

PROFINET and EtherNet/IP in tiastar motor control centers



The easiest connections to the smartest controllers

tiastar motor control centers

Siemens tiastar motor control centers (MCC) deliver exceptional performance, a range of powerful options, and the extraordinary convenience and robust capabilities of PROFINET and EtherNet/IP connectivity.



Siemens tiastar MCCs enjoy a massive global installed base for a host of reasons:

- Ruggedness and reliability
- Arc resistance UL-witnessed IEEE C37.20.7 tested
- Available with integrated drives compliant to IEEE 519 requirements
- Energy management for optimized power consumption
- Advanced diagnostics for asset management and protection
- Redundant control ensures continuous production
- Space saving design; high density and reduced footprint
- Excellent component selection
- Simplicity in adding special components
- Ease of future modifications
- Reduced time needed for installation and startup
- The global resources of Siemens support and service.

Now tiastar MCCs are available preconfigured for PROFINET and EtherNet/IP connectivity.



Ethernet cabling installed in each tiastart MCC is industrially hardened, shielded, and 600 V rated.

PROFINET and EtherNet/IP – The global standards

PROFINET and EtherNet/IP are the leading industrial Ethernet protocols with millions of devices installed from a wide range of product vendors ensuring the long-term viability of today's installations. While PROFINET and EtherNet/IP use the same Ethernet as offices and IT departments around the world, their capabilities are enhanced significantly in order to meet the higher standards and environmental challenges of industrial applications.

Maintenance and servicing of Ethernet devices, like the tiastar MCC, is now possible from anywhere in the world via the internet. Network communication down to the individual MCC cubicle level allows unprecedented control, protection, and monitoring capabilities via familiar, Ethernet-based communication networks. The result of Ethernet's efficiency means optimal use of available user resources, and a significant increase in plant availability.

Features include:

- Suitable for harsh industrial environments
- Integrated safety function
- Flexible topologies
- Device communication, control, and diagnostics
- Deterministic, high-speed communication ideal for critical data and I/O exchange
- No network device or data limits
- Wire, fiber-optic, and wireless
- Support of redundancy systems.





PROFINET and EtherNet/IP in tiastar motor control centers

EtherNet/IP combines time-tested and proven field bus capabilities with the familiarity, speed, and openness of industrial Ethernet. Multiple communication services ensure that time-critical I/O communication is not compromised by large volumes of non-critical data, such as device parameters and/or diagnostic information.

One of the most important advantages involves built-in web pages that allow real-time access to vital status, diagnostic and monitoring data – from any remote location – without the need for product specific software.

Choice of topology options

tiastar MCCs with PROFINET and EtherNet/IP communication can be supplied with star or redundant-ring network topologies. Because the PROFINET and EtherNet/IP communication protocols are provided on the individual communicating devices, no additional communication devices, such as protocol converters, or adapters are required. Redundant-ring topology is possible due to dual ports and integral network switches on each communicating device. Due to the compartmentalized construction of MCCs, a star-network topology provides the most operational flexibility when individual MCC units are removed from service. SCALANCE industrially hardened, unmanaged, and managed Ethernet switches can be provided in the MCC to facilitate various network topology options.





PROFINET and EtherNet/IP components in tiastar MCCs



Motor management system

SIMOCODE proV motor management system with PROFINET and EtherNet/IP provides intelligent control and monitoring options for motor starter, contactor, and feeder units. An optional door-mounted operator panel with display allows for local control and monitoring of all status, warning, fault, measured values, maintenance, and diagnostic data. Additionally, motor overload settings can be set through the operator panel.

Features include:

- SIMOCODE proV base unit with four inputs and three outputs (expandable to 12 inputs and seven outputs)
- Modular current and current/voltage measuring modules allow direct monitoring of loads up to 630 A
- PTC binary-thermistor input
- Internal ground-fault protection
- Zero-sequence, ground-fault protection (optional)
- Temperature inputs up to six sensors (optional)
- Analog inputs up to four inputs and two outputs (optional)
- Safety module DM-F Local (optional).



PROFINET and EtherNet/IP components in tiastar MCCs



Solid-state starters

Our 3WR44 reduced-voltage, solid-state starters provide reduced-voltage starting of ac motors up to 900 HP. Also, they are compatible with the optional door-mounted operator panel with display.

Features include:

- Four programmable digital inputs and four programmable relay outputs
- Configuration and control via Ethernet communication with proper password authorization
- Communicated status, maintenance and diagnostic information
- Voltage ramp, torque control, and breakaway pulse starting configurations
- Pump stop and torque-controlled stop configuration.



Variable frequency drives (VFDs)

The G120 VFDs allow variable speed control and monitoring of ac motors, up to 350 HP in tiastar MCCs.

Features include:

- 11 programmable digital inputs and three programmable relay outputs
- Programmable analog inputs and two programmable analog outputs
- PTC binary input
- Basic operator panel (BOP) allows easy VFD configuration and transfer of VFD operating parameters from one VFD to another (optional)
- Fail-safe inputs (optional)
- Safe torque off function (optional)
- Integral part of Totally Integrated Automation with interfaces for PROFINET and EtherNet/IP.

Access power monitoring

SENTRON PAC3200 power meter:

- Complete power and power-quality monitoring
- Revenue accuracy
- Six programmable limits
- One programmable digital input
- One programmable digital output.
- SENTRON PAC4200 power meter:
- Complete power and power-quality monitoring
- Revenue accuracy
- Harmonics monitoring up to 31st harmonic
- 12 programmable limits
- Two programmable digital input (expandable to 10 digital inputs)
- Two programmable digital output (expandable to six digital outputs)
- Event logging and time stamping of up to 4,096 events.

PROFINET and EtherNet/IP, tiastar MCC, and Siemens

Whichever tiastar MCC is the preferred match for your application, the engineering efficiency of PROFINET and EtherNet/IP is easily configured and managed through PCS7 TIA Portal software, which means faster commissioning, optimized power consumption, improved safety, enhanced reliability, and effortless expandability.

If plant uptime is critical, no solution is more rugged or easier to integrate. One cable works for every purpose and facilitates rapid device replacement, which assists your productivity in the future.

Call Siemens today - we have answers for industry.







Siemens Industry, Inc. 7000 Siemens Road Wendell, NC 27591

For more information, please contact our Customer Support Center. Phone: +1 (800) 333-7421 info.us@siemens.com

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