

SoftMotion: DriveInterface: ElmoCAN

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Hardware interface	CAN; must support 3S_CANdrv.lib
Supported drives	SimplIQ
Runtimes	any
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Components	ElmoCANDrive.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

The cyclically sent data must consist of: fSetPosition.

The received data can consist of: fActPosition, fActVelocity, fActTorque and/or fActCurrent.

1.4 Additional structure *ElmoCAN_AXIS_REF*

name	Type
txList, rxList, txPDOs, rxPDOs	internal use
byDigitalInputs	BYTE digital inputs
bySetOpMode	BYTE internal use: Operation mode set value
rp	SMC_ReadCANParameter internal use
byDriveState, byDriveStateOld	BYTE internal use
wStateCounter	WORD internal use
wStatusWord	WORD status word
wControlWord	WORD control word
dwSetPosition	DWORD internal use: Set position
byPDOnotreceived	BYTE Internal use: number of cycles inwhich

strConfigFile	STRING	PDO from drive was not received location of config file
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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) 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** (configure with object 0x6098 etc.)
- **configuration from file**
- **configuration from dialogs in PLC config**
- supported **SYNC generators** (to be set in PLC Configuration, AxisGroup) : PLC, SYNC-Device

3 Preconditions

Make sure that the drive is configured correctly and no autoexec composer application is running. Especially, UM must be set to 5 (Position mode). You should be able to run the drive with composer before starting to connect it to SoftMotion.

The drive is sensitive to jitter on the CAN bus. When the SYNC signal is not produced with the needed precision, an error message is written into g_strBootupError. Then, either use a controller with better SYNC quality or a SYNC device.

4 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
Timestamp	4	79	0,632 ms	0,316 ms	0,158 ms	0,079 ms
SDO	8	111	0,888 ms	0,444 ms	0,222 ms	0,111 ms
overall			1,896 ms	0,948 ms	0,474 ms	0,237ms

per drive (if only POS/POS is configured) :

<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 position (60C1), Control Word (6040), OpMode (6060)	7	103	0,824 ms	0,412 ms	0,206 ms	0,103 ms
Actual position (6063), Status Word (6041), digital inputs (2201)	7	103	0,824 ms	0,412 ms	0,206 ms	0,103 ms
overall			1,648 ms	0,824 ms	0,412 ms	0,206 ms

According to the above calculations approximately the following number of drives can be used:

max. number of drives	125 kBit/s	250 kBit/s	500 kBit/s	1 MBit/s
1 ms	0	0	0	3
2 ms	0	1	2	7
3 ms	0	2	4	11
4 ms	1	3	7	16