

## SoftMotion: DriveInterface: FestoCAN

**Last update: 14.04.2010**

Hardware interface	CAN; must support 3S_CANdrv.lib
Supported drives	Festo CMMP-AS , Festo CMMS-ST, Festo CMMS-AS, Festo SFC-LAC, Festo SFC-LACI, Festo CMMD-AS
Runtimes	x86
Author	Edwin Schwellinger
Components	FestoDrive.lib; 3S_CanDrv.lib; SM_CAN.lib; SysLibCallback.lib; SysLibFile.lib
Version	1.9.4.13

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## 1 Parameters in PLC config

### 1.1 BusInterface

wParam1	Not used
wParam2	Not used
dwParam1	Not used
dwParam2	Not used

### 1.2 AxisGroup

wParam1	CAN channel No (typically 0)
wParam2	Baudrate in kBit (125, 250, 500, 1000)
wParam3	SYNC generator: 0: PLC generates SYNC (only possible if PLC is highly precise); 1: not supported by the drive 2: SYNC device generates SYNC (additional hardware needed)
wParam4	Not used
dwParam1	Reserved
dwParam2	Reserved
dwParam3	Not used
dwParam4	Not used

### 1.3 supported Drive.wControlType

T / - no	V/V no	V/P no	P/P yes	PV/PV no	V/- no	CONF no
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The cyclically sent data must consist of: fSetPosition.

The received data can consist of: fActPosition.

### 1.4 Additional structure Festo\_AXIS\_REF

name	Type
eType:	FestoDriveType Drive Type
byDriveState	BYTE internal use: state of drive
wStatusWord	WORD Status word 16#6041
wControlWord	WORD Control word 16#6040
wStatusWordOld	WORD internal use
strConfigFile	STRING full name and path of config file
acit	internal use

## 2 Features

- **RegulatorOn, DriveStart**
- Detecting and acknowledging **errors**
- **reading/writing** SoftMotion and **drive parameters** (to access index 0xaabb subindex 0xcc with length 0xdd in byte (only necessary for writing) either use MC\_Read/Write(Bool)Parameter with parameter number -16#ddaabbcc)
- any **gearing factors** (dwRatioTechUnitsDenom/iRatioTechUnitsNum)
- **linear/rotary axes**
- **controlling modes**: position
- drive internal **homing** (first configure Object 16#6098, 16#6099.16#609A)  
Note: during homing, the actual position is not reported from the drive!
- **latching**: 1 channel (TriggerNumber = 1 -> rising Trigger )
- TriggerNumber = 2 -> falling Trigger)
- **limit switches** should be connected to the drive. When the homing method is not active, an error is set if one of them gets FALSE.
- **configuration from dialogs in PLC config**
- supported **SYNC generators** (to be set in PLC Configuration, AxisGroup)
- configured parameters during startup
- multiple drivetype support

Festo CMMS-ST, Festo CMMS-AS, Festo SFC-LAC, Festo SFC-LACI, Festo CMMD-AS supports only cycletimes  $\geq 8\text{ms}$   $\leq 10\text{ms}$ , therefore a bootup message is generated in g\_strBootupError = 'Drivename do not support cycletimes  $< 8\text{ms}$  or  $> 10\text{ms}$ ' in case of Festo CMMS-ST, Festo CMMS-AS, Festo SFC-LAC, Festo SFC-LACI, Festo CMMD-AS type on the canbus and AxisGroup.wstate switch to 1009.

### 3 CAN-Traffic

base load:

<i>Telegram</i>	<i>Data bytes</i>	<i>Bit length</i>	<i>125 kBit/s</i>	<i>250 kBit/s</i>	<i>500 kBit/s</i>	<i>1 MBit/s</i>
SYNC	0	47	0,376 ms	0,188 ms	0,094 ms	0,047 ms
SDO	8	111	0,888 ms	0,444 ms	0,222 ms	0,111 ms
overall			1,264 ms	0,632 ms	0,316 ms	0,158ms

per drive :

<i>Telegram</i>	<i>Data bytes</i>	<i>Bit length</i>	<i>125 kBit/s</i>	<i>250 kBit/s</i>	<i>500 kBit/s</i>	<i>1 MBit/s</i>
Control Word, operation mode ,set position	8	111	0,888 ms	0,444 ms	0,222 ms	0,111 ms
Status Word, operation_mode _display , actposition	8	111	0,888 ms	0,444 ms	0,222 ms	0,111 ms
overall			1,776 ms	1,888 ms	0,222 ms	0,222ms

According to that, the following table shows the maximum number of drives per cycle time:

Max. number of drives	125 kBit/s	250 kBit/s	500 kBit/s	1 MBit/s
<i>1 ms</i>	<i>0</i>	<i>0</i>	<i>1</i>	<i>3</i>
<i>2 ms</i>	<i>0</i>	<i>1</i>	<i>3</i>	<i>7</i>
<i>3 ms</i>	<i>1</i>	<i>2</i>	<i>5</i>	<i>11</i>
<b>4 ms</b>	<b>1</b>	<b>3</b>	<b>7</b>	<b>15</b>