

# Troubleshooting Err27.4

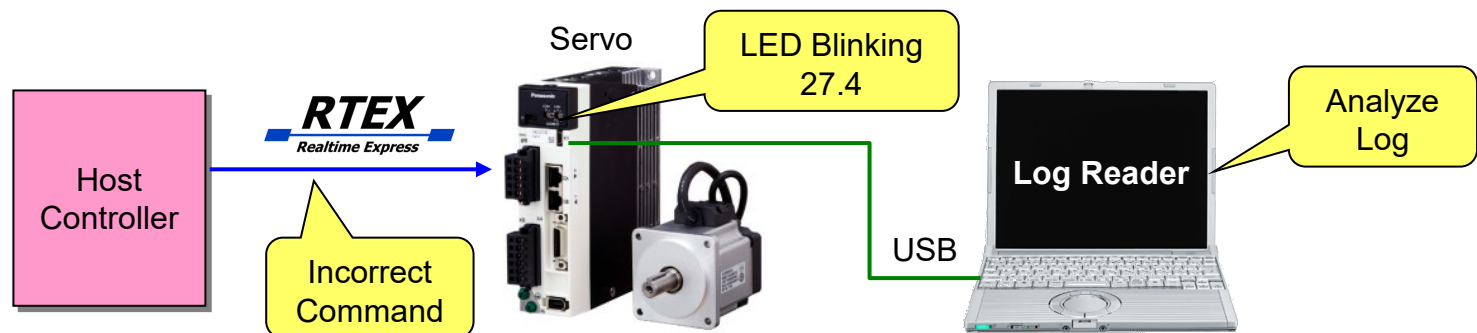
19 March 2024

**Panasonic Industry Co., Ltd.**  
**Industrial Device Business Division**  
**Motion Control Business Unit**

# Err27.4 Command Error

When Err27.4 occurs on correct parameter setting, there is a problem inside command data from a host controller to the servo. Using the tool "Log Reader", analyze a communication log data at the alarm.

Item	Description
Mode	Cyclic Position Control (Command Code: 2xh)
Detection	Too large change of command position
Cause Examples	Occurring in servo-ON: - Abnormal change of command position - Update counter incorrect Occurring at transit from servo-OFF to ON: - Command position not initialized during servo-OFF
Remedy	Correct command operation on software in the host controller.



# Communication Data Block

# Command

on 16-byte mode in cyclic position control

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	C/R (0)	Update Counter		MAC-ID (0 to 31)				
Byte1	TMG CNT	Command Code (2xh)						
Byte2	Servo On	0	0	Gain SW	TL SW	Homing Ctrl	0	0
Byte3	Hard Stop	Smooth Stop	Pause	0	SL SW	0	EX- OUT2	EX- OUT1
Byte4	Command Data 1 (Command Position)							L
Byte5								ML
Byte6								MH
Byte7								H
Byte8	Command Data 2							L
Byte9								ML
Byte10								MH
Byte11								H
Byte12	Command Data 3							L
Byte13								ML
Byte14								MH
Byte15								H

# Response

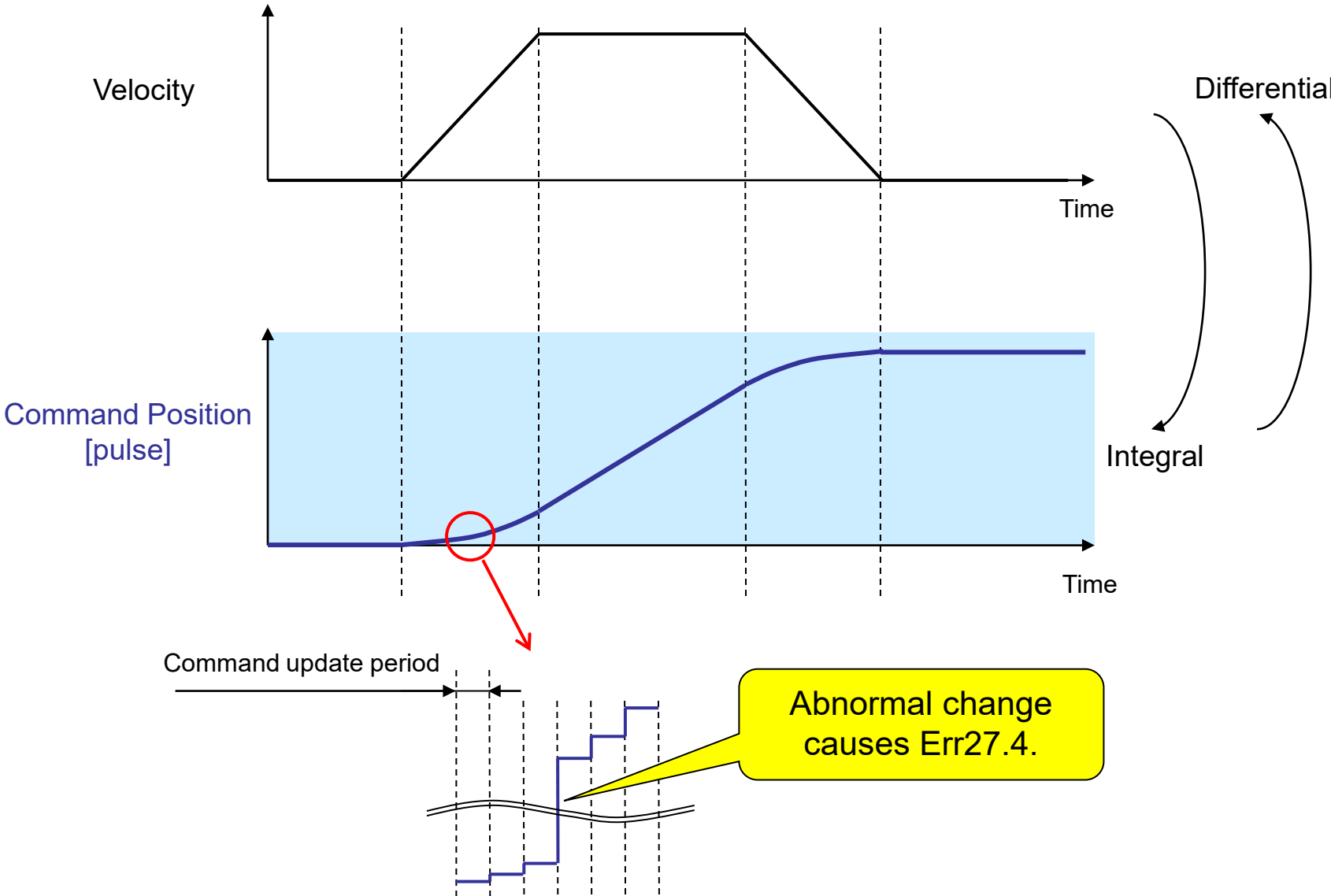
on 16-byte mode in cyclic position control

	Bit7	Bit6	Bit5	Bit4	Bit3	Bit2	Bit1	Bit0
Byte0	C/R (1)	Update Counter Echo		Actual MAC-ID (0 to 31)				
Byte1	CMD Error	Command Code Echo (2xh)						
Byte2	<b>Servo Active</b>	Servo Ready	<b>Alarm</b>	Warning	Torque Limited	Homing Complete	In Progress	In Position
Byte3	SI-MON5 /E-STOP	SI-MON4 /EX-SON	SI-MON3 /EXT3	SI-MON2 /EXT2	SI-MON1 /EXT1	Home	POT /NOT	NOT /POT
Byte4	<b>Response Data 1 (Actual Position)</b>							L
Byte5								ML
Byte6								MH
Byte7								H
Byte8	Response Data 2 (Actual Velocity)							L
Byte9								ML
Byte10								MH
Byte11								H
Byte12	Response Data 3 (Torque)							L
Byte13								ML
Byte14								MH
Byte15								H

# Err27.4 Examples



# Abnormal Change of Command Position



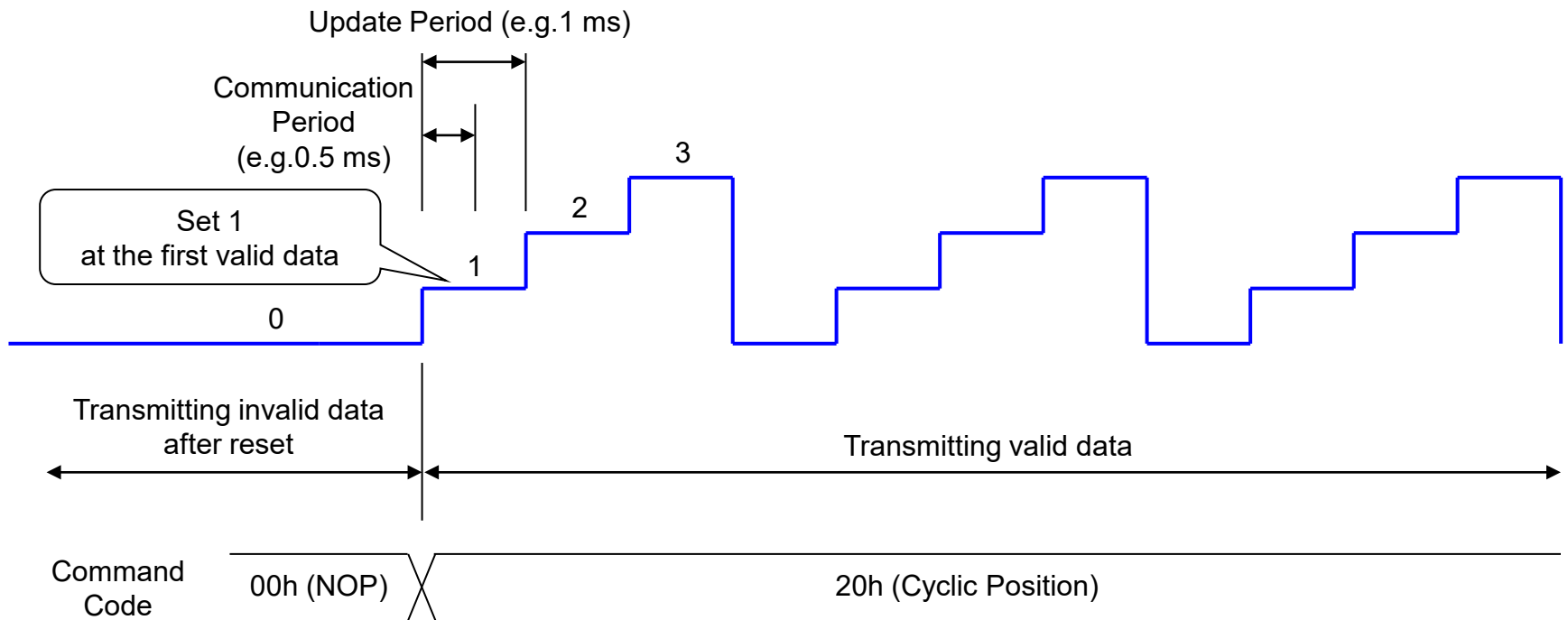




# Update Counter

The value counted up at the timing of command update must be set into Update Counter. Set 0 during invalid data transmitting after releasing reset, and set 1 at the first valid data. Subsequently, increment it as a free-run counter of 2-bit.

Update : Com. period = 2 : 1 case



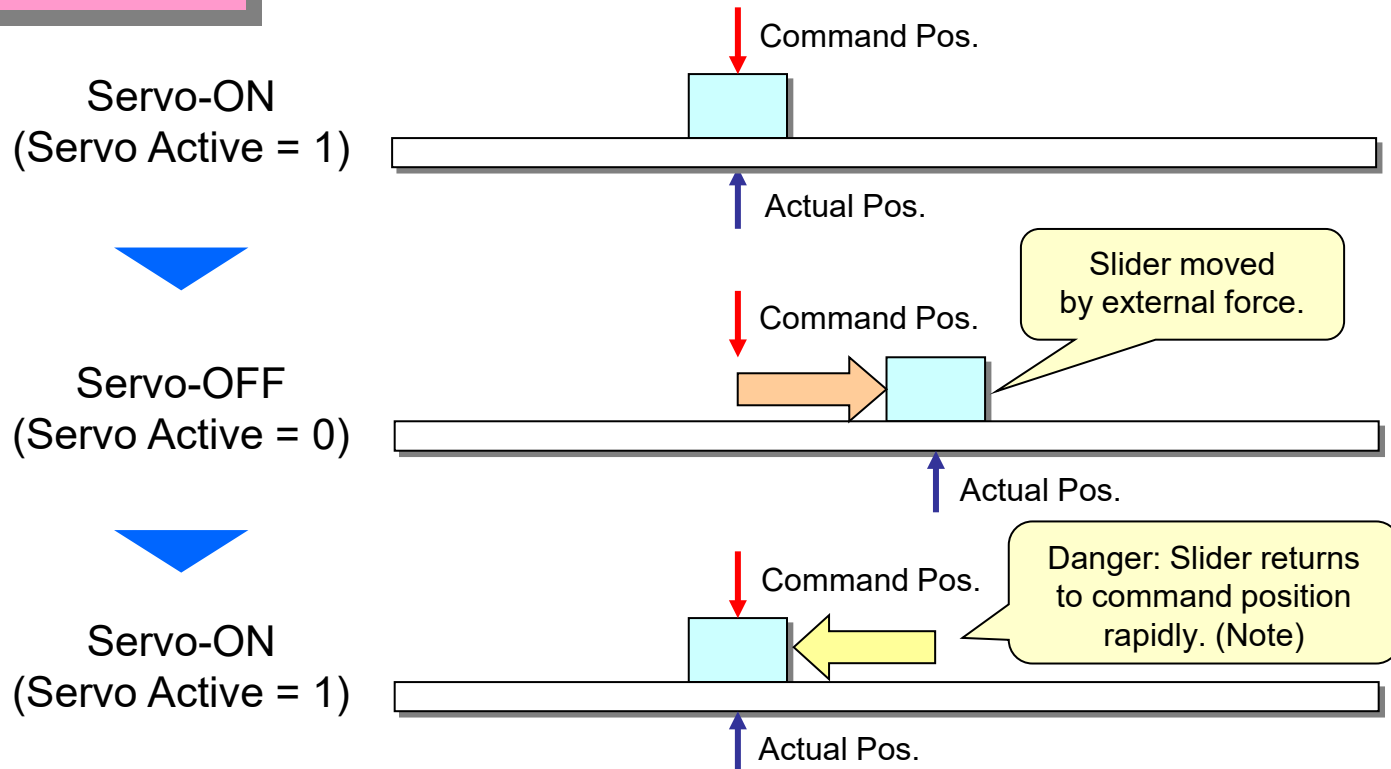


# Command Position during Servo-OFF

While Servo Active is 0, the command position should be initialized with the actual position value periodically.

If not so, a danger motion may be caused when the actual position is moved by external force in servo-OFF. (Note)

## Bad Example



**Note: There is Err27.4 case as well.**

# Parameter Settings

If the parameters are not set properly, Err27.4 occurs.

# Update and Communication Period

According to the host controller specification, the period parameters must be set properly. A6N example is as follows:

Update Period [ms]	Com. Period [ms]	Parameter Setting Value			Remark
		Pr7.20	Pr7.21	Pr7.91	
4.000	2.000	-1	2	2000000	
2.000	2.000	-1	1	2000000	
2.000	1.000	-1	2	1000000	
1.000	1.000	-1	1	1000000	Pr7.20 = 6, Pr7.21 = 1 also allowed.
1.000	0.500	-1	2	500000	Pr7.20 = 3, Pr7.21 = 2 also allowed.
0.500	0.500	-1	1	500000	Pr7.20 = 3, Pr7.21 = 1 also allowed.
0.500	0.250	-1	2	250000	
0.250	0.250	-1	1	250000	
0.250	0.125	-1	2	125000	
0.125	0.125	-1	1	125000	
0.125	0.0625	-1	2	62500	

Default Setting



# Limit Sensors

Since the host controller operates the motion for limit sensors, set Pr5.04 to 1 (default) in order to disable POT and NOT functions in the servo drive. Also, set Pr7.23 bit2 to 0 (default) in order to allow the host controller to monitor POT and NOT via RTEX.

Pr5.04	Over-travel inhibit input setup	Range	Unit	Attribute	Default	Related control code												
		0 to 2	—	C	1	P	S	T	F									
<p>Set up the operation of the over-travel inhibition (POT, NOT) inputs. Set the parameter according to the specification of upper controller. Normally it should be set to 1 (disabled) because the operation is controlled by an upper controller. For details, check to materials of controller.</p> <table border="1"> <thead> <tr> <th>setup value</th> <th>Operation</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>POT → inhibits CW drive, NOT → inhibits CCW drive. When POT is input during CW driving, stops the drive according to Pr 5.05“Sequence at over-travel inhibit”. The similar function NOT is applied in reverse direction.</td> </tr> <tr style="border: 2px solid red;"> <td><b>[1]</b></td> <td>POT and NOT are disabled, having no effect on operation.*1</td> </tr> <tr> <td>2</td> <td>POT or NOT input activates Err 38.0 Run-inhibition input protection.</td> </tr> </tbody> </table>											setup value	Operation	0	POT → inhibits CW drive, NOT → inhibits CCW drive. When POT is input during CW driving, stops the drive according to Pr 5.05“Sequence at over-travel inhibit”. The similar function NOT is applied in reverse direction.	<b>[1]</b>	POT and NOT are disabled, having no effect on operation.*1	2	POT or NOT input activates Err 38.0 Run-inhibition input protection.
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<p><b>Caution</b> ⚠ The Pr5.04 “Over-travel inhibit input setup” and Pr5.05 “Sequence at over-travel inhibit” settings are temporarily invalid during profile home position return. If profile home position return function is used without using the over-travel inhibit input, Do not assign over-travel inhibit input (POT/NOT) to general purpose input. The setting is not invalidated only by setting the Pr5.04 to 1. For details of profile home position return function, check to materials of controller. *1 In the state that SI6 assigned to POT, SI7 assigned to NOT, when Pr5.04 “Over-travel inhibit input setup” is set to a value other than 1 (invalid), Err38.2 “Drive inhibit input protection 3” occurs.</p>																		

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