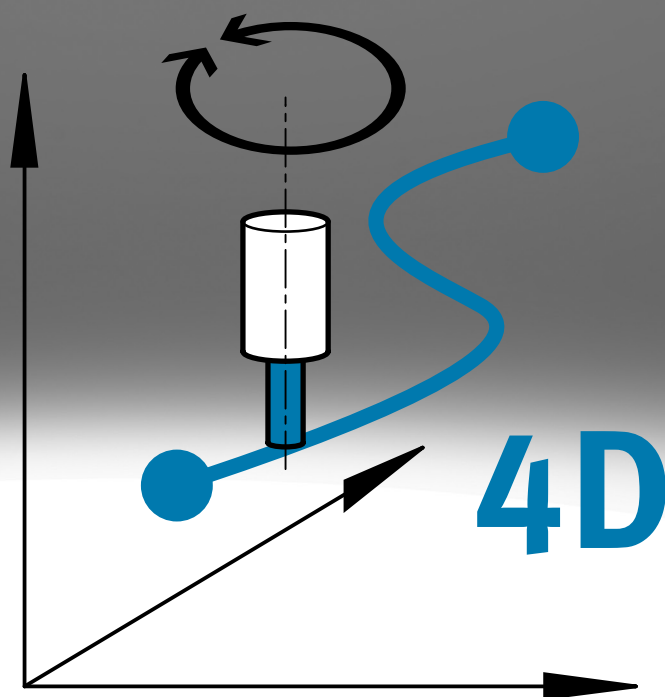
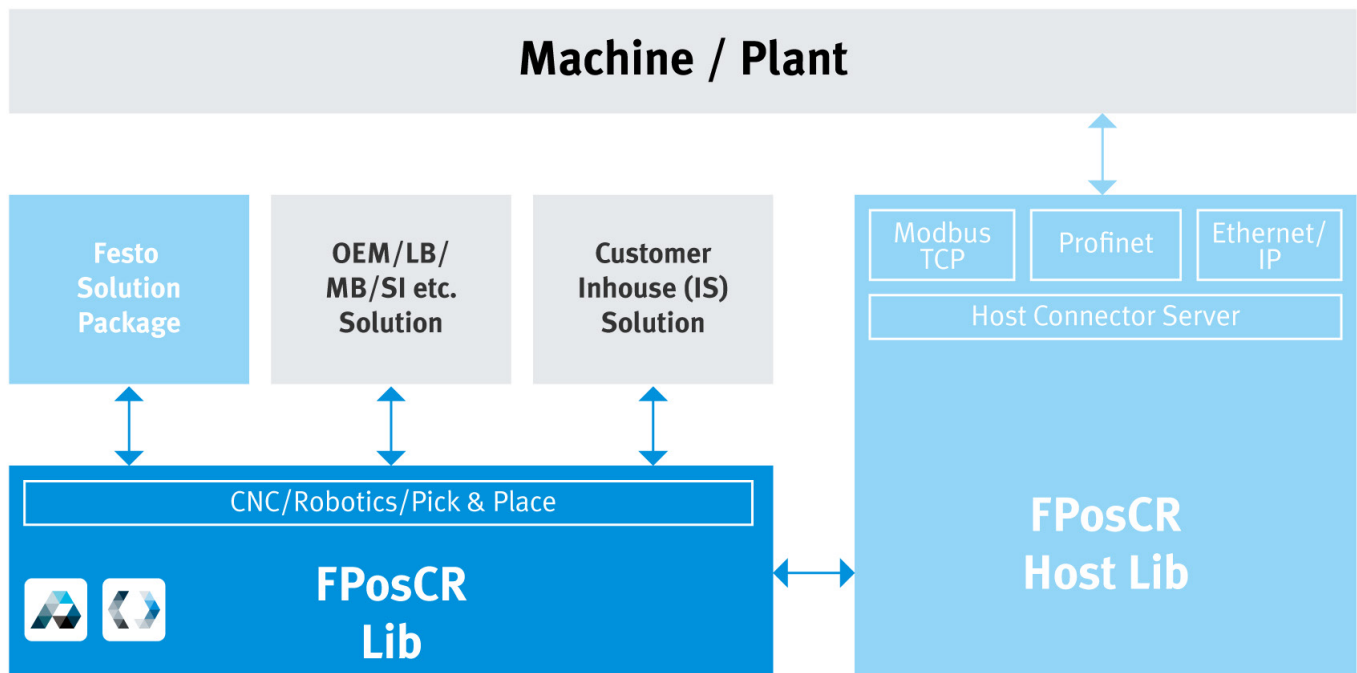




Characteristics

At a glance



The two software libraries Festo Positioning CNC Robotics Library (FPosCR Lib) and Festo Positioning CNC Robotics Host Connector Library (FPosCR Host Lib) offer helpful resources and tools for creating CNC, robotics and pick and place solutions. User-created application programmes enable effective and precise control of Cartesian handling/robot technology with electric drives and controllers from Festo.

The optional library FPosCR Host Lib also allows flexible integration into systems.

- Comprehensive pair of software programs from Festo for electric drives and controllers
- Versatile for CNC, robotics and pick and place applications
- Host interface for third-party controllers such as Beckhoff, Omron, Mitsubishi, Rockwell, Siemens
- Precise control of complex motion paths and space curves
- Flexible combination of functions and methods for customised solutions
- Easy integration of motion into customised program sequences
- Useful tools for implementing, commissioning, testing and analysis
- Practical tools: Status monitors, motion cockpits, CNC editor, path view
- User-friendly, even for beginners in CNC or robotics technology

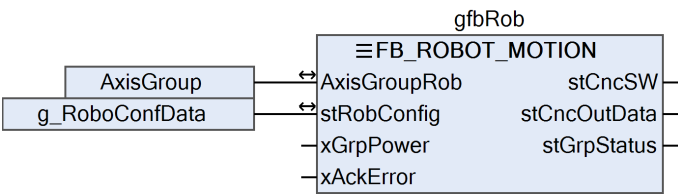
Type code

001	Series	
GSBE	Edge	
002	Variant	
R1	Festo AX Controls Festo Positioning CNC Robotics	
R2	Festo AX Controls Festo Positioning CNC Robotics Host Connectivity	

003	Type of licence	
P	Perpetual	
004	Licence term	
	No time limit	

Datasheet

Overview GSBE-R1



The Festo Positioning CNC Robotics Library (FPosCR Lib) is a powerful software library tailored to the hardware and control portfolio from Festo. It facilitates the precise control of multi-axis CNC and robotic movements on controller series or programmable logic controllers (PLCs) from Festo (e.g. on AX Controls CEPE-...-M1 or CPX-E-...-M1-...). It has been designed for 3+1 interpolating main axes and 2 separate auxiliary axes and enables complex, continuous motion sequences, from simple pick and place tasks to dynamic 3D paths in free space. The comprehensive set of tools for programming, visualisation and diagnostics supports application engineers and developers with quick implementation of demanding motion tasks.

Integrating the FPosCR library functions in an application program:

- The function block FB_ROBOT_MOTION is the main function block of the library FPosCR Lib. It combines all functions, methods and commands for the movements as well as their control and monitoring.
- Thanks to its compact yet powerful input/output interfaces, the motion range of an application can be effectively mapped with significantly reduced programme code (IEC61131 3).

General technical data – GSBE-R1

Licence type	Perpetual
Software function classification	Motion
Software functionality	User software library (CODESYS) Movement on Cartesian handling systems/robots CNC CNC editor Corporate Procedure Editors Function blocks G-code (CNC) Coordinate transformation (robotics) LIN Methods PTP Path view (CNC) Path view (robotics) Pick & place Robotic U-pick WebUI
Min. required version	CODESYS 3.5 SP18 Patch 4
Min. operating system version	CODESYS 3.5 SP18 Patch 4
Available languages in the user interface	English
Required storage space	0.025 GB
Licence package	1 asset

User interface/web visualisation – GSBE-R1

The web visualisation (UI) included in the library FPosCR provides support in all operating phases:

- System and movement configuration
- Commissioning/set-up
- Status monitoring/operation
- Event management/diagnostics

Datasheet

Suitable for the following products from Festo – GSBE-R1

The following products from Festo can be used together with this library:

Cartesian handling/robot technology:

- Linear gantries EXCT, YXCL, YXML
- Three-dimensional gantry YXCR, YXMR
- Cantilever system YXCA
- Planar surface gantry EXCH, EXCM, YXCF, YXMF

Controllers/PLC:

- CEPE-H8GB-128GB-M1
- CECC-X-M1
- CECC-X-M1-MV
- CECC-X-M1-MV-S1
- CPX-E-CEC-M1-PN
- CPX-E-CEC-M1-EP

Servo drive:

Integrated drive

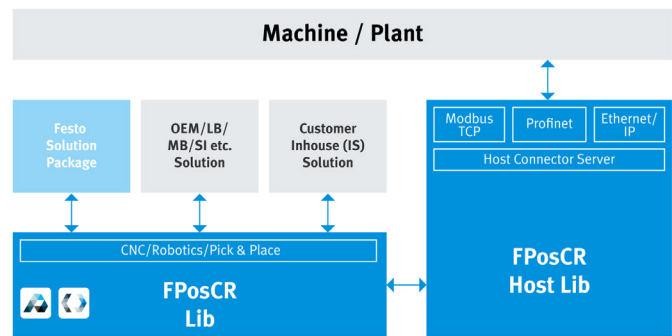
- EMCX-ST-42-L-7-C1-S-C0
- EMCX-ST-42-L-S-7-C1-S-C0
- EMCX-ST-42-L-S-7-C1-S-C0

Servo drive

- CMMT-AS-C12-11A-P3-MP-S1
- CMMT-AS-C18-11A-P3-MP-S1
- CMMT-AS-C2-11A-P3-EC-S1
- CMMT-AS-C2-11A-P3-MP-S1
- CMMT-AS-C2-3A-EC-S1
- CMMT-AS-C2-3A-MP-S1
- CMMT-AS-C25-11A-P3-MP-S1
- CMMT-AS-C3-11A-P3-MP-S1
- CMMT-AS-C4-3A-MP-S1
- CMMT-AS-C5-11A-P3-MP-S1
- CMMT-AS-C7-11A-P3-MP-S1
- CMMT-ST-C8-1C-EC-S0
- CMMT-ST-C8-1C-MP-S0

Datasheet

Overview GSBE-R2



The supplementary Festo Positioning CNC Robotics Host Connector Library (FPosCR Host Lib) provides a standardised, modular communication interface. It allows users to easily connect Festo kinematics, which have the library (FPosCR Lib) for CNC, robot technology and pick and place functionalities, to a higher-order controller.

Commercially available Ethernet-based fieldbus systems (network standards) are used as communication technologies.

For example:

- Modbus TCP for controllers from Festo
- Modbus TCP for controllers from Beckhoff
- PROFINET for controllers from Mitsubishi
- PROFINET for controllers from Siemens
- EtherNet/IP for controllers from Omron
- EtherNet/IP for controllers from Rockwell/Allen Bradley

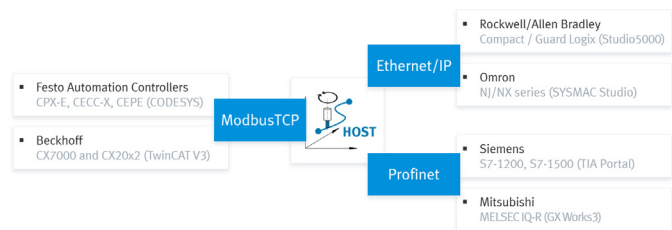
Data is exchanged between the controller equipped with the library (FPosCR Lib) on the handling unit or robot technology and a higher-order controller using the so-called client-server principle. The FPosCR Host communication server runs on the controller that has the FPosCR Lib on the handling unit or robot technology. The higher-order controller (e.g. system, line or machine controller) accesses this server via prepared client communication software modules/elements.

The combinations (network standard/higher-order controller (manufacturer/type)) for which client communication modules are currently available can be found on www.festo.com (in the ,Expert knowledge' (for the product) or ,Support' sections).

General technical data – GSBE-R2

Licence type	Perpetual
Software function classification	Connectivity
Software functionality	User software library (CODESYS) Basic group control Client EthernetIP Individual feature call Modbus TCP PROFINET Sequence call Server
Min. required version	CODESYS 3.5 SP18 Patch 4
Min. operating system version	CODESYS 3.5 SP18 Patch 4
Available languages in the user interface	English
Licence package	1 asset

Client function blocks - GSBE-R2



Festo provides suitable client function blocks for connecting to the FPosCR Host Lib in the form of application notes (as file containers). In addition to the client function block that is required for the higher-order controller to be connected, the selected file container contains an application description for the client module.

Among other things, suitable support kits (application note with file container) for the following combinations of higher-order controller (manufacturer/type) and network standard are available for easy download via www.festo.com.

Datasheet

Client support kits (application note with file container) – GSBE-R2

Client library for Festo

- Name: FPosCR_Host_Client
- Network standard: Modbus TCP
- Client controller: CPX-E-CEC-M1-..., CECC-X-...
- Engineering tool: Codesys

Client library for Beckhoff

- Name: FPosCR_Host_Client_MB
- Network standard: Modbus TCP
- Client controller: CX Series, (tested with CX20x0 and CX7000)
- Engineering tool: TwinCAT V3

Client library for Mitsubishi

- Name: FPosCR_Host_Client_PN
- Network standard: PROFINET
- Client controller: C_CMM_(IQ-R)
- Engineering tool: GX Works3

Client library for Omron

- Name: FPosCR_Host_Client_EP
- Network standard: EtherNet/IP
- Client controller: NJ Series, NX Series
- Engineering tool: SYSMAC Studio

Client library for Rockwell

- Name: FPosCR_Host_Client_EP
- Network standard: EtherNet/IP
- Client controller: Compact Logix, Guard Logix
- Engineering tool: Studio 5000 V21 (or higher)

Client library for Siemens

- Name: FPosCR_Host_Client_PN
- Network standard: PROFINET
- Client controller: S7-1200, S7-1500
- Engineering tool: TIA Portal V14 (or higher)

Ordering data

GSBE-R1-P					
Additional article description	Type of software	Licence type	Software function classification	Part no.	Type
Library	Device application	Perpetual	Motion	8232417	GSBE-R1-P

GSBE-R2-P					
Additional article description	Type of software	Licence type	Software function classification	Part no.	Type
Host Connector Library	Device application	Perpetual	Connectivity	8232420	GSBE-R2-P