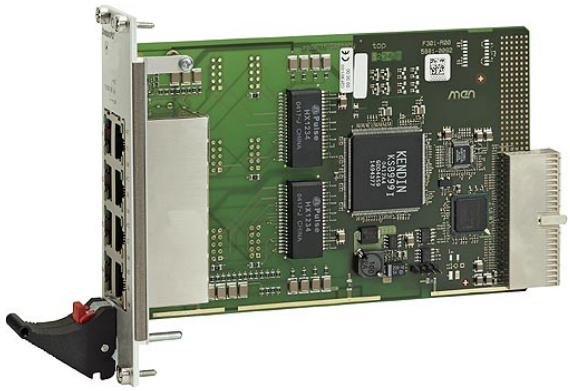
F301 – 3U CompactPCI® Industrial Ethernet Switch

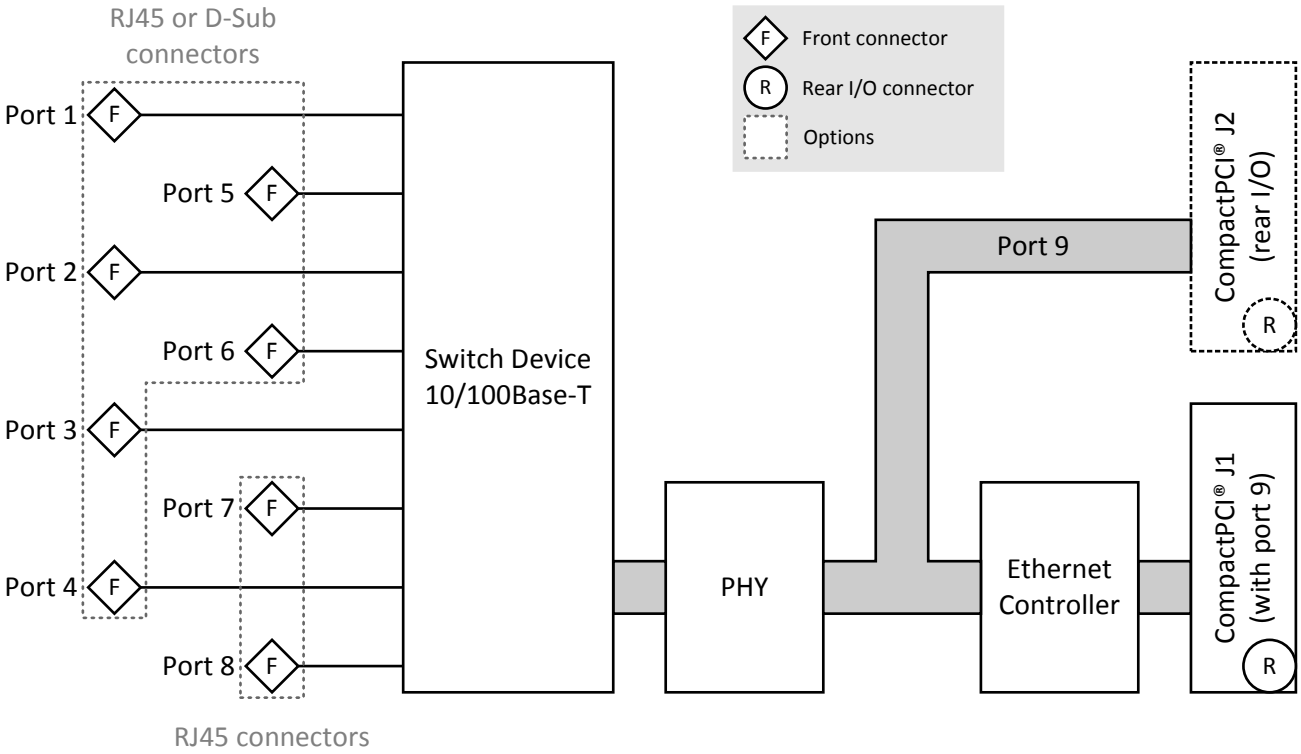
- **Unmanaged 8+1-Port rugged Ethernet switch**
- **8 HP 32-bit/33-MHz CompactPCI®**
- **8 Fast Ethernet ports (front)**
- **1 Fast Ethernet controller (rear J1)**
- **Option: 1 Fast Ethernet port (rear J2)**
- **-40 to +85°C with qualified components**



The F301 is an unmanaged 3U Fast Ethernet switch module with a maximum of 8 channels at the front panel (8 RJ45 or 6 D-Sub connectors) and an integrated Fast Ethernet controller. The Ethernet switch is an unmanaged device, meaning that it is not recognized by other CompactPCI® devices thereby removing the need for additional software. As an option it is also available as a fixed managed device, with a customized, hardware-coded configuration.

An onboard Ethernet controller is used to realize the interface to the CompactPCI® bus. The F301 also works without the Ethernet controller being assembled. In this case the CompactPCI® bus only delivers the power supply. As an option (with the Ethernet controller not being assembled) the J2 connector can be assembled and used to manage the rear I/O Ethernet signals from the ninth Ethernet port.
The F301 is specifically designed for rugged mobile communication systems. It is thus, for example, fully compliant with the EN 50155 railway standard. All components on the board are specified for a -40 to +85°C operation temperature. The board is ready for coating.
The F301 needs one slot on the CompactPCI® bus, using a 4 HP or 8 HP front panel.

Diagram


RJ45 or D-Sub connectors
Port 1
Port 5
Port 2
Port 6
Port 3
Port 7
Port 4
Port 8
F
RJ45 connectors
Switch Device 10/100Base-T
PHY
Ethernet Controller
Port 9
Front connector
Rear I/O connector
Options
R
CompactPCI® J2 (rear I/O)
CompactPCI® J1 (with port 9)

Technical Data

Key Features	■ High-speed non-blocking, store-and-forward switching ■ Up to eight 10/100Base-T ports at front panel ■ One 10/100Base-T port at rear connector (J1 or J2) ■ Port configuration: copper, 10/100 Mbit/s ■ Auto-negotiation / Auto MDI/MDIX crossover on all ports ■ Layer2-based Policy Control List ■ 1K MAC address lookup table with automatic learning and aging ■ Nine MAC units with integrated Layer 2 switch ■ Layer 2 routing management ■ Port speed autodetection (10/100Mbit/s) ■ Fixed managed operation via strapping or EEPROM at system reset time (option) □ 802.1p priority and port based priority □ Port based VLAN □ Individual port forced modes (full duplex, 100Base-TX) when auto-negotiation is disabled
Supported Protocols and Standards	■ Ethernet flow control (IEEE 802.3x) ■ Link aggregation LACP / EtherChannel (IEEE 802.3ad, 2005) ■ Priority-based switching, Quality of Service/DiffServ, tagged frames, Layer2-based 801.1Q VLAN-ID packet routing (IEEE 802.1p) ■ Port-based authentication on registered MAC Address Lists ■ TCP/IP v4 and v6 ■ VLAN/port-based VLANs GVRP/MVRP (IEEE 802.1Q Rev D5.0, 2005)
Front I/O	■ Up to eight Ethernet ports via RJ45 connectors or up to six ports via D-Sub connectors ■ Up to 18 link and activity Ethernet status LEDs (two per channel, incl. nineth port)
Rear I/O	■ One 10/100Base-T port via J2 (option)
CompactPCI® Bus	■ Compliance with CompactPCI® Specification 2.0 R3.0 ■ Only one slot required on the 3U CompactPCI® bus ■ Peripheral slot ■ Compliance with PCI Specification 2.1 ■ 32-bit/33-MHz PCI-to-PCI bridge ■ V(I/O): +3.3V or +5V (Universal Board)
Electrical Specifications	■ Supply voltage/power consumption: □ +5V (-3%/+5%), 1200mA max., 3W □ +3.3V (-3%/+5%), 400mA max.
Mechanical Specifications	■ Dimensions: conforming to CompactPCI® specification for 3U boards ■ Weight: 200g
Environmental Specifications	■ Temperature range (operation): □ -40..+85°C □ Airflow: min. 10m³/h ■ Temperature range (storage): -40..+85°C ■ Relative humidity (operation): max. 95% non-condensing ■ Relative humidity (storage): max. 95% non-condensing ■ Altitude: -300m to + 3,000m ■ Shock: 15g/11ms ■ Bump: 10g/16ms ■ Vibration (sinusoidal): 2g/10..150Hz ■ Conformal coating on request
MTBF	■ 442 000 h @ 40°C (derived from MIL-HDBK-217F)
Safety	■ Flammability □ PCB manufactured with a flammability rating of 94V-0 by UL recognized manufacturers

Technical Data

EMC Conformity	■ EN 55022 (radio disturbance) ■ EN61000-4-2 (ESD Immunity) ■ IEC 61000-4-4 (burst)
Software Support	■ No software required except driver for 82551ER Fast Ethernet controller (9th port at rear J1)

Configuration & Options

Standard Configurations

Article No.	Channels	Connector	Front Panel	Operation Temperature
02F301-00	8+1	RJ45	8 HP	-40..+85°C

Options

Ethernet Switch	■ Channels: □ 3 or 6 □ 4 or 8 □ 9th port ■ No Ethernet controller □ CompactPCI® bus only used for power supply ■ Fixed managed version □ With fixed configuration according to customer requirements
CompactPCI® J2	■ For 9th Ethernet port ■ Without use of Ethernet controller
Front Connectors / Mechanical	■ RJ45 connectors □ 8 HP (2-slot) front panel with 8 channels or 4 HP (1-slot) front panel with 4 channels ■ 9-pin D-Sub connectors □ 8 HP (2-slot) front panel with 6 channels
Cooling Concept	■ Also available with conduction cooling in MEN CCA frame

Please note that some of these options may only be available for large volumes. Please ask our sales staff for more information.

Ordering Information

Standard F301 Models	**02F301-00**	Unmanaged Switch with 8 Fast Ethernet ports, 1 Fast Ethernet controller, 8HP, -40..+85°C with qualified components
Software: Miscellaneous	For a comprehensive driver package supporting the 82551ER controller, please refer to www.intel.com.	
For operating systems not mentioned here contact MEN sales.		
Documentation	Compare Chart 3U CompactPCI® / PlusIO CPU cards » Download	
	Compare Chart 3U CompactPCI® / PlusIO peripheral cards » Download	
	Compare Chart Industrial Ethernet switches for different platforms » Download	
	20F301-00	F301 User Manual

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