

■ View commands

These commands are used to verify the settings of EJ Counters.

They do not affect the EJ Counter settings or display.

Do not send these commands during communication with a PLC. Doing so might result in incorrect measurement.

| Command format ^{*1} | Corresponding output ^{*1*2} | Description |
|------------------------------|---|--|
| GCJ,****{CRLF} | GCJ,****,(Err-1),+0123456789, (TJ-2),(DataER-2){CRLF} | Read current values and tolerance judgments ^{*3*4} |
| GPR,****{CRLF} | GPR,****,(Err-1),+0123456789, (DataER-2){CRLF} | Read preset values ^{*4} |
| GS1,****{CRLF} | GS1,****,(Err-1),+0123456789 , (DataER-2){CRLF} | Read tolerance value S1 ^{*4} |
| GS2,****{CRLF} | GS2,****,(Err-1),+0123456789, (DataER-2){CRLF} | Read tolerance value S2 ^{*4} |
| GS3,****{CRLF} | GS3,****,(Err-1),+0123456789, (DataER-2){CRLF} | Read tolerance value S3 ^{*4} |
| GS4,****{CRLF} | GS4,****,(Err-1),+0123456789, (DataER-2){CRLF} | Read tolerance value S4 ^{*4} |
| GST,****{CRLF} | GST,****,(Err-1),(D-1)(D-2)(D-3) (D-4),(DataER-2){CRLF} | Read the EJ Counter display state ^{*5} |
| GER,****{CRLF} | GER,****,(Err-1),(DataC-8), (DataER-2){CRLF} | Read EJ Counter error flag details ^{*6} |
| GEH,****{CRLF} | GEH,****,(Err-1),(DataC-8), (DataER-2){CRLF} | Read the EJ Counter error flag details history ^{*7} |
| GPM,****,(PMNum-2){CRLF} | GPM,****,(Err-1),(PMNum-2), (PMDData-2),(DataER-2){CRLF} | Read EJ Counter parameter settings ^{*8} |
| FNM,0011{CRLF} | FNM,0000,(Err-1),(Data-1) {CRLF} | Read the number of connected EJ Counters ^{*9} |
| FCI,0011{CRLF} | FCI,0000,(Err-1),(Data-16) {CRLF} | Reads EJ Counter IDs ^{*10} |

*1 **** indicates the counter ID and channel (Ch.) numbers: **0 + 01** (unit Nr.) + **1** (chan. Nr.)

*2 **Err-1** is the interface unit's communications error flag. It is a **character** 0 ... 5.

*3 **TJ-2** is the result of tolerance judgment.

When tolerance judgment is enabled, the result of tolerance judgment is output as a **string** "L1" ... "L5".
When tolerance judgment is disabled (when the EJ Counter produces as error), "L0" is output.

*4 Output of data conforming to the settings of EJ Counter Parameter Numbers 03 (display mode selection) and 22 (unit setting).

*5 **D-1** indicates the display state. "00" indicates standby, "01" indicates count display, and "02" indicates that a parameter preset or tolerance value is being set.

D-2 indicates peak mode. "00" indicates the current value, "01" indicates MAX (the maximum value), "02" indicates MIN (the minimum value) and "03" indicates TIR (the value of MAX-MIN).

D-3 indicates the HOLD state. "00" indicates no HOLD, and any other value indicates HOLD.

D-4 indicates the unit. "00" indicates mm, and "01" indicates inch.

*6 For details, see "3.3.2 EJ Counter Error Flags" on page 30.

*7 The EJ Counter error history contains up to the last four errors, and errors are read out starting with the oldest. Note that the error history is deleted even if the error data is not received by the PC.

- *8 For the command's **PMNum-2** parameter, specify the Parameter Number. In the corresponding output, the setting of the specified Parameter Number is output for **PMData-2**.
- *9 **Data-1** is the number of connected EJ Counters (1 to 8).
- *10 ID numbers of connected EJ Counters are output for **Data-16**. "FF" is output if no EJ Counter is connected.
- Example:**
- if eight EJ Counters with ID numbers 1 to 8 are connected, "0102030405060708" is output,
 - if three EJ Counters with ID numbers 1, 2 and 51 are connected, "010251FFFFFFFFFFFF" is output.

Interface Unit Communications Error Flags

When a communication error is detected by this product, it outputs the communications error flag (Err-1).

■ Communications error flags (Err-1)

| Err-1 | Description |
|-------|---|
| 5 | Commands cannot be executed in this state. EJ Counters are in the standby or error state. |
| 4 | This indicates an undefined command. The command sent is undefined or its format is incorrect (missing a comma). |
| 3 | The data length of the command is incorrect. The command is missing data or includes unneeded data. |
| 2 | The command content is incorrect. The command includes an incorrect ID number or channel specification (contains a character other than a numeral). |
| 1 | There was an error in communication between the interface unit and EJ Counters. The ID number specified in a command does not belong to a connected EJ Counter. |
| 0 | No error |

In the event of a command abnormality (undefined command), the response takes the following format. CER,****,{Err-1}{CRLF}

Example:

if the undefined command "GGG" is sent, the response is as follows:

Send command: GGG,0000{CRLF}

Output data: CER,0000,4{CRLF}

■ Setting and control commands

These commands are used to change EJ Counter settings and control operation of EJ Counters.

Do not send these commands during communication with a PLC. Doing so might result in incorrect measurement.

| Command format ^{*1} | Corresponding output ^{*1*2} | Description |
|--------------------------------------|---|---|
| SPR,****,+0123456789 {CRLF} | SPR,****,(Err-1),+0123456789 , (DataER-2){CRLF} | Write preset values ^{*3} |
| SS1,****,+0123456789 {CRLF} | SS1,****,(Err-1),+0123456789 , (DataER-2){CRLF} | Write tolerance value S1 ^{*3*4} |
| SS2,****,+0123456789 {CRLF} | SS2,****,(Err-1),+0123456789 , (DataER-2){CRLF} | Write tolerance value S2 ^{*3*4} |
| SS3,****,+0123456789 {CRLF} | SS3,****,(Err-1),+0123456789 , (DataER-2){CRLF} | Write tolerance value S3 ^{*3*4} |
| SS4,****,+0123456789 {CRLF} | SS4,****,(Err-1),+0123456789 , (DataER-2){CRLF} | Write tolerance value S4 ^{*3*4} |
| SSU,****{CRLF} | SSU,****,(Err-1),(DataER-2){CRLF} | Cancel the start-up standby state ("-----" display) |
| SPK,****,(D-2){CRLF} | SPK,****,(Err-1),(DataC-8), (DataER-2){CRLF} | Switch the peak mode ^{*5} |
| SEC,****{CRLF} | SEC,****,(Err-1),(DataER-2){CRLF} | Clear the EJ Counter error history |
| PST,****{CRLF} | PST,****,(Err-1),(DataER-2){CRLF} | Perform presets (set preset values set with the SPR command) |
| PZS,****{CRLF} | PZS,****,(Err-1),(DataER-2){CRLF} | Zero current values |
| PCL,****{CRLF} | PCL,****,(Err-1),(DataER-2){CRLF} | Clear preset values |
| PKC,****{CRLF} | PKC,****,(Err-1),(DataER-2){CRLF} | Clear peak data (MAX and MIN data) |
| PEC,****{CRLF} | PEC,****,(Err-1),(DataER-2){CRLF} | Clear errors ^{*6} |
| PSH,****{CRLF} | PSH,****,(Err-1),(DataER-2){CRLF} | Hold current value ^{*7} |
| PCH,****{CRLF} | PCH,****,(Err-1),(DataER-2){CRLF} | Cancel current value hold ^{*8} |
| PDA,****{CRLF} | PDA,****,(Err-1),(DataER-2){CRLF} | Display EJ Counter ID (displays an EJ Counter's ID number for a preset interval) |
| PDB,****{CRLF} | PDB,****,(Err-1),(DataER-2){CRLF} | Specify EJ Counter display axis (switches display axes of the current value on an EJ Counter) |
| PPM,****,(PMNum-2), (PMData-2){CRLF} | PPM,****,(Err-1),(PMNum-2), (PMData-2),(DataER-2){CRLF} | Write parameter settings ^{*9} |
| RST,0011,SRST {CRLF} | RST,0000,(Err-1){CRLF} | System reset ^{*10} |

- *1 **** indicates the counter ID and channel (Ch.) numbers: **0 + 01** (unit Nr.) + **1** (chan. Nr.)
- *2 **Err-1** is the interface unit's communications error flag.
- *3 Use the + or - sign and specify 10-digit numbers with no decimal point.
- *4 For 3-step tolerance, set tolerance values S1 and S4. Setting of S2 and S3 and read-out are not possible. Attempting to set S2/S3 or perform read-out will result in setting of an error flag (bit 0 of DataER-2) and transmission of error output "+2147483647".
For 5-step tolerance, set tolerance values S1 through S4.
Set the tolerance values in sequence from S1 to S4 or from S4 to S1.
- *5 For **D-2**, specify the peak mode.
Specify "00" for the current value, "01" for MAX (the maximum value), "02" for MIN (the minimum value), or "03" for TIR (the value of MAX-MIN).
When the peak mode is set properly, "00000000" is output for "DataC-8".
- *6 Clear the error state after first eliminating the cause of the error.
- *7 The HOLD signal is shared by all linked EJ Counters, and all linked EJ Counters enter the HOLD state.
When canceling HOLD with the PCH command, cancellation is required for EJ Counters on which HOLD is set. Set HOLD against the ID number of the linked EJ Counter that is adjacent to the interface unit.
- *8 The HOLD signal is shared by all linked EJ Counters, and HOLD is canceled for all linked EJ Counters.
Cancel HOLD on EJ Counters for which HOLD was set with the PSH command.
- *9 Specify the Parameter Number for "PMNum-2" and the setting value for "PMDData-2".
- *10 A software reset is performed on this product and linked EJ Counters. Do not execute this command during while measurement is in progress.

Interface Unit Communications Error Flags

When a communication error is detected by this product, it outputs the communications error flag (Err-1).

■ Communications error flags (Err-1)

| Err-1 | Description |
|----------|---|
| 5 | Commands cannot be executed in this state. EJ Counters are in the standby or error state. |
| 4 | This indicates an undefined command. The command sent is undefined or its format is incorrect (missing a comma). |
| 3 | The data length of the command is incorrect. The command is missing data or includes unneeded data. |
| 2 | The command content is incorrect. The command includes an incorrect ID number or channel specification (contains a character other than a numeral). |
| 1 | There was an error in communication between the interface unit and EJ Counters. The ID number specified in a command does not belong to a connected EJ Counter. |
| 0 | No error |

In the event of a command abnormality (undefined command), the response takes the following format. CER, ****, {Err-1} {CRLF}

Example:

if the undefined command "GGG" is sent, the response is as follows:

Send command: GGG,0000 {CRLF}

Output data: CER,0000,4 {CRLF}

EJ Counter Error Flags

These error flags are output when an EJ Counter detects an error.

■ Error flags (DataER-2)

This error flag (DataER-2) is made up of data in hexadecimal notation. Bits that are set to "1" indicate the location of the alarm or error.

| Data ER-2 | Judgment | Description |
|-----------|--------------------------------------|--|
| bit 0 | 0: Normal 1: Alarm or error state | Indicates an error in communication between the interface unit and EJ Counters. Whether or not the command was normally executed cannot be determined. Check the command and execute it again. |
| bit 1 | | The EJ Counter is in the Busy state. EJ Counter settings are being made by key operation. Commands cannot be executed. Execute the command after putting the EJ Counter in the counting state. |
| bit 2 | | The origin of the requested channel has not been detected. Commands cannot be executed. Execute the command again after performing gage origin detection or disabling origin detection. |
| bit 3 | | An alarm occurred on the requested channel or both channels. Commands cannot be executed. The flag is set if the EJ Counter is in the Busy state (DataER-2 bit1), its origin has not been detected (DataER-2 bit 2), or it is in the counter stand-by state. |
| bit 4 | | A hardware error occurred on the requested channel or both channels. |
| bit 5 | | An alarm or hardware error occurred on one of the channels. The flag is set even if the alarm or hardware error occurred on the channel that was not requested. The command is executed if there is no abnormality the requested channel. |
| bit 6 | | Fixed to 0 |
| bit 7 | | Fixed to 0 |

■ Error flag details (DataC-8)

Error flag details (DataC-8) are made up of **data in hexadecimal notation**. Bits that are set to "1" indicate the location of the alarm or error.

| Data C-8 | Judgment | Description | |
|-------------|--------------------------------------|----------------|---|
| bit 0 | 0: Normal 1: Alarm or error state | Alarm | EJ Counter Busy state (EJ Counter settings are being made by key operation). Put the EJ Counter in the counting state. |
| bit 1 | | | A-axis origin not detected. Go through A-axis origin detection. |
| bit 2 | | | B-axis origin not detected Go through B-axis origin detection. |
| bit 3 | | | Counter stand-by state Cancel the counter standby state, putting the EJ Counter in the counting state. |
| Bits 4 to 7 | | | Fixed to 0 |
| bit 8 | | Hardware error | A-axis peak detection error (with peak mode only) If this error occurs continuously, verify measurement conditions (such as spindle movement speed). |
| bit 9 | | | B-axis peak detection error (with peak mode only) If this error occurs continuously, verify measurement conditions (such as spindle movement speed). |
| bit 10 | | | Ch.1 counter value overflow. Verify preset values. |
| bit 11 | | | Ch.2 counter value overflow. Verify preset values. |
| bit 12 | | | A-axis excess speed error. Verify measurement conditions (such as spindle movement speed). |
| bit 13 | | | B-axis excess speed error. Verify measurement conditions (such as spindle movement speed). |
| bit 14 | | | No gage head on the A-axis or discontinuity detection error. Verify gage head connection. |
| bit 15 | | | No gage head on the B-axis or discontinuity detection error. Verify gage head connection. |
| bit 16 | | | Internal memory abnormality. If operation is not restored upon clearing the error, there may be an internal malfunction. |
| bit 17 | | | Power supply voltage abnormality. Clear the error after verifying supply of correct voltage. |
| bit 18 | | | A-axis counter IC reset error. Occurred because a Linear Gage was connected or removed during operation. |

| | | | |
|--------|--|--|---|
| bit 19 | | | B-axis counter IC reset error. Occurred because a Linear Gage was connected or removed during operation. |
| bit 20 | | | A-axis counter IC overflow. Electrical noise could be a problem. |
| bit 21 | | | B-axis counter IC overflow. Electrical noise could be a problem. |

| Data C-8 | Judgment | Description | |
|---------------|--------------------------------------|----------------|--|
| bit 22 | 0: Normal 1: Alarm or error state | Hardware error | No A-axis origin signal. When using a Linear Gage with origin, check whether the origin signal is disconnected. When using a Linear Gage without origin, set Parameter Number 05 to 0. |
| bit 23 | | | No B-axis origin signal. When using a Linear Gage with origin, check whether the origin signal is disconnected. When using a Linear Gage without origin, set Parameter Number 05 to 0. |
| bit 24 | | | Internal memory access error. If operation is not restored upon clearing the error, there may be an internal malfunction. |
| bit 25 | | | Wrong number of EJ Counters connected (nine or more devices). Turn the power on after reducing the number of connected EJ Counters to no more than eight. |
| Bits 26 to 31 | | | Fixed to 0 |

■ EJ Counter error history

If a hardware error occurs, error flag details are stored in the error history in the EJ Counter. Error details are not stored when alarms occur.

The EJ Counter error history holds up to the last four errors, and errors are read out starting with the oldest.

If a hardware error occurs when the error history already contains four errors, the oldest error is discarded.

If the error history is read when there are no errors in the EJ Counter error history, the value 0(0x00000000) is output.