

RS Automation Drive Special Settings

Special Settings Required for RS Automation Drives

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EtherCAT Connection

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EtherCAT Connection

The EtherCAT system has a very useful way of ensuring that the important drive setting parameters are downloaded to the drive. This "Startup" system This is especially useful if a drive is exchanged. The correct parameters for the axis are passed to the drive on every power on cycle. This means you do not have to pre-program a drive with its specific parameters beforehand, or via a USB connection.

The following parameters should be programmed in to the startup system

Description	Purpose	RS Automation Ft-no Parameter	CoE Number	Value
Velocity Feed forward Gain	To reduce the following error on the system to nearly zero It is expressed as a percentage 0-100 The default value is 0, which will give a progressively large following error proportional to the speed of the axis. Setting to 100 removes the following error completely See Microline withTwinCAT3 Setup Notes, pand the warning about the Following Error mode for the axis	3.02	2302	100
AC Line Loss	Needs to be changed from enabled to "Single Phase" (using RSWare). see TB0452 Ecoline using RSAutomation EtherCAT setup notes .	0.02	2002:04	02
Operation Mode	Should be set to Mode 8 - Cyclic Synchronous Position This was identified during the Microline setup see TB0452 Ecoline using RSAutomation EtherCAT setup notes.  ...Not certain that this is necessary		6060	08

Process

Step	Process	Pic

1 Check the CoE number is not already in the startup
 If it exists already, and is the wrong value, it can be edited.
 If not it needs to be added - step 2

Transition	Protocol	Index	Data	Comment
<PS>	CoE	0x1C12.00	0x00 (0)	clear sm pds (0x1C12)
<PS>	CoE	0x1C13.00	0x00 (0)	clear sm pds (0x1C13)
<PS>	CoE	0x1700.00	0x56C.63, 0	clear pdo 0x1700 entries
<PS>	CoE	0x1700.01	0x6040.00, 16	download pdo 0x1700 entry
<PS>	CoE	0x1700.02	0x607A.00, 32	download pdo 0x1700 entry
<PS>	CoE	0x1700.03	0x6060.00, 8	download pdo 0x1700 entry
<PS>	CoE	0x1700.00	0x776F.64, 3	download pdo 0x1700 entry
<PS>	CoE	0x1800.00	0x56C.63, 0	clear pdo 0x1800 entries
<PS>	CoE	0x1800.01	0x6041.00, 16	download pdo 0x1800 entry
<PS>	CoE	0x1800.02	0x6064.00, 32	download pdo 0x1800 entry
<PS>	CoE	0x1800.03	0x6061.00, 8	download pdo 0x1800 entry
<PS>	CoE	0x1800.00	0x776F.64, 3	download pdo 0x1800 entry
<PS>	CoE	0x1C12.01	0x1600 (5632)	download pdo 0x1C12.01 l...
<PS>	CoE	0x1C12.00	0x01 (1)	download pdo 0x1C12 count
<PS>	CoE	0x1C13.01	0x1A00 (6556)	download pdo 0x1C13.01 l...
<PS>	CoE	0x1C13.00	0x01 (1)	download pdo 0x1C13 count
PS	CoE	0x2302.00	0x64 (100)	Position Regulator Kf Gain

2 1. Select the Drive
 2. Select CoE Online Tab
 3. Select the CoE Number
 4. Select Add to Startup

Index	Name	Flags	Value	Unit
2217	Test Run for ANF Operation Count	RW	0x0002 (2)	
2218.0	Test Run for ANF Setting	RO	> 4 <	
2219	Linear Motor Overspeed Level	RW	0x0000 (0)	
221A	Linear Motor Velocity Error Limit	RW	0x0000 (0)	
221B	Velocity Smoothing Filter	RW	0x00A1 (161)	
2300.0	Follower	RO	> 4 <	
2301	Position Command LPF Bandwidth	RW	0x0000 (0)	
2302	Position Regulator Kf Gain	RW	0x00 (0)	
2303	Position Regulator Kf LPF Bandwidth	RW	0x00C8 (200)	
2304	Moving Average Filter	RW	0x0140 (320)	
2305	1st Gear Ratio, Follower Counts	RW	0x00000001 (1)	
2306	1st Gear Ratio, Master Counts	RW	0x00000001 (1)	
230B	Encoder Output Ratio, Output Counts	RW	0x00000001 (1)	
230C	Encoder Output Ratio, Motor Counts	RW	0x00000001 (1)	
230E	1st Damping Frequency	RW	0x0000 (0)	

3 Click on Edit Entry

Transition: I -> P, P -> S, S -> P, S -> O, O -> S

Index (hex): 2302, Sub-Index (dec): 0

Data (hexbin): 00, Comment: Position Regulator Kf Gain

Index	Name	Flags	Value
2302	Position Regulator Kf Gain	RW	0x00 (0)

4 Add in the new value and click OK

Dec: 100, Hex: 0x64, Bit Size: 8

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The parameter should appear in the Startup Tab

The screenshot shows the SIMATIC Manager interface. On the left is the Solution Explorer with a tree view of project components. On the right is the Output window, which is currently displaying the 'Startup' tab. The Output window contains a table with the following columns: Transition, Protocol, Index, Data, and Comment. The table lists various parameter download operations. The last row, representing the 'PS' parameter, is highlighted with a red border.

Transition	Protocol	Index	Data	Comment
<PS>	CoE	0x1C12.00	0x00 (0)	clear sm pdos (0x1C12)
<PS>	CoE	0x1C13.00	0x00 (0)	clear sm pdos (0x1C13)
<PS>	CoE	0x1700.00	0x556C.63, 0	clear pdo 0x1700 entries
<PS>	CoE	0x1700.01	0x6040.00, 16	download pdo 0x1700 entry
<PS>	CoE	0x1700.02	0x607A.00, 32	download pdo 0x1700 entry
<PS>	CoE	0x1700.03	0x6060.00, 8	download pdo 0x1700 entry
<PS>	CoE	0x1700.00	0x776F.64, 3	download pdo 0x1700 entr...
<PS>	CoE	0x1800.00	0x556C.63, 0	clear pdo 0x1800 entries
<PS>	CoE	0x1800.01	0x6041.00, 16	download pdo 0x1800 entry
<PS>	CoE	0x1800.02	0x6064.00, 32	download pdo 0x1800 entry
<PS>	CoE	0x1800.03	0x6061.00, 8	download pdo 0x1800 entry
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<PS>	CoE	0x1C12.01	0x1600 (5632)	download pdo 0x1C12.01 i...
<PS>	CoE	0x1C12.00	0x01 (1)	download pdo 0x1C12 count
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PS	CoE	0x2302.00	0x64 (100)	Position Regulator KF Gain