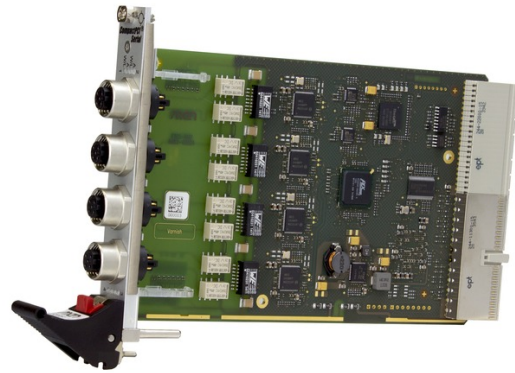


F305 – 3U CompactPCI Quad Fast Ethernet Interface

- 4 HP 32-bit/33-MHz CompactPCI
- 4 Ethernet channels, 100 Mbit/s
- Real-time Ethernet capability
- Optical isolation from other cards
- Full EN 50155 compliance
- -40 to +85°C qualified
- Conformal coating
- For rolling stock and wayside applications



Fast Ethernet for Railway Applications

The F305 is a 3U CompactPCI 100-Mbit/s networking controller with a strong focus on railway applications. It comes in a compact 4 HP, one-slot width even with its rugged M12 connectors.

The card provides four Fast Ethernet channels, supporting full-duplex or half-duplex with 10BASE-T and 100BASE-TX physical layers for distances up to 100 m.

As an assembly option, the board is available with or without a real-time Ethernet controller and extended connectivity, making it scalable to system requirements.

Real-Time Ethernet for MTCS

The F305 has a special function as the real-time Ethernet component inside the controller of the [MEN Modular Train Control System](#). MTCS is a platform to perform safe train control functions, focusing on rolling stock applications like Automated Train Operation (ATO) or Automated Train Protection (ATP). It usually consists of the [MH50C MTCS controller system](#) and safe remote I/O boxes.

Ring Topology

The distributed MTCS subsystems are connected via RT Ethernet in ring topology, which tolerates single

failures. For example, in case of a broken cable, the entire system is still fully operational, as all MTCS subsystems can still be reached from the other end of the ring. The F305 offers the capability of short-connecting two front channels. This is done by the host via software.

Access to System-Internal MTCS I/O Cards

In MTCS systems the F305 has a direct link to I/O cards on the same backplane, using the MTCS EBUS, power supply, and address lines. As the F305 itself has no special safety mechanisms and certification, the board must be considered as a black channel.

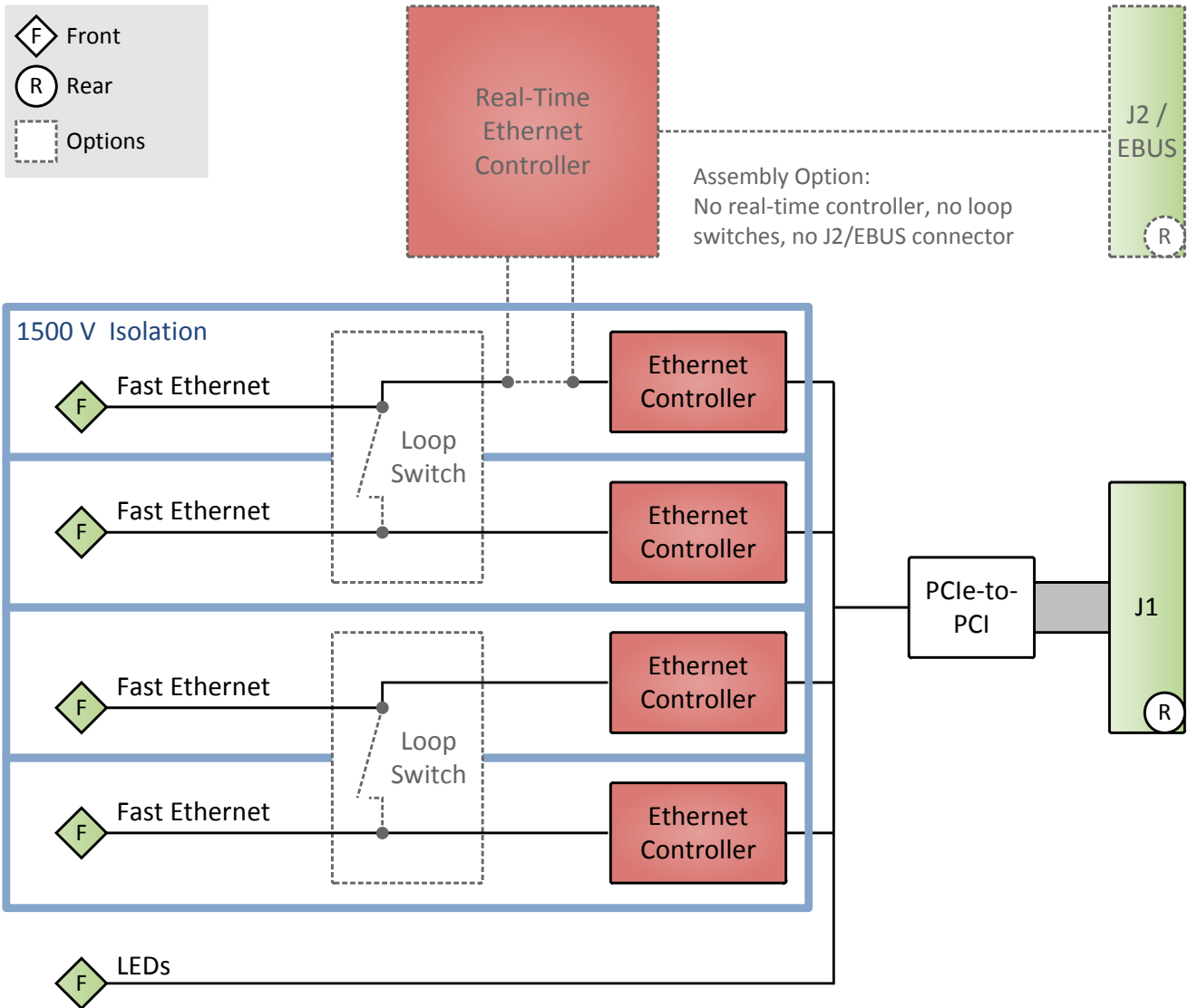
EN 50155 Rolling Stock and EN 50121-4 / EN 50125-3 Wayside Compliance

The F305 was fully designed to meet the requirements both for vehicle and wayside applications. Its operating temperature complies with the class TX specifications of -40 to +70 °C (10 minutes up to +85 °C).

Standard boards include conformal coating.

Along with its railway standard compliance and long-term availability of a minimum 10 years, the F305 is a rail-ready component, saving time to market and costs.

Diagram



Technical Data

Front Interfaces	<ul style="list-style-type: none"> ■ Ethernet <ul style="list-style-type: none"> □ Four M12 connectors, 100BASE-T (100 Mbit/s) □ Two link and activity LEDs per channel □ Channel 1/2 and channel 3/4 can be software-switched to form a loop; optional
Rear Interfaces	<ul style="list-style-type: none"> ■ EBUS; optional <ul style="list-style-type: none"> □ Two real-time Ethernet channels, ETG.1000 ■ MTCS; optional <ul style="list-style-type: none"> □ Slot ID and chassis ID
Backplane Standard	<ul style="list-style-type: none"> ■ CompactPCI Core Specification PICMG 2.0 R3.0 <ul style="list-style-type: none"> □ Peripheral slot □ 32-bit/33-MHz CompactPCI bus □ V(I/O): +3.3 V (+5 V tolerant) ■ ETG.1000 EBUS; optional
Electrical Specifications	<ul style="list-style-type: none"> ■ Supply voltages <ul style="list-style-type: none"> □ +5 V (-5%/+5%) □ +3.3 V (-5%/+5%) ■ Power consumption <ul style="list-style-type: none"> □ +5 V: tbd. A typ., tbd. A max. □ +3.3 V: tbd. A ■ Isolation voltage <ul style="list-style-type: none"> □ 1500 V AC
Mechanical Specifications	<ul style="list-style-type: none"> ■ Dimensions: 3U, 4 HP
Environmental Specifications	<ul style="list-style-type: none"> ■ Classification for railway applications <ul style="list-style-type: none"> □ EN 50155: Rolling stock, vehicle body □ EN 50125-3: Wayside, at least 3 m off the track inside a switch box ■ Temperature range (operation): <ul style="list-style-type: none"> □ -40°C to +85°C (qualified components) (EN 50155, class TX; EN 50125-3, low temp. class T2, high temp. class TX) ■ Cooling concept <ul style="list-style-type: none"> □ Air-cooled, natural convection ■ Temperature range (storage): -40..+85°C ■ Humidity <ul style="list-style-type: none"> □ EN 50155: Rolling stock, vehicle body □ EN 50125-3: Wayside, at least 3 m off the track inside switch box ■ Vibration/Shock <ul style="list-style-type: none"> □ EN 50155: Rolling stock, vehicle body class B □ EN 50125-3: Wayside, at least 3 m off the track ■ Altitude: -300 m to +3000 m ■ Conformal coating
Safety	<ul style="list-style-type: none"> ■ Electrical Safety <ul style="list-style-type: none"> □ EN 50155: Rolling stock, vehicle body ■ Flammability <ul style="list-style-type: none"> □ UL 94V-0 ■ Fire Protection <ul style="list-style-type: none"> □ EN 45545
EMC	<ul style="list-style-type: none"> ■ EN 50155: Rolling stock, vehicle body ■ EN 50121-4: Wayside at least 3 m off the track
Software Support	<ul style="list-style-type: none"> ■ Windows ■ Linux ■ QNX ■ For more information on supported operating system versions and drivers see Software.

**Up-to-date information,
documentation and
ordering information:**
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