA :

Authorized representative and importer in the UK: Mitutovo (UK) Ltd

Joule Road, West Point Business Park, Andover, Hampshire SP10 3UX, UNITED KINGDOM

No.	Name	Description
1	[SEL/CE] key	Switches the channel. Moves between items when making various settings. Cancels errors when pressed together with the [Fn] key.
2	[MODE] (>) key	Switches the peak mode. Moves between digits when making various settings. When pressed together with the [Fn] key, enters the parameter setting screen.
3	[P.SET] (^) key	Preset. Clears preset or peak values when pressed together with the [Fn] key. When setting preset / tolerance or parameter values, increases the value of the selected digit.
4	[Fn] key	Starts and ends setting of preset/tolerance values.

N	Numeric and indicator display screen					
No.	Name	Description				
5	Numeric display	Displays numeric values.				
6	Displays the channel (Ch.).	The selected channel (Ch.) lights. Content of individual channel (Ch.) display varies according to the setting of Parameter Number 03. While on HOLD, the number of the selected channel (Ch.) blinks.				
7	Unit display (EJ-102NE only)	The LED lights when display in inches is selected. The LED goes out when display in mm is selected.				
8	Tolerance indicator	Indicates the result of tolerance judgment.				
		Tips For details about the tolerance judgment display, see 🔛 "4.2.4. Tolerance Judgment".				
9	Peak indica- tors	Displays the selected peak mode. When off: The current value is displayed. When only MAX is lit: The maximum value is displayed. When only MIN is lit: The minimum value is displayed. When both MAX and MIN are lit: The run-out width				

(maximum value - minimum value) is displayed.

3. Setup

- 3.1. Mounting
- 3.1.1. DIN Rail Attachment / Removal The EJ Counter is attached to a DIN rail for use (TH35).
- IMPORTANT
- After first removing Linear Gages and connector plugs, the EJ Counter is attached to or removed from the DIN rail a unit at a time



3.1.2. Linking Multiple EJ Counters

1 Remove the protective cover from the counter linkage connectors of EJ Counters to be linked together.

- **2** Attach EJ Counters to the DIN rail one at a time.
- 3 Link EJ Counters together. Slide the EJ Counter to be connected along the rail so that the counter linkage connector (female) is firmly mated with the counter linkage connector (male) on the other counter



IMPORTANT

When sliding EJ Counters along the DIN rail, move them slowly.

- **NOTICE** Shows risks that could result in property damage.
- Leave the protective covers in place on EJ Counters that are not to be
- Do not link more than eight EJ Counters together. Failure to observe this precaution may result in damage.

3.1.3. Attaching the DIN Rail Fixing Bracket (Optional)

1 Hook the clip that is closer to the screw hole in the fixing bracket onto the DIN rail, then press toward the opposite side and hook the other clip onto the rail.



3.3.1. Ground Connection



Tips

When using multiple EJ Counters that are linked together, connect the ground lead to just one EJ Counter, then share the ground with other EJ Counters using ground plates.

- **1** Strip about 15 mm of the sheath from the end of the ground lead opposite from the end with the Y lug.
- **2** Loosen the ground terminal screw on the counter and wrap the stripped end of the ground lead around the screw.
- **3** Tighten the ground terminal screw to secure the ground lead. **4** Connect the Y lug on the other end of the ground lead to a suitable ground.
- When linking multiple EJ Counters together When using multiple EJ Counters that are linked together, use ground plates
- to allow them to share a common grounding. 1 Remove the ground terminal screw.
- **2** Put the removed screw through the hole in the ground plate and loosely attach the ground plate to the ground terminal. **3** Loosen the ground terminal screw on the adjacent EJ Counter and

hook the notch at the end of the ground plate over the screw. 3



- 4 Repeat steps 1 through 3 to attach ground plates to other linked EJ Counters
- 5 Tighten the ground terminal screws on all of the EJ Counters.
- 3.3.2. Power Supply Connection
- Make power supply connection by one of the following means.
- Direct input from a DC power supply • Use the optional AC adapter

IMPORTANT

- When using input from a DC power supply:
- When using a commercial power supply, make sure that it is rated for 10 V–27 V and an output current of 3 A or greater. Make sure that the power cable used to connect this product to its power supply does not exceed 30 m in length, and use only a one-to-one connection between the product and the power supply.
- · Do not use a DC power supply that is shared with other equipment that draws high power. • The EJ Counter uses an internal ground which connects to ground internally. • When using this product connected to a Linear Gage with resolution of
- 0.0001 mm (0.1 µm), please use with a DC power noise filter. When using an AC adapter: · Prepare the following three optional accessories.
- DC jack with pin terminals, AC adapter and AC cable.
- 1 Connect the power supply cable or DC jack with pin terminals to the provided connector plug. Pin 1 (A): 10 V DC–27 V DC or red cable terminal of the DC jack
- Pin 2 (B): GND or black cable terminal of the DC jack



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2 Slide the fixing bracket onto the DIN rail to where it comes in contact with the EJ Counter. and then fasten the fixing bracket in place by threading the screw provided with the fixing bracket into the screw hole in the bracket, and then tightening the screw so that it presses against the DIN rail.



3 Repeat steps **1** through **2** to attach a fixing bracket on the opposite side of the EJ Counter

3.2. Linear Gage Connection

Be sure to shut off the power before doing this. **1** Remove the protective cover from the EJ Counter's Linear Gage connector. **2** Plug the connector on the Linear Gage into the Linear Gage connector on the EJ Counter



3 When disconnecting a Linear Gage, slide the lock cover on the connector of the Linear Gage in the direction away from the EJ Counter, and then pull to disconnect the connectors



NOTICE Shows risks that could result in property damage.

• Do not forcibly pull the connectors apart, as doing so could destroy the Linear Gage • Leave the protective cover in place on the connector that is not used.

• Fasten the Linear Gage so that it does not put any strain on the EJ Counter. See the Linear Gage User's Manual for the connection procedure.

Tips

When connecting only a single Linear Gage, set Parameter Number 03 to 6 or 7.

3.3. Power Supply Connection

NOTICE Shows risks that could result in property damage. Never use a power source that is shared with other equipment that draws

high power. Incorrect operation or damage may result.

IMPORTANT

When using multiple EJ Counters linked together, connection of power to one EJ Counter also supplies power to the other linked counters.

When the cable is fitted with pin terminals

Push the pins all the way in to terminals A and B. Tips

le nin terminals are those with conductive ferrule sleeves that are 10 mm in length Recommended part: Phoenix Contact part number 3241129 AI 0,34-10 TQ

• When the cable ends in stranded wire

Slip the wire tips all the way into terminals A and B while using a tool such as a flat-head precision screwdriver to fully depress connector plugs C and D, and then release the buttons.

Tug on the cable to make sure that the stranded wires are securely fastened to the connector plug. **2** Plug the connector plug into the I/O connector on the EJ Counter.

Align the claws on the levers on the side of the connector plug with the holes on both sides of the I/O connector, and then plug the connector plug into the I/O connector on the EJ Counter. Push the connector plug in to where its claws engage with the holes on both sides of the I/O connector and the lever won't go any further.



NOTICE Shows risks that could result in property damage. To disconnect the cable from the connector plug, pull out while pressing

the buttons with a flat head precision screwdriver or the like. Forcibly pulling the connector plug out will result in damage to the connector or discontinuities in the cable.



Connect the power cable to the AC adapter, and then plug the power plug into the outlet 4 Connect the AC adapter to the DC jack with pin terminals.

IMPORTANT

Make sure that the AC adapter does not come loose from the DC jack with pin terminals during measurement.



4. Operation Procedure

4.1. Power ON/OFF

This product is not equipped with a power switch. To power the product ON/OFF, either switch the power supply itself on/off, or connect/disconnect the power cable. When the power goes on, an ID number is automatically assigned, and then the product enters the stand-by state Counting begins when the [SEL/CE] key is pressed while the product is in



When using multiple EJ Counters that are linked together. ID numbers are assigned in sequence from the EJ Counter that is at the top when counter displays are viewed with the characters oriented upright.





Tips

• If numeric display is selected for Parameter Number 09 when the product was last powered on, counting starts immediately upon connection of INC model Linear Gages.

When Linear Gages with origin mark are connected, whether counting begins immediately at power-on or or is deferred pending origin detection depends on the setting made for Parameter Number 05.



• For details, see 📰 "4.3.2. Basic Parameters".

4.2. Measurement Functions

4.2.1. Switching the Display Channel (Ch.)

During count display screen display, the displayed channel (Ch.) changes each time the [SEL/CE] key is pressed.

Tips

• The factory default is to display the A-axis count on Ch. 1 and the B-axis count on Ch. 2 • Content of individual channel (Ch.) displays can be changed by the setting of Parameter Number 03.

4.2.2. Preset

Preset replaces the current value with an arbitrary value (preset value).

• The factory default preset value is 0.

For details, see 📃 "4.2.5. Setting Preset/Tolerance Values". • When making zero settings, do so after setting the preset value to 0.

Setting preset values

1 Display the channel for which you wish to set the preset value. **2** Set the peak mode to current value display.



Target of tolerance judgment

The target of tolerance judgment differs according to peak mode.				
Peak mode	Target of tolerance judgment			
Current value display	Current value			
Maximum value display	Maximum value			
Minimum value display	Minimum value			
Run-out width display	Run-out width			

4.2.5. Setting Preset/Tolerance Values

Preset and tolerance values can be set for each channel.

• Preset value setting is not possible if speed display is set as the display mode by parameter setting. Tolerance value setting is not possible if no tolerance is set by parameter setting. The tolerance value settings are different for 3- and 5-step tolerance judgment.

First you must select 3- or 5-step tolerance judgment in the parameter settings. **1** Display the channel for which you wish to set the preset and tolerance values.

2 Press the [Fn] key. » Display enters the preset value setting screen.



3 Set the preset value. Using the [MODE] (>) key to move between digits, change the digit values using the [P.SET] (^) key. The current digit flashes to show that it is selected.



- While setting the preset values, < ance indicator
- If you wish to set a negative preset value, you can change the highest-order digit to a value with a minus sign. The peak mode changes in the sequence shown below each time you press the [P.SET] (^) key. $0 \rightarrow 1 \rightarrow 2 \rightarrow \cdots \rightarrow 9 \rightarrow 0 \rightarrow 1 \rightarrow 2 \rightarrow \cdots \rightarrow 9 \rightarrow 0$

 The direction in which digit selection and number setting proceeds can be reversed by pressing the [MODE] (>) or [P.SET] (^) key together with the [Fn] key. • You can omit steps **4**-**7** if you wish to finish after setting only the preset values.

4 Press the [SEL/CE] key.

» The preset value settings are applied. » Display enters the tolerance value S1 setting screen.

3 Press the [P.SET] (^) key. » The current value is replaced with the preset value.



» This clears the maximum and minimum values and the run-out width

4.2.3. Peak Hold

In addition to display of the current value, maximum/minimum values and run-out width (the difference between the maximum and minimum values) can be detected and displayed

Switching the peak mode

1 Display the channel for which you wish to switch the peak mode.



Clearing the peak values

- 1 Display the channel for which you wish to clear the peak values 2 Switch the peak mode to maximum, minimum or run-out value display. The peak mode changes each time you press the [MODE] (>) key.
- **3** Press and hold the [Fn] key, and then press the [P.SET] (^) key. This clears the maximum and minimum values and the run-out width.



4.2.4. Tolerance Judgment

Tolerance judgment is performed when it is enabled in the parameter settings. There are two types of tolerance judgment: 3-step tolerance judgment and 5-step tolerance judgment.

To perform tolerance judgment, first set Parameter Number 08 to 0 (for 3-step parameter judgment, the factory default setting) or 1 (for 5-step parameter judgment), and then set the tolerance values.

3-step tolerance

When S1 and S4 are set as tolerance values, 3-step tolerance judgment is performed.

5-step tolerance

ues using the [P.SET] (^) key.

highest-order digit to a minus sign.

» Tolerance value S1 will be applied.

6 Press the [SEL/CE] key.

When S1, S2, S3 and S4 are set as tolerance values, 5-step tolerance judgment is performed as follows

Judgment	Toloranco indicator		
3-step tolerance	5-step tolerance	Tolerance indicator	
Measurement result < S1	Measurement result < S1	◀ (L1)	
_	$S1 \leq measurement result < S2$	┥ 🔵 🗁 (L2)	
$S1 \le measurement result \le S4$	$S2 \le measurement result \le S3$	(L3)	
_	S3 < measurement result \leq S4	(L4)	
S4 < measurement result	S4 < measurement result	(L5)	

Tips

Tips

Tips

- **5** Set tolerance value S1 (tolerance indicator display: < Using the [MODE] (>) key to move between digits, change the digit val-

If you wish to set a negative tolerance value, you can change the

• The direction in which digit selection and number setting proceeds can be

reversed by pressing the [MODE] (>) or [P.SET] (^) key together with the [Fn] key.

» When setting 3-step tolerance values, display enters the tolerance val-

Tolerance

indicator

 $\triangleleft \bigcirc \triangleright$

 $\triangleleft \bigcirc \triangleright$

1 🔵 🕨

» When setting 5-step tolerance values, display enters the tolerance val-

____ (1 Ch.) ◀ ● ____ TIR —]

The state of the tolerance indicator changes in the following sequence

according to the tolerance value settings (S1, S2, S3 and S4).

Tolerance value

3-step tolerance value setting 5-step tolerance value setting

S1

S2

S3

S4

S3 and S4 when setting 5-step tolerance values).

8 Press the [Fn] key when done making settings.

» Display returns to the counter display screen

9 Make new preset value settings as necessary.

4.3. Parameter Settings (Basic Settings)

> Display enters the parameter setting screen.

For details, see 📰 "4.2.2. Preset".

4.3.1. Setting Procedure

• An error (Error 90) will occur if settings are made as follows:.

With 3-step tolerance value settings: In any case other than S1≤S4

1 Press and hold the [Fn] key, and then press the [MODE] (>) key

Parameter Number

Set value

With 5-step tolerance value settings: In any case other than S1≤S2≤S3≤S4

to the preset value setting of step 2, and then do the setting over again.

• If this error occurs, press the [SEL/CE] key together with the [Fn] key to return

7 Repeat steps 5 to 6 to set tolerance value S4 (tolerance values S2,

Display returns to the preset value setting screen of step 2 when you

press the [SEL/CE] key while in the tolerance value S4 setting screen.

— TIR —

ue S4 (tolerance indicator display: \bigcirc \bigcirc) setting screen.

ue S2 (tolerance indicator display: < 🔵 🗁) setting screen.

2 Display the Parameter Number of the parameter to be set. The Parameter Number changes each time you press the [SEL/CE] key



Axis being set (parameters that can be set for individual axes only

• With some parameters, values are set separately for the A-axis and B-axis. For parameters that are set separately for the A-axis and B-axis the setting screen for the A-axis is displayed first, and then the setting screen for the B-axis appears upon pressing the [SEL/CE] key. • You can cycle through the Parameter Numbers in reverse order by pressing the [SEL/CE] key together with the [Fn] key.

3 Change the set value

The set value of the displayed Parameter Number changes each time you press the [P.SET] (^) key.

Tips

• For settings that have two digits, you can move between digits by pressing the [MODE] (>) key • The set value can be decreased by pressing the [P.SET] (^) key together with the [Fn] key.

4 Press and hold the [Fn] key, and then press the [MODE] (>) key. » The setting is applied.



4.3.2. Basic Parameters

Basic measurement parameters Be sure to make these settings before starting measurement.

IMPORTANT

Incorrect parameter settings will prevent correct measurement results or cause display of an error.

No.	Set value	Per- axis setting	Set value: Operation	Default value	Description
			0: 0.005 mm (5 µm), 0.0002 in	1	Set the minimum reading according to the resolution of the connected Linear Gage.
04	Linear Gage resolu- tion (mini- mum reading)	~	1: 0.001 mm (1 µm), 0.00005 in 2: 0.0005 mm (0.5 µm), 0.00002 in 3: 0.0001 mm (0.1 µm), 0.000005 in		 Tips Correct values will not be displayed if the settings do not match the resolution of the connected Linear Gage. The unit for minimum reading is "in" when Parameter Number 22 is set to "1".
05	Origin detection function	N/A	0: Disabled 1: Enabled	0	Selects whether the origin function is enabled or disabled when a Linear Gage with an origin point mark is connected.
06	Counter direction	~	0: + direction 1: - direction	0	Sets the relationship between the direction in which the numeric value changes and the direction of movement of the Linear Gage plunger.
07	Origin detection direction	~	0: + direction 1: - direction	0	When a Linear Gage with an origin mark is connected, selects the direction of the plunger of the Linear Gage for origin detection.

No.	Set value	Per- axis setting	Set value: Operation	Default value
20	Power saving function	N/A	00: Display always lit 01 to 99: Display goes out after the specified interval passes (specification unit: minutes).	00
21	Parameter initialization	N/A	0: Do not initialize. 1: Initialize.	0

Appended table

Set value	Ch.1	Ch.2
0	A-axis counter	B-axis counter
1	Sum (A+B)	B-axis counter
2	Difference (A-B)	B-axis counter
3	A-axis counter	Sum (A+B)
4	A-axis counter	Difference (A-B)
5	A-axis speed	B-axis speed
6	A-axis counter	A-axis speed
7	B-axis counter	B-axis speed

5. Data Input/Output

This product supports input and output of data through the I/O connector, and through the optional interface unit. For further details about the product and its use, please refer to downloadable EJ Counter User's Manual No. 99MBC139 at the Mitutovo website.

6. Troubleshootin

6.1. Troubleshooting (Problems and Their Causes)

Problem	Cause		
Power does not go on.	Connector plug is improperly connected.		
The counter value is incorrect (not count-ing).	Parameters are not correctly set for the type of the Linear Gage being used.		
	Peak mode is set to maximum value, minimum value or run-out width.		
	The HOLD signal is being input.		
Linear Gage cannot be connected.	You are trying to connect a Linear Gage with 6-pin or 8-pin connector.		
	You are trying to connect a Linear Gage that does not support differential square wave output.		

6.2. Error Messages

6.2.1. Error Status Display

Regardless of the tolerance judgment setting, if an error occurs, the left and right tolerance indicators light and the center indicator goes off (◀ ○ ▶). The numeric display shows the error number related to the selected channel.

6.2.2. How to Clear Errors

To clear the error, use either of the following methods

• Press the product's [Fn] key together with the [SEL/CE] key. Input the CLEAR signal (I/O input)

· Clear the error by external input through the interface unit (optional). 6.2.3. Error List

Display	Interface unit output	I/O Out- put	Cause
Error10	Yes	Yes	Abnormal power voltage (voltage is out- side of the range from 10 V through 27 V.)
Error12	Yes	Yes	Internal memory abnormality (data abnormality)
Error13 Yes Yes		Yes	Internal memory abnormality (access abnormality)

No.	Set value	Per- axis setting	Set value: Operation	Default value	Description
					The unit for displayed values can be set to "mm" or "in".
22	Unit selection (EJ-102NE only)	N/A	0: mm (mm/s) 1: in (in/s)	0	 Tips Changing this setting clears the preset and tolerance values. The default value is not restored even if the parameters are re-initialized. The resolution of the Linear Gage is fixed to "in".

4.3.3. Advanced Parameters

No.	Set value	Per- axis setting	Set value: Operation	Default value			
01	Key protect	N/A	0: No key protect 1: Key protect	0			
02	Origin initialization (Origin clear)	N/A	0: Do not initialize. 1: Initialize.	0			
03	Display mode selection	N/A	For details, see 📄 "■ Append- ed table".	0			
08	Tolerance judg- ment setting	N/A	0: 3-step tolerance judgment 1: 5-step tolerance judgment 2: No tolerance judgment	0			
09	Display at startup	N/A	0: Counter stand-by 1: Counter displayed	0			
10	ERR/ALLGO selection (I/O input/output setting)	N/A	0: Used as ERR 1: Used as ALLGO	0			
11	Channel coupling selection (I/O input/ output setting)	N/A	0: Do not couple channels 1: Couple channels	0			
12	Origin re-detec- tion (I/O input/output setting)	N/A	 0: Disabled 1: Only effective for the axis that is dependent on the channel selected by 1/2 SEL. 2: Axis dependent on Ch. 1 and axis dependent on Ch. 2. 	0			
13	Preset by I/O input (I/O input/output setting)	N/A	0: Executed only for the channel selected by 1/2 SEL. 1: Executed for both channels.	0			
14	Ch affected by the CLEAR signal (I/O input/output setting)	N/A	0: Executed only for the channel selected by 1/2 SEL. 1: Executed for both channels.	0			
15	Peak value preset	N/A	0: Disabled 1: Enabled	0			
16	Smoothing	N/A	 0: No smoothing (update at 5 ms intervals). 1: The average of 16 measurements is displayed (update at 80 ms intervals). 2: The average of 32 measurements is displayed (update at 160 ms intervals). 	0			
17	Speed sampling cycle	N/A	0: 10 ms 1: 50 ms 2: 100 ms	0			
18	Hide the low- est-order digit.	N/A	0: Display all digits. 1: Hide the lowest-order digit.	0			
19	Arbitrary ID specification	N/A	00 to 49: ID numbers assigned automatically. 50 to 99: Arbitrary ID numbers assigned (ID numbers specified).	01			

Display	Interface unit output	I/O Out- put	Cause	
	Yes (Error15)	Yes	Counter stand-by state after power-on	
			Origin not acquired	
			Power supply interruption	
Error20	Yes	Yes	Excess speed	
Error30	Yes	Yes	Counter value overflow	
Error40	Yes	Yes	Linear Gage disconnection detected (other than origin signal), or .excess speed	
Error41	Yes	Yes	No origin signal	
Error60	Yes	Yes	More than eight EJ Counters are linked together.	
Error80	Yes	Yes	Peak detection error	
Error81	Yes	Yes	Counter IC reset error	
Error85	Yes	Yes	Counter IC overflow	
Error90	Yes	Yes	Tolerance value setting error	
Error95	No	No	A key was operated with key protect enabled.	
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7. Specifications

7.1. Basic Specifications

Code No.		542-080 542-081					
Model No.		EJ-102N	EJ-102NE				
Unit of display		mm mm/in					
Display resolution (varies according to connected Linear Gage) *1: Display range		0.005 mm (5 μm) ±19999.995*1	0.0002 in ±199.9998*1				
		0.001 mm (1 µm) 0.001 mm (1 µm) 0.00005 in ±19999.999*1 ±199.9995*					
		0.0005 mm (0.5 µm) ±9999.9995*1					
		0.0001 mm (0.1 μm) ±9999.9999* ¹	0.0001 mm (0.1 µm) ±9999.9999*1 0.000005 in ±99.999995				
Number of Linear Gage connection ports		2					
Supported gage signals		Differential square wave, differential square wave with origin					
Input response frequency		5 MHz					
Supported linear gages		For details, see 2.2. Supported Linear Gages".					
External input/ output	Number of I/O ports	Input ports: 4 Output ports: 4					
	Applicable communi- cations standards	CC-Link, USB, PROFINET, EtherNet/IP, EtherCAT (supported by optional interface unit)					
Maximum number of units linked together		Eight EJ Counters + one interface unit (optional) (maximum number of Linear Gages that can be connected: 16)					
Power supply specifica- tions	Input voltage	10 V–27 V DC					
	Maximum power con- sumption	Single EJ Counter: 3 W or less (including two Linear Gages) With maximum number of linked EJ Counters: 30 W or less (including interface unit and 16 Linear Gages)					
Operating tempera- ture (humidity) range		0 °C–50 °C (20% RH–80% RH, without condensa- tion)					
Storage temperature (humidity) range		-10 °C–60 °C (20% RH–80% RH, without conden- sation)					
Unit mass		Approx. 120 g (0.26 lb)					
CE marking/UKCA marking		EMC Directive/Electromagnetic Compatibility Regulations: EN IEC 61326-1 Immunity test requirement: Clause 6.2 Table 2 Emission limit: Class A RoHS Directive/The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations: EN IEC 63000					