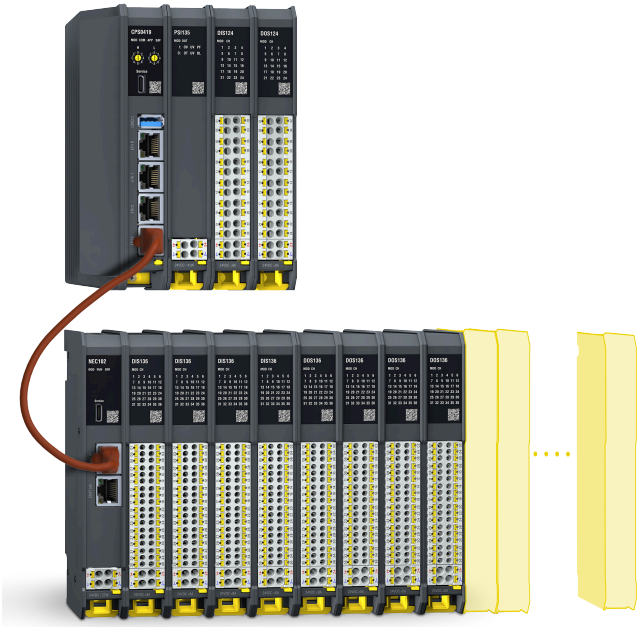


EtherCAT®



Possible topology: EtherCAT

EtherCAT® MainDevice

The EtherCAT® MainDevice for the M100 controller is a pure software solution and uses an Ethernet port on the controller CPU. Cyclic data automatically exchanged with SubDevices is automatically available in the control system as process variables and is as easy to use as data from local input and output modules. Library blocks for PLC and C/C++ allow application software to access acyclic data.

Distributed Clocks precisely synchronize the software on the controller with the EtherCAT® bus, providing the basis for demanding control tasks. Standard Ethernet traffic to SubDevices – for example, access to a servo drive's web server – can also be transmitted via Ethernet over EtherCAT® (EoE) in parallel over the same connection. The M100 controller routes packets from the service PC directly to the EtherCAT® SubDevice. File over EtherCAT (FoE) also enables straightforward file transfers to SubDevices, for example for firmware updates.

Configuration, commissioning, and testing are fully integrated into the software and easily accessible through a web browser. M100 family SubDevices can be fully configured through their module properties. Description files for other SubDevices are managed directly in the project. PDO mapping is generated automatically and can be adjusted manually as needed. Cyclic data can be viewed and tested immediately without additional programming. An SDO monitor also provides read and write access to additional service data. File transfers are conveniently handled through a dialog.

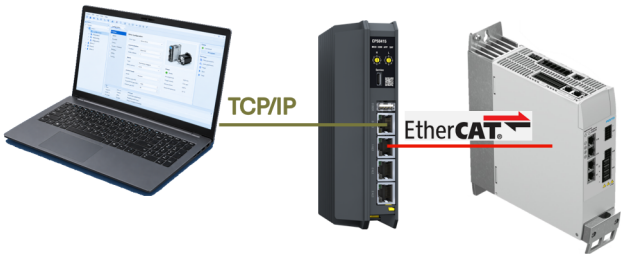
Monitoring and diagnostics are also efficiently supported: EtherCAT® MainDevice can start even if the configuration does not match. After a new bus scan, SolutionCenter clearly displays any discrepancies, making troubleshooting easier. For modular machines, EtherCAT® SubDevices can also be defined as optional nodes.

EtherCAT® MainDevice

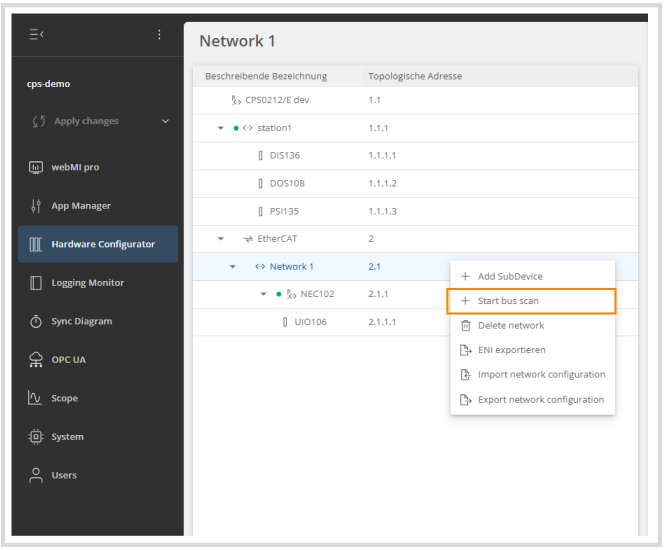
- Software solution for use on M100 processor modules
- Operation of two independent EtherCAT networks on two Ethernet ports
- SubDevice addressing via auto-increment or an alias address
- Assignment and verification of alias addresses
- Support for SubDevices with Distributed Clocks
- Synchronization of application programs with the fieldbus
- Cyclic data exchange via PDO mapping
- Display of process values in the controller's variable pool
- Acyclic data exchange for application programs via an SDO function interface
- Comprehensive diagnostics via system variables
- Quality assured through regular participation in ETG Plug Fests

EtherCAT® Configurator

- Integrated into the M100 Web Configurator; accessible through a web browser without installing additional tools
- Easy creation of an online configuration through a bus scan
- Creation of an offline configuration by selecting SubDevices from a catalog
- Management of standard-compliant ESI files in the catalog
- Monitors for process data, SDO access, reading and setting of alias addresses
- Dialog boxes for file transfers
- Support of optional nodes
- SubDevices can be added, removed, and reordered after initial configuration
- Targeted identification of configuration errors through repeated bus scans, even when faults occur
- All diagnostic capabilities also available via remote maintenance across network boundaries
- Configuration archiving through export and import functions



Application example: Ethernet over EtherCAT (EoE)



Fieldbus configuration in the browser