

# TML\_LIB\_X20 - MOTION CONTROL LIBRARY FOR B&R X20 SYSTEM

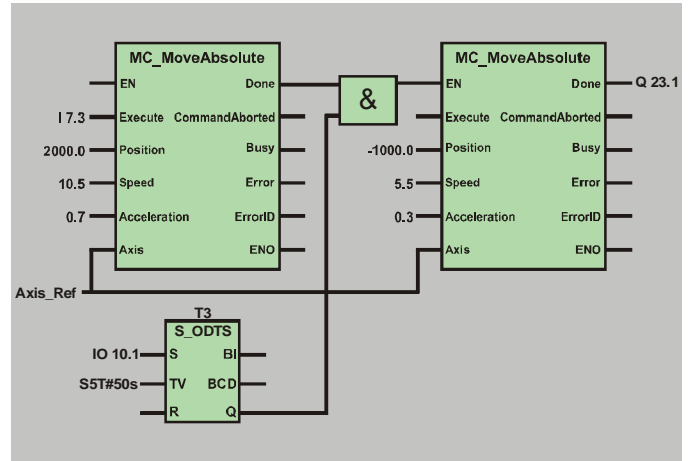
## EMBED TECHNOSOFT DRIVES INTELLIGENCE ON B&R PLC ENVIRONMENT

Technology is moving fast and time-to-market window narrows. To capitalise on the power of embedded intelligence in Technosoft Drives and on the extreme flexibility of Technosoft Motion Language (TML), Technosoft introduces the TML\_LIB libraries for its Intelligent Servo Drives and Motors family.

TML\_LIB\_X20 is a collection of functions and function blocks that allow you to implement motion control applications on a B&R PLC, in order to run our MotionChip™ technology-based Intelligent Drives.

The library allows you to focus on the main aspects related to your specific application, and to easily use the drive and execute motion commands, by calling appropriate functions from the library. Its components are built using IEC61131-3 programming languages according with the guidelines described in the PLC standards for motion control. Beside the functions presented in this standard, the library also contains functions which implement specific features found on our drives.

The powerful motion control features of Technosoft Intelligent Drives / Motors are based on their high-level programmability in Technosoft Motion Language, a common programming platform for all these drives. TML\_LIB\_X20 offers you access to TML functionality, without the need to use the TML commands. To some extent, TML\_LIB\_X20 as compared to TML is similar to programming in high-level languages, as compared to the assembly language.



### FEATURES

- Function blocks interface and functionality complying to the PLC standards for motion control
- Supports new motion modes and features of Technosoft Drives / Motors
- Easy to embed in existing Automation Studio projects
- Works with X20 System PLCs
- Can control all Technosoft Drives / Motors via CAN interface

### HARDWARE REQUIREMENTS

In order to use TML\_LIB\_X20 you must have the following minimal hardware configuration:

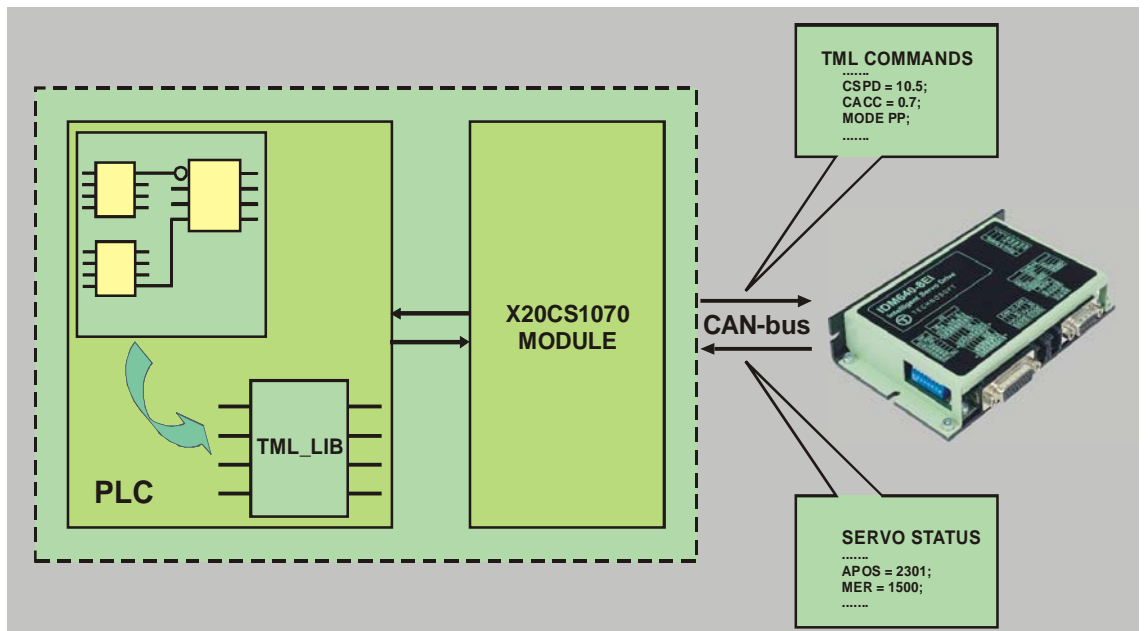
- One or more Technosoft Intelligent Drives / Motors connected through a CAN-bus
- An X20 System PLC to control Technosoft Drives / Motors
- An X20CS1070 module to interface the PLC with the CAN-bus network

### SOFTWARE REQUIREMENTS

The software required for implementing an application in the previous configuration consists of:

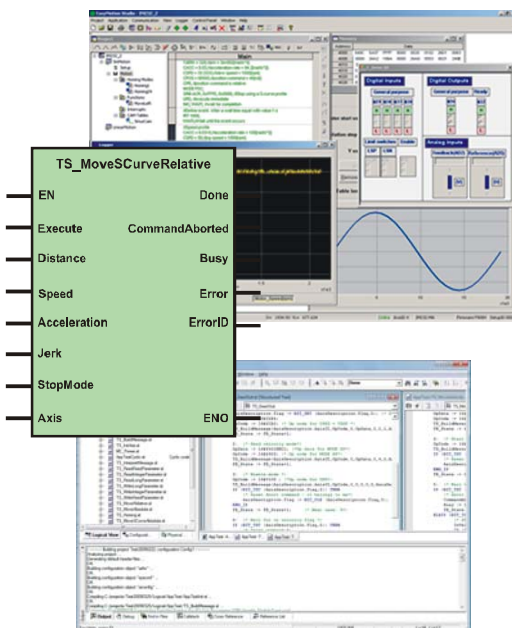
- TML\_LIB\_X20 library for the control of Technosoft Drives / Motors from a B&R PLC
- EasyMotion Studio for configuration and tuning of Intelligent Drives / Motors
- Automation Studio v3.0 SP3 for PLC hardware configuration and programming

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## TML\_LIB\_X20 FUNCTION BLOCKS

	Function block	Descriptions
Motion	TS_MoveAbsolute	Commands an absolute positioning with trapezoidal speed profile to the selected axis
	TS_MoveRelative	Commands a relative positioning with trapezoidal speed profile to the selected axis
	TS_MoveSCurveAbsolute	Commands an absolute positioning with an S-curve profile for speed, and with trapezoidal profile for acceleration
	TS_MoveSCurveRelative	Commands a relative positioning with an S-curve profile for speed, and with trapezoidal profile for acceleration
	TS_MoveVelocity	Commands a trapezoidal speed profile to the selected axis
	TS_MovePVT	Sets the motion mode PVT and sends PVT points to the selected axis
	TS_ExternalAnalogue	Enables the drive on selected axis to use external analogue reference
	TS_ExternalDigital	Enables the drive on selected axis to use external digital reference when position control is performed
	TS_ExternalOnLine	Enables the drive on selected axis to use external reference received via a CAN-bus
	TS_GearIn	Configures and activates electronic gearing mode between Technosoft drives
	TS_GearOut	Disengages the slave axis from master axis in electronic gearing mode
	TS_Cam In	Configures and activates electronic camming mode between Technosoft drives
	TS_Cam Out	Disengages the slave axis from master axis in electronic camming
	TS_STOP	Commands a stop motion to the selected drive
TS_AxisInit	Initializes drive's parameters for messages sent automatically by the drive	
Administrative	TS_POWER	Enables/disables the power stage of the drive on the selected axis
	TS_ReadStatus	Returns the axis state
	TS_ReadActualPosition	Requests the actual position from the selected axis and returns the value of actual position
	TS_WriteLongParameter	Writes a long-type value in the specified location on the selected axis
	TS_WriteFixedParameter	Writes a fixed-type value in the specified location on the selected axis
	TS_WriteIntegerParameter	Writes an integer-type value in the specified location on the selected axis
	TS_ReadLongParameter	Reads the value a long-type variable from the selected axis
	TS_ReadFixedParameter	Reads the value a fixed-type variable from the selected axis
	TS_ReadIntegerParameter	Reads the value an integer-type variable from the selected axis
TS_Cam TableSelect	Selects the active cam table for electronic camming	
Comm	TS_Build Message	Receives data from function blocks and builds the CAN message
	TS_Interpret Message	Interprets and saves data from received messages for each axis



### Ordering Information

P034.001.E002	EasyMotion Studio software
P040.001.E321	TML_LIB_X20 for B&R PLC

### TECHNOISOFT PRODUCTS

Intelligent Servo Drives / Motors compatible with TML\_LIB\_X20

IPS110	Microstep / DC Drive, 45V, 0.5A, CAN
PIM2401	Plug-in Control Module, 24V, 1A, CAN
PIM2403	Plug-in Control Module, 24V, 3A, CAN
ISCMxx05	Servo Modules, 48/80V, 5A, CAN
IPS210	Microstep / DC Drive, 24V, 0.5A, CAN
ISM4803	Servo Control Module, 48V, 3A, CAN
ISCMxx05	Servo Modules, 48/80V, 5A, DIN, CAN
IBL2401	Servo / Stepper Drive, 24V, 1A, CAN
IBL2403	Servo / Stepper Drive, 24V, 3A, CAN
IBL3605	Servo / Stepper Drive, 36V, 5A, CAN
IDM240	Servo / Stepper Drive, 48V, 5A, CAN
IDM640	Servo / Stepper Drive, 80V, 8A, CAN
IDM680	Servo / Stepper Drive, 80V, 8A, CAN
IDM3000	Servo / Stepper Drive, 325V, 10A, CAN
IM23x	Servo Motors Size 23, 0.1-0.3Nm, CAN
IS23x	Step Motors Size 23, 0.5-1.8Nm, CAN

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