

SoftMotion: DriveInterface: JATCAN

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Hardware interface	CAN; must support 3S_CANdrv.lib
Supported drives	JAT ECOSTEP® 100, ECOSTEP® 200, ECOSTEP® 216, ECOVARIO® 214, ECOVARIO® 414
Runtimes	
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Components	CopleyAccelnetDrive.lib; 3S_CanDrv.lib; SM_CAN.lib; SysLibCallback.lib; SysLibFile.lib
Version	1.9.4.0

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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); 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 yes	V/P yes	P/P yes	PV/PV no	V/- no	CONF yes
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The cyclically sent data must consist of: either fSetPosition or fSetVelocity.

The received data can consist of: fActPosition, fActVelocity.

1.4 Additional structure *JATCAN_AXIS_REF*

name	Type	
byHomingCount	BYTE	internal use: cycles since homing was done
bOldLimitActive	BOOL	internal use
strConfigFile	STRING	full name and path of config file
blsEcoStep54	BOOL	is drive EcoStep54 (set automatically)
dwDigitalInputs	DWORD	value of digital inputs (60FD)
uiErrorCount	UINT	internal use
acit		internal use

1.5 ECOSTEP54

Note that a EcoStep54 can be inserted in the PLC Configuration, but it can only be used for transmitting parameters to the device. To signal the system that it is a EcoStep54 you have inserted, the wDriveID must be 16#aabb, where 16#bb is the CAN Id, and 16#aa is any value, but not 0.

2 **Features**

- **RegulatorOn, DriveStart**
- Detecting and acknowledging **errors** (only possible if regulator not set)
- **reading/writing** SoftMotion and **drive parameters** (to access index 0xaabb subindex 0xcc with length 0xdd in byte (only necessary for writing) use MC_Read/Write(Bool)Parameter with parameter number -16#ddaabbcc)
- any **gearing factors** (dwRatioTechUnitsDenom/iRatioTechUnitsNum)
- **linear/rotary axes**
- **controlling modes:** position, velocity
- drive internal **homing** (configure with object 0x6098 etc)
- **limit switches** should be connected to the drive. if Drive.bHWLimitEnable is TRUE and the homing method is not active, an error is set if one of them gets FALSE.
- **configuration from file**
- **configuration from dialogs in PLC config**
- supported **SYNC generators** (to be set in PLC Configuration, AxisGroup) : PLC, SYNC-Device

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>
Set data (607A/60FF), Control Word (6040), OpMode (6060)	7	103	0,824 ms	0,412 ms	0,206 ms	0,103 ms
State Word (6041), actual position (6063)/ actual velocity (6069)	6	95	0,760 ms	0,380 ms	0,190 ms	0,095 ms
Digital Inputs (60FD) (+ <i>actual velocity</i> (6069) (<i>only if act position and velocity must be received</i>))	4/8	79 / 111	0,632 ms/ 0,888 ms	0,316 ms/ 0,444 ms	0,158 ms/ 0,222 ms	0,079 ms/ 0,111 ms
overall (act. position OR act. velocity)			2,216 ms	1,108 ms	0,554 ms	0,277 ms
overall (act. position AND act. velocity)			2,472 ms	1,236 ms	0,618 ms	0,309 ms

EcoStep needs a **fix cycle time** of **4ms**, that means the motion task must run exactly in 4ms. Therefore, depending on the cyclically received data, these number of drives can be controlled:

cyclically received data	125 kBit/s	250 kBit/s	500 kBit/s	1 MBit/s
act. position or act. velocity	1	3	6	13
both	1	3	6	12