Media Converter
10Base-FL /10Base-T

MICROSENS

The MICROSENS 10Base-FL / 10Base-T media converter allows to connect twisted pair cables (10Base-T) with fibers (10Base-FL) in an Ethernet network (IEEE 802.3).

Due to the direct coupling it is possible to extend existing twisted pair cables over the limit of 100 m.

The advantage of the repeaterless conversion between the media is, that the use of media converters gives no further limitation regarding the maximum number of repeaters in a network.

The link status of each segment is forwarded by the converter (Link Through), that means in case of a missing link on the fiber side no link is generated on the copper side and vice versa.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

The converter is also available as an insertion module for the mounting into the modular 19" media converter system.

Technical Specifications

Type	Media Converter 10Base-FL / 10Base-T
Connectors	1 x RJ45-connector 2 x ST/SC-connector 1 x power supply jack 2.1 mm
Fiber type	Multimode fiber, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Max. fiber length	MM: 2 km, SM: 20 km (FD)
Max. cable length	approx. 100 m
LED displays	Power, Receive, Transmit, Link, Polarity, Jabber

Order Information

Part-no.	Description	Connectors
MS410501	10Base-FL / 10Base-T Multimode 850nm	1 x RJ45 2 x ST
MS410601	10Base-FL / 10Base-T Multimode 850nm	1 x RJ45 2 x SC
MS410101	10Base-FL / 10Base-T Single Mode 10 km	1 x RJ45 2 x ST
MS410104	10Base-FL / 10Base-T Single Mode 20 km	1 x RJ45 2 x ST

Media Converter 10Base-FL /10Base-2

MICROSENS

The MICROSENS 10Base-FL / 10Base-2 media converter allows to connect coaxial cables (10Base-2) with fibers (10Base-FL) in an Ethernet network (IEEE 802.3).

Due to this direct coupling it is possible to extend existing coaxial cables over the limit of 185 m.

The advantage of the repeaterless conversion between the media is, that the use of media converters gives no further limitation regarding the maximum number of repeaters in a network.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

There is no complete signal regeneration done, because the converter is working repeaterless.

The converter is also available as an insertion module for the mounting into the modular 19" media converter system.

Technical Specifications

Type	Media Converter 10Base-FL / 10Base-2
Connectors	1 x BNC-connector 2 x ST-connector 1 x power supply jack 2.1 mm
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 μm, 9/125 μm Single Mode, ST- or SC-connector
Max. fiber length	MM: 2 km, SM: 5 km
Max. cable length	approx. 185 m
LED displays	Power, Receive, Transmit, Fiber-Link, Collision
Power supply	Ext. supply 12 V DC / 5 VA
Dimensions	83 x 61 x 23 mm (w x d x h)

Order Information

Part-no.	Description	Connectors
MS410502	10Base-FL / 10Base-2 Multimode	1 x BNC 2 x ST
MS410102	10Base-FL / 10Base-2 Single Mode	1 x BNC 2 x ST

Fast Ethernet Media Converter 100Base-FX / TX

MICROSENS

The MICROSENS Fast Ethernet media converter allows the direct connection of twisted pair to fiber segments in an Fast Ethernet network.

Due to the direct coupling it is possible to extend existing twisted pair cables over the limit of 100 m.

The converter supports half, as well as full duplex connections. In full duplex mode distances of up to 2 km can be covered using multi-mode fiber. Using single mode fiber together with the full duplex mode distances up to 125 km can be realised.

The link status is forwarded by the converter („Link Through"), that means in case of a missing link on the fiber side there is no link generated on the copper side.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

The converter is also available as an insertion module for the mounting into the modular 19" media converter system.

Technical Specifications

Type	Fast Ethernet Converter 100Base-TX / 100Base-FX
Connectors	1 x RJ45 connector 2 x SC/ST connector
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Cable type	Shielded Twisted Pair cable, Cat. 5, 100 Ω
LED displays	Power, FX-Link, FX-Receive, TX-Link, TX-Receive, Fail

Order Information

Part-no.	Description	Connectors
MS410640	Fast Ethernet Converter Multimode 1300 nm	1 x RJ45 2 x SC
MS410641	Fast Ethernet Converter Multimode 1300 nm	1 x RJ45 2 x ST
MS410644	Fast Ethernet Converter Single Mode 1300 nm Laser, max. 15 km	1 x RJ45 2 x SC
MS410646	Fast Ethernet Converter Single Mode 1300 nm Laser, max. 40 km	1 x RJ45 2 x SC

Fast Ethernet Mini Bridge

MICROSENS

The MICROSENS Fast Ethernet mini bridge allows the conection of two Fast Ethernet segments according IEEE802.3u.

The mini bridge offers the conversion from half to full duplex as well as the connection from Ethernet to Fast Ethernet segments.

Due to the conversion to full duplex the length restriction of 412m for one Fast Eternet segment is eleminated. Using single mode fiber distances of more than 100 km can be covered.

Through the 10/100Base-TX port with autonegotiation it is possible to connect 10Base-T and 100Base-TX devices. Due to this the existing Ethernet devices can be integrated in Fast Ethernet networks.

An additional feature is the selffilter function of the mini bridge, which reduces the traffic between the connected segments.

Colour coded LEDs give status information about the bridge and can be used for network diagnostics.

Technical Specifications

Type	Fast Ethernet Bridge (IEEE 802.3u)
Packet throughput	148.800 packets/s, full wire sp.
Working principle	store and forward
Address capacity	16.000 addresses
Datarate	10/100 Mbit/s
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Cable type	Shielded Twisted Pair cable, Cat. 5, 100 Ω

Order Information

Part-no.	Description	Connectors
MS451800	Fast Ethernet Bridge 10/100-TX, 100-FX	1 x RJ45, 2 x ST Multimode
MS451802	Fast Ethernet Bridge 10/100-TX, 100-FX	1 x RJ45, 2 x SC Single Mode
MS451807	Fast Ethernet Bridge 100Base-FX/100Base-FX	MM: 2 x SC SM: 2 x SC

Token Ring Media Converter

MICROSENS

The MICROSENS Token Ring media converter offers the conversion from electrical to optical signal in a Token Ring network according to IEEE802.5J.

The fiberoptic transmission in a Token ring allows to extend the end device connection up to 2 km.

The converter can be used separately or in a pair, i.e. in combination with a desktop device or the Token Ring installation MAU.

The converterrecognizes the position in the segment automatically and configures itself.

To connect two access units together the special RIRO version (Ring in /Ring out) is necessary.

The converter receives the power through an external power supply.

Colour coded LEDs gives status information about the converter and can be used for network diagnostics.

The converter is also available as an insertion module for the mounting into the modular 19" media converter system.

Technical Specifications

Type	Token Ring Media Converter according IEEE 802.5J
Datarate	4 or 16 Mbit/s
Connectors	1 x RJ-45 Port 2 x ST-connector 1 x power supply jack 2.1 mm
Fiber type	Multimode fiber, duplex, 50 or 62/125 µm, Single Mode 9/125 µm, ST-connector
Max. fiber length	2 km (Multimode) 10 km (Single Mode)
LED displays	Power, Fiber Link, Bypass, Insert, Phantom, Mode

Order Information

Part-no.	Description	Connectors
MS411501	Token Ring Converter Multimode 850 nm	1 x RJ-45 2 x ST
MS411101	Token Ring Converter Single Mode 1300 nm	1 x RJ-45 2 x ST
MS411504	Token Ring Converter Ring In / Ring Out Multimode 850 nm	1 x RJ-45 2 x ST

Media Converter ATM OC3

MICROSENS

Media Converter for ATM OC3 according to 155 Mbit/s ANSI standard.

The MICROSENS ATM (Asynchronous Transfer Mode) media converter offers the bidirectional transparent conversion from twisted pair to fiber on the physical layer level.

Distances of up to 2 km can be covered using multimode fiber and with the single mode version it is possible to reach distances from 15 km up to 125 km.

The possible distance on the electrical side is 100 m and the maximum datarate is 155 Mbit/s.

The media converter has an adaptive equalizer for the compensation of different cable lengths (Baseline Wander Correction).

The converter receives the power through an external power supply.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

Technical Specifications

Type	Media Converter ATM OC3 155 Mbit/s, Twisted Pair to fiber
Connectors	1 x RJ-45 connector, shielded 1 x SC duplex, 1300 nm, 1 x power supply jack 2.1mm
Datarate	155 Mbit/s
Fiber type	Multimode fiber, duplex 50 or 62.5/125 µm, ST- or SC-connector
Cable type	Shielded-Twisted-Pair, Cat. 5, with RJ45 connector, 100 Ω
Max. fiber length	2 km (Multimode)
Max. cable length	100 m

Order Information

Part-no.	Description	Connectors
MS410509	Converter ATM OC3 Multimode 1300 nm	1 x RJ-45 2 x SC
MS410510	Converter ATM OC3 Multimode 1300 nm	1 x RJ-45 2 x ST
MS410610	Converter ATM OC3 Single Mode 1300 nm Laser min. 15 km	1 x RJ-45 2 x SC

Media Converter
Multimode / Single Mode

MICROSENS

The MICROSENS multimode / single mode media converter offers a protocol transparent bidirectional connection of multimode to single mode fibers.

The converter is especially important for the connection of public single mode to local multimode networks. Due to this it is possible to extend the local network with existing telecommunication networks.

Due to the given protocol transparency the use of the converter is not limited to one application. It is possible to transmit different protocols like Ethernet, Fast Ethernet, FDDI, ESCON, Fibre Channel and ATM with the same converter.

In the simplest version the converter offers a maximum datarate of 40 Mbit/s for the use in Ethernet, Token Ring or ISDN networks.

Further versions for Fast Ethernet, FDDI, ESCON and ATM OC-3 / OC-12 with datarates up to 622 Mbit/s are available.

For Gigabit Ethernet or Fibre channel applications there are special versions with up to 70 km distances available.

Technical Specifications

Type	Protocol transparent coupling of multimode and single mode fiber
Datarates	40 / 155 / 622 Mbit/s
Fiber type	Multimode fiber, duplex 50 or 62.5/125 µm, Single Mode, 9/125 µm, ST- or SC-connector
LED displays	Power, Link1, Link2

Order Information

Part-no.	Description	Connectors
MS410504	40 Mbit/s Converter, Multimode / Single Mode	MM: ST 850nm SM: ST 1300nm
MS410557	125 Mbit/s FDDI Converter, Multimode / Single Mode	MM: SC 1300nm SM: SC 1300nm
MS410567	155 Mbit/s Converter, Multimode / Single Mode Laser min. 15 km	MM: SC 1300nm SM: SC 1300nm
MS410589	155 Mbit/s Converter, Multimode / Single Mode FP-Laser min. 40 km	MM: SC 1300nm SM: SC 1300nm
MS410586	155 Mbit/s Converter, Multimode / Single Mode DFB-Laser min. 125 km	MM: SC 1300nm SM: SC 1550nm

Gigabit Media Converter Multimode / Single Mode

MICROSENS

The MICROSENS multimode / single mode media converter offers a protocol transparent bidirectional connection of multimode to single mode fibers and allows datarates of up to 1.25 Gbit/s.

The use of these converters allows the connection of communication equipment like switches, routers and bridges and PBXs over long distance single mode fibers in LAN-, MAN-, and WAN-areas.

Due to the given protocol transparency the use of the converter is not limited to one application. It is possible to transmit different protocols like Gigabit Ethernet, Fibre Channel and ATM OC-12 with the same converter.

If the maximum bandwith of Gigabit is not used, distances even longer than 100 km are possible.

In this way it is possible to transmit different applications in metro networks, backbones and leased lines without additional refreshing or amplifying the signal.

Technical Specifications

Type	Protocol transparent coupling of multimode and single mode fiber
Datarate	max. 1.25 Gbit/s
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode, 9/125 µm, SC-connector
LED displays	Power, Link1, Link2

Order Information

Part-no.	Description	Connectors
MS410590	1.25 Gbit/s Converter, Multimode / Single Mode max. 10 km	MM: SC 850nm SM: SC 1300nm
MS410591	1.25 Gbit/s Converter, Multimode / Single Mode max. 20 km	MM: SC 850nm SM: SC 1300nm
MS410594	1.25 Gbit/s Converter, Multimode / Single Mode DFB Laser, max. 50 km	MM: SC 850nm SM: SC 1550nm
MS410595	1.25 Gbit/s Converter, Multimode / Single Mode DFB Laser, max. 70 km	MM: SC 850nm SM: SC 1550nm

Ethernet PC Adapter Card PCI 10Base-FL

MICROSENS

The MICROSENS Ethernet PC adapter cards allow the direct connection of end devices to optical fibers ('Fiber to the desk'). With the high performance and high integrated controller the cards are full duplex and bus master DMA capable.

The cards support the 'Plug and Play' standard and are automatically configured during the boot process. The included installation software allows alternatively a comfortable configuration and offers further diagnostic features.

The cards are available with a lot of drivers for the most known network operating systems. Beside others these systems are supported:

- Windows 95
- Windows 3.x
- Windows NT
- Novell Netware 3.x / 4.x
- Microsoft LAN Manager
- Banyan VINES
- Artisoft LANtastic
- SCO Unix
- Linux

With the optional boot EPROM the cards can be used for diskless workstations.

Technical Specifications

Type	Ethernet PC Adapter Card, 10Base-FL (IEEE 802.3)
PC Bus	PCI
Datarate	10 Mbit/s
Fiber type	Multimode fiber, duplex 50 or 62.5/125 µm, Single Mode, 9/125 µm, ST- or SC-connector
Max. fiber length	MM: 2 km (IEEE 802.3)
Wavelength	850 nm, 1300 nm optional
LED displays	Power, Link, Receive

Order Information

Part-no.	Description	Connectors
MS481500	Ethernet PC Adapter Card, PCI / 10Base-FL	ST-connector
MS481600	Ethernet PC Adapter Card, PCI / 10Base-FL	SC-connector
MS481501	Ethernet PC Adapter Card, PCI / 10Base-FL Single Mode	ST-connector

Fast Ethernet PC Adapter Card PCI 100Base-FX

MICROSENS

The MICROSENS Fast Ethernet adapter cards allow the direct connection of fiber based end devices in a Fast Ethernet network according to IEEE 802.3u. The cards are full duplex capable and support the PCI Bus type.

The cards are connected with multimode fiber optional with ST or SC connector. Using multimode fiber and full duplex mode distances of up to 412 m can be covered. An additional version is available for single mode fiber.

The cards support the 'Plug and Play' standard and are automatically configured during the boot process.

The cards are available with a lot of drivers for the most known network operating systems. Beside others these systems are supported:

- Windows 95
- Windows 3.x
- Windows NT
- Novell NetWare 3.x, 4.x
- NDIS
- Packet driver
- SCO Unix
- IBM LAN Manager, etc...

Technical Specifications

Type	Fast Ethernet PC-Adapter Card 100 Base-FX (IEEE 802.3u)
PC Bus	PCI
Datarate	100 Mbit/s
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, ST- or SC-connector
Wavelength	1300 nm
Plug and Play	Yes
LED displays	Power, Receive, Transmit, Fiber Link

Order Information

Part-no.	Description	Connectors
MS482600	Fast Ethernet PC-Adapter Card, 100Base-FX	SC-connector
MS482601	Fast Ethernet PC-Adapter Card, 100Base-FX	ST-connector
MS482610	Fast Ethernet PC Adapter Card, 100Base-FX, Single Mode	SC-connector

Fast Ethernet PC Adapter Card PCI 100Base-FX with 10/100Base-TX

MICROSENS

The MICROSENS PC adapter cards offer the direct connection of the end device alternatively with twisted pair cable or fiber in a Fast Ethernet Network.

The card is full duplex capable and supports the PCI bus. Due to the autonegotiation mode at the twisted pair side the card recognizes the network type automatically and adjusts the datarate.

This car is especially usefull for future changes of the network cablings to fiber.

The cards are available with a lot of drivers for the most known network operating systems. Beside others these systems are supported:

- Windows 95
- Windows 3.x
- Windows NT
- Novell NetWare 3.x, 4.x
- NDIS
- Packet driver
- SCO Unix
- IBM LAN Manager, etc...

Technical Specifications

Type	Fast Ethernet PC-Adapter Card (IEEE 802.3u / 802.3)
PC Bus	PCI
Datarate	10 or 100 Mbit/s (TX) 100 Mbit/s (FX)
Cable type	Twisted Pair Cable, (Cat. 5), with RJ45-connector
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, ST- or SC-connector
Full duplex	Yes
LED displays	Power, Receive, Link, Speed

Order Information

Part-no.	Description	Connectors
MS483600	Fast Ethernet PC Adapter Card 100Base-FX with 10/100Base-TX Port	1 x RJ45 2 x SC
MS483601	Fast Ethernet PC Adapter Card 100Base-FX with 10/100Base-TX Port	1 x RJ45 2 x ST

PC Media Converter 100Base-FX/TX

MICROSENS

The MICROSENS PC media converter offers an easy migration from existing copper networks to fiber. The converter is mounted into the PC without changing the system. The connection to the copper network adapter card is done with a short external twisted pair patch cable.

With this solution an existing copper network adapter card (10/100Base-TX) can be used further. It is not necessary to reconfigure or to reinstall the network driver.

The power supply of the converter is done with the internal PC power supply, over the enclosed connection cable.

The converter has the „Link Through" functionality included. In due to this the connection status of the fiber segment is forwarded to the twisted pair segment. The converter is not falsifying the connection information.

With a configuration switch it is possible to activate the autonegotiation protocol, which allows to set up full duplex connections on the copper side.

With another switch the pinout of the RJ-45 connector can be crossed. In due to this feature it is possible to use standard 1:1 patch cable for the copper connection.

Technical Specifications

Type	Fast Ethernet Media Converter for PC mounting
Connectors	RJ45-connector, SC/ST/VF-45/MTRJ/LC
Fiber type	Multimode fiber, duplex, 50 or 62,5/125 µm, Single Mode fiber 9/125 µm
LED displays	Power, FX-Link, TX-Link, full duplex

Order Information

Part-no.	Description	Connectors
MS484107	PC Media Converter FX/TX Multimode 1300nm	1 x RJ45 2 x SC
MS484108	PC Media Converter FX/TX Multimode 1300nm	1 x RJ45 2 x ST
MS484105	PC Media Converter FX/TX Multimode 1300nm	1 x RJ45 1 x MT-RJ
MS484106	PC Media Converter FX/TX Multimode 1300nm	1 x RJ45 1 x VF-45
MS484130	PC Media Converter FX/TX Multimode 1300nm	1 x RJ45 1 x LC

Ethernet Miniature Hubs

MICROSENS

Ethernet 10Base-T hubs according to IEEE 802.3

The MICROSENS mini hubs offer the connection of four or eight end devices with twisted pair cables. An additional uplink port is for the connection to the central hub (Fiber, TP, BNC).

The miniature hubs distinguish themselves through the extreme compact design.

The use of the miniature hubs is very economical, especially in the end device area. That makes them very applicable for small workgroups.

The *Auto Polarity Correction* automatically recoginzes and corrects wrong cabling with exchanged wires.

The link port for the connection of further repeaters is optional available with twisted pair (10Base-T), BNC-(10Base-2) or optical connection (10Base-FL).

Colour coded LEDs give status information about the hub and can be used for network diagnostics.

Technical Specifications

Type	Ethernet 10Base-T Hub according to IEEE 802.3
Connectors	4 or 8 x RJ45 1 x Link-Port: Fiber, RJ45, BNC 1 x power supply jack 2.1 mm
Power supply	Ext. supply 12 V DC / 5 VA
LED displays	Power, Receive, Transmit, Link, Polarity, Collision

Order Information

Part-no.	Description	Connectors
MS451000	5 Port Mini Hub TP / TP-Link	5 x RJ45
MS451001	5 Port Mini Hub TP / BNC-Link	4 x RJ45 1 x BNC
MS451002	5 Port Mini Hub TP / Fiber-Link	4 x RJ45 2 x ST 850 nm
MS451102	5 Port Mini Hub Fiber-Link Single Mode	4 x RJ45 2 x ST 1300 nm
MS452002	9 Port Mini Hub TP / Fiber-Link	8 x RJ45 2 x ST 850 nm
MS452004	9 Port Mini Hub Fiber-Link Single Mode	8 x RJ45 2 x ST 1300 nm

Workgroup Switch
7 x 10/100Base-TX
100Base-FX Uplink

MICROSENS

The MICROSENS miniature switches offer the connection of up to 7 end devices with twisted pair cable. There is an additional port as fiber uplink (100Base-FX) for the connection to the central distribution intended.

The miniature switches distinguish themselves through the extreme compact design.

The use of the miniature switches is very economical, especially in the end device area. That makes them very applicable for small workgroups.

The RJ-45 ports configure themselves to the correct speed of the connected end device (10/100 Autonegotiation).

The uplink port for can connected to the central distribution can be set to half or full duplex, depending on the application. Using single mode fiber distances of up to 100 km can be realised.

Colour coded LEDs give status information about the switch and can be used for network diagnostics.

Technical Specifications

Type	Mini Ethernet Switch
Connectors	7 x RJ45 10/100Base-TX 2 x ST/SC 100Base-FX 1 x power supply jack 2.1 mm
Power supply	Ext. supply
LED displays	Power, Link, Activity, Error, Full Duplex, Speed, Load

Order Information

Part-no.	Description	Connectors
MS453001	8 Port Mini Switch 7 x 10/100-TX, FX-Uplink	7 x RJ45 2 x ST 1300nm
MS453002	8 Port Mini Switch 7 x 10/100-TX, FX-Uplink	7 x RJ45 2 x SC 1300nm
MS453003	8 Port Mini Switch 7 x 10/100-TX, FX-Uplink Single Mode max. 15 km	7 x RJ45 2 x SC 1300nm
MS453005	8 Port Mini Switch 7 x 10/100-TX, FX-Uplink Single Mode max. 40 km	7 x RJ45 2 x SC 1300nm
MS453021	8 Port Mini Switch 6 x 10/100-TX,2xFX-Uplink Multimode	6 x RJ45 4 x SC 1300nm

Ethernet Transceiver

MICROSENS

The MICROSENS Ethernet transceivers offer the connection of end devices with fiber, twisted pair or coxial cables. They are full compatible to IEEE 802.3 standard.

Thanks to their compact design the transceiver can directly be connected onto the AUI port of the PC adapter card.

Using fiber, the connection is done with multimode duplex fiber with ST-/SC-connectors, where the maximum distance can be 2 km . A second version of the 10Base-FL transceiver offers the possibility of the connection with single mode duplex fiber. Here the maximum distance can be 10 km using the full duplex mode.

Colour coded LEDs give status information about the transceiver and can be used for network diagnostics.

With a switch the SQE test can be switched on or off. The transceiver is compatible down to the standard FOIRL. Due to this the transceiver can be used for the wide area connection of repeaters.

Technical Specifications

Type	Ethernet Transceiver according to IEEE 802.3
Connectors	1 x AUI (SUB-D 15 pin) 1 x BNC o. 1 x RJ45 o. 2 x ST/SC-connector
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm
Max. fiber length	MM: 2 km, SM: 10 km (FD)
LED displays	Power, Receive, Transmit, Link, Collision, Jabber
Dimensions	66 x 44 x 21 mm (w x d x h)

Order Information

Part-no.	Description	Connectors
MS410500	10Base-FL Transceiver Multimode	1 x SUB-D 15pin 2 x ST
MS410600	10Base-FL Transceiver Multimode	1 x SUB-D 15pin 2 x SC
MS410100	10Base-FL Transceiver Single Mode	1 x SUB-D 15pin 2 x ST
MS420001	10Base-T Transceiver Shielded TP	1 x SUB-D 15pin 1 x RJ45
MS430000	10Base-2 Transceiver	1 x SUB-D 15pin 1 x BNC

RS-232/V.24 Transceiver

MICROSENS

Fiber optic transceiver for RS-232 interfaces.

The MICROSENS RS-232 transceiver offers the transmission of standard RS-232/V.24 signals over fiber.

Especially in industrial areas the use of fiber offers advantages like interference safety, immunity and safety from interception as well as a complete galvanic isolation between sender and receiver.

The transceiver has two ST connectors for the fiber connection and using multi-mode fiber distances of up to 2 km can be reached.

An additional transceiver version for single mode fiber is available. With this version distances of up to 5 km can be reached.

Due to their extreme compact design, the transceiver can be connected directly onto the interface of the station.

Three LEDs inform about the status of the transceiver and the data connection.

The transceiver is also available as an insertion module for the mounting into the modular 19" media converter system.

Technical Specifications

Type	Fiber optic transceiver for RS-232 interface
Datarate	max. 120 kbit/s
Connectors	1 x SUB-D 9 pin (RS-232) 2 x ST-connector 1 x power supply jack 2.1 mm
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST-connector
Max. fiber length	MM: 2 km, SM: 5 km
LED displays	Power, Receive, Transmit
Operating temp.	0°C to 50°C
Power supply	Ext. supply
Dimensions	66 x 44 x 21 mm (w x d x h)

Order Information

Part-no.	Description	Connectors
MS650121	RS-232 Transceiver Multimode	1 x SUB-D 9 pin 2 x ST
MS650122	RS-232 Transceiver Single Mode	1 x SUB-D 9 pin 2 x ST

RS-422/V.11 Transceiver

MICROSENS

Fiber optic transceiver for RS-422/V.11 interfaces.

The MICROSENS RS-422 transceiver offers the transmission of standard RS-422/V.11 signals over fiber.

Especially in industrial areas the use of fiber offers advantages like interference safety and interception security even for high datarates, as well as a complete galvanic isolation between sender and receiver.

The transceiver has two ST connectors for the fiber connection. Using multimode fiber distances of up to 2 km can be reached.

An additional transceiver version for single mode fiber is available. With this version distances of up to 5 km can be reached.

Three LEDs inform about the status of the transceiver and the data connection.

Technical Specifications

Type	Fiber optic transceiver for RS-422 / V.11 interface
Datarate	max. 5 Mbit/s
Connectors	1x SUB-D 9 pin (RS-232) 2 x ST-connector 1 x power supply jack 2.1 mm
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST-connector
Max. fiber length	MM: 2 km, SM: 5 km
LED displays	Power, Receive, Transmit
Operating temp.	0°C to 50°C
Power supply	Ext. supply
Dimensions	66 x 44 x 21 mm (w x d x h)

Order Information

Part-no.	Description	Connectors
MS650221	RS-422 Transceiver Multimode	1 x SUB-D 9 pin 2 x ST
MS650222	RS-422 Transceiver Single Mode	1 x SUB-D 9 pin 2 x ST

RS-485 Transceiver

MICROSENS

The fiber optic transceiver for RS-485 interfaces.

The MICROSENS RS-485 transceiver offers the transmission of RS-485 bus signals over fiber.

In industrial field bus systems the RS-485 interface has established itself as a transmission media. Especially in industrial areas there are often problems with electrical cablings, because a lot of machines produce electro magnetical interference. Fiber is completely immune against electro magnetical interfearance.

The distance of common eletric cables is limited to a few hundred meters. But the use of fiber allows to connect segments with a few kilometer distances between them.

The transceiver is compatible to the different field bus systems like Profibus, Bitbus, Interbus-S and others.

Three LEDs inform about the status of the transceiver and the data connection.

Technical Specifications

Type	Fiber optic transceiver for RS-485 interface
Connectors	1 x SUB-D 9 pin 2 x ST-connector 1 x power supply jack 2.1 mm
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST-connector
Max. fiber length	MM: 2 km, SM: 5 km
LED displays	Power, Receive, Transmit
Power supply	Ext. supply
Dimensions	66 x 44 x 21 mm (w x d x h)

Order Information

Part-no.	Description	Connectors
MS650321	RS-485 Transceiver Multimode	1 x SUB-D 9 pin 2 x ST
MS650322	RS-485 Transceiver Single Mode	1 x SUB-D 9 pin 2 x ST

RS-232/V.24 Multiplexer

MICROSENS

The MICROSENS RS-232 multiplexer enables the transmission of four RS-232/V.24 interfaces including hardware handshake signals over one duplex fiber. The transmission of each channel is done in full duplex mode at a maximum datarate of 38.4 kbit/s.

The main application is the cost effective connection of terminals over fiber. Up to four terminals can be connected with one multiplexer to a duplex fiber connection. In that way existing terminals can still be used when changing the cabling structure to fiber. With this fiber structure distances of up to 2 km can be reached.

The multiplexers are used in a pair. The connection of the end devices can be done with a multiplexer desktop version or the installation multiplexer for mounting into cable trunks or sub floor boxes.

For the central side the multiplexer is available as an insertion card for the 19" modular converter system.

Also available are versions for V.11 and SS97 interfaces.

Technical Specifications

Type	Fiber optic Multiplexer for four RS-232/V.24 channels
Max. datarate	38.400 bit/s per channel
Connectors	4 x RJ45 2 x ST-connector 1 x power supply jack 2.1 mm
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST-connectors
Max. fiber length	MM: 2 km, SM: 5 km
LED displays	Power, Link, Receive, Transmit
Dimensions	145 x 218 x 34 mm (w x d x h)

Order Information

Part-no.	Description	Connectors
MS417001	Desktop Chassis for 1 x MS416xxx module, ext. supply	
MS416200	Multiplexer Module 4xV.24 Multimode	4 x RJ45 2 x ST
MS416210	Multiplexer Module 4xV.24 Single Mode	4 x RJ45 2 x ST
MS416201	Multiplexer Module 2xV.24 2xV.11 Multimode	4 x RJ45 2 x ST

Ethernet Industry Media Converter

MICROSENS

Ethernet technologies, in addition to their deployment in local networks, are also spreading steadily across industrial environments. Modern machine controls and industrial plants already come complete with 10/100Base-TX interfaces.

However, their use in industrial environments differs fundamentally from their use in office environments as active components such as hubs, switches or media converters. These industrial plants require rapid commissioning, robust design, constant availability, and downtime protection.

For these highly demanding environments MICROSENS has developed industrial designs with special media converters for Ethernet and Fast Ethernet networks.

Special mounting devices, integrated into the equipment, enable direct installation on 35 mm hat rails. Power to the components is supplied via a central external 24 V DC adapter.

Floating contacts are an option. Control systems can be connected via special terminals to trigger certain actions in case of faulty connections, for example.

The fibre optics connection is located on the underside of the equipment. This prevents dust particles entering the optical transceiver.

Technical Specifications

Type	Ethernet / Fast Ethernet Industry Media Converter
Connectors	RJ45 socket, SC/ST plug-type connector, floating control contacts
Fiber type	Multimode Fiber, duplex, 50 or 62,5/125 μm, Single Mode Fiber 9/125 μm
Power supply	external, 24 V DC, redundant connection

Ordering Information

Article No.	Description	Connector
MS650400	Media Converter 10FL/TP Multimode 850 nm	1 x RJ45 2 x ST
MS650405	Media Converter 10FL/TP Single Mode 1300 nm	1 x RJ45 2 x ST
MS650420	Media Converter 100FX/TX Multimode 1300nm	1 x RJ45 2 x SC
MS650421	Media Converter 100FX/TX Multimode 1300nm	1 x RJ45 2 x ST
MS650424	Media Converter 100FX/TX Single Mode 1300nm	1 x RJ45 2 x SC

Media Converter Modular System

MICROSENS

In central distribution points it is often neccessary to convert existing connections to different medias. For this purpose a system is required which can easily be mounted into the racks and flexibly adjusted to the given demands.

The MICROSENS converter system is based on an insertion chassis for the mounting into 19" racks.

The converter modules receive power over a backplane, which is connected to the central power supply. If higher security is demanded a second redundant power supply can be installed.

The converters are designed as 19" insertion modules. Up to 12 modules can be mounted into one chassis. There are different modules available for the conversion of various interfaces.

All modules of the same series can be combined together and exchanged during operation (Hot swap).

Because all connections are on the front side, the installation and maintenance is much easier.

Technical Specifications

Type	Modular Media Converter System for 19" rack based systems
Number of slots	max. 12
Height	3 HU
Power supply	Central supply 100..230 V AC / 60 VA
Dimensions	449 x 225 x 133 mm (w x d x h)

Order Information

Part-no.	Description	Connectors
MS416001	19" chassis with Backplane	
MS416004	Power supply module 230 V / 50 Hz, 60 VA	1 x power jack
MS416020	SNMP-Management Module	1 x RJ45 1 x SUBD-9
MS416100	Blind cover for unused ports	
MS416105	Converter module 10Base-FL/10Base-T	2 x ST 1 x RJ45
MS416107	Converter module Fast Ethernet 100Base-FX/100Base-TX	2 x SC 1 x RJ45

Converter Chassis

MICROSENS

The MICROSENS modular system is for the flexible conversion of different media in the central side. It is based on a 3 HU chassis for the mounting into 19" chassis.

The robust basic chassis is designed to handle 12 insertion cards and one power supply module. Using a second redundant power supply, the number of available slots is reduced to 10.

All converter modules receive power through the central backplane. The integrated fan ensures the constant heat dissipation.

Unused slots can be equipped with blind covers.

Order Information

Part-no.	Description
MS416001	19" chassis, 12 slots, port for power supply (opt. redundant)

Power Supply Module

The MICROSENS power supply module supplies all modules of the chassis through the backplane with power.

If higher security is demanded, a second redundant power supply can be mounted.

The primary clocked switching power supply has a wide range power input, which allows to use it worldwide. The power supplies are VDE, UL-, and cUL-certified and distinguish themselves by the robust mechanical and electrical construction.

A two coloured LED gives information about the status during redundant operation.

Order Information

Part-no.	Description
MS416004	Central power supply 230 V AC / 60 VA optional for redundancy
MS416005	Central power supply 48 V DC / 60 VA optional for redundancy

Media Converter Modular System 1 HU

MICROSENS

In central distribution points it is often neccessary to convert existing connections to different medias. For this purpose a system is required which can easily be mounted into the racks and flexibly adjusted to given demands.

The MICROSENS converter system is based on an insertion chassis for mounting into 19" racks. Beside the compact 1 HU chassis with three slots there is a 3 HU chassis with up to 12 slots available.

The converters are designed as 19" insertion modules. Up to 3 modules can be mounted in a 1 HU chassis. There are different modules available for the conversion of various interfaces.

All modules receive power through a central power supply. If higher security is demanded, a second redundant power supply can be installed.

All modules of the same series can be combinated together and exchanged during operation (Hot swap).

Because all data connections are on the front side, the installation and maintenance is much easier.

Technical Specifications

Type	Modular Media Converter System for 19" rack based systems
Number of slots	max. 3
Height	1 HU
Power supply	Central supply 100..230 V AC / 40 VA
Dimensions	1 HU x 483 x 285 mm

Order Information

Part-no.	Description	Connectors
MS416006	19" chassis 1 HU, integrated supply	1 x power jack
MS416007	19" chassis 1 HU, redundant supply	1 x power jack
MS416008	19" chassis 1 HU, reduced depth	1 x power jack
MS416100	Blind cover for unused slots	
MS416205	Converter module 2 Port 10Base-FL/TP	2 x RJ45 4 x ST, 850 nm
MS416230	Converter module 2 Port 100Base-FX/TX	2 x RJ45 4 x ST, 1300 nm

Desktop chassis for Converter Modules

MICROSENS

The desktop chassis extend the application field of the wide area of modular MICROSENS converter. With these chassis it is possible to use the converter outside of 19" racks.

There are two versions available, a one slot and a two slot version. In the two slot version it is possible to combine two converter together.

One important application of the two slot version is to integrate the converter into the existing network management. For this the SNMP/web based management module is inserted together with the converter into the chassis.

There are different ways for the power supply of the chassis. Beside the cost effectice version with external power supply, the chassis are with internal power supplies and wide input range available. Optional the power supply can be redundant.

With their powder plated metal chassis they are qualified for rough enviroments. The additional wall bracket allows to mount these desktop chassis on the wall.

Technical Specifications

Type	Desktop chassis for the mounting of MICROSENS converter modules
Number of slots	max. 2
Power supply	external power supply, optional internal
Dimensions 1slot	38 x 132 x 240 mm (h x w x d)
Dimensions 2slot	69 x 132 x 240 mm (h x w x d)

Order Information

Part-no.	Description
MS417001	Desktop chassis for the mounting of one converter module, ext. power supply
MS417021	Desktop chassis for the mounting of one converter module, int. power supply
MS417041	Desktop chassis for the mounting of two converter modules, ext. power supply
MS417051	Desktop chassis for the mounting of two converter modules, int. power supply

Converter Module
10Base-FL /10Base-T

MICROSENS

The MICROSENS 10Base-FL / 10Base-T media converter allows the connection of twisted pair cable (10Base-T) with fiber (10Bae-FL) in an Ethernet network.

The multimode version can cover distances of up to 2 km, the single mode version distances of up to 10 km (full duplex).

The link status of the segment is forwarded transparently by the converter module (Link-Through), that means in case of a missing link on the fiber side, there is no link generated on the copper side and vice versa.

An advanced version of the converter offers the complete signal regeneration (repeater).

Order Information

Part-no.	Description
MS416105	Module 10Base-FL/T Multimode 2xST
MS416111	Module 10Base-FL/T Single Mode 2xST
MS416106	Module 10Base-FL/T Retiming, 2xST

Converter Module
100Base-FX /TX

The MICROSENS Fast Ethernet media converter offers the direct connection of twisted pair (100Base-TX) and fiber (100Base-FX) segments.

The converter supports half as well as full duplex connections. In full duplex mode distances of up to 2 km can be covered (Single mode, depending on the model 15 km to 125 km).

Due to the direct connection, it is possible to extend twisted pair connections over the limit of 100m.

The link status of the segment is forwarded transparently by the converter module (Link-Through), that means in case of a missing link on the fiber side, there is no link generated on the copper side.

Order Information

Part No.	Description
MS416107	Module 100Base-FX/TX Multimode, 2xSC
MS416108	Module 100Base-FX/TX Multimode, 2xST
MS416206	Module 100Base-FX/TX Single Mode, 2xSC

Twin Converter
2 x 10Base-FL/10Base-T

MICROSENS

The MICROSENS 10Base-FL / 10Base-T media converter allows the connection of twisted pair cable (10Base-T) with fiber (10Base-FL) in an Ethernet network.

In combination with the 3 HU chassis it is possible to rise the port density up to 24 converters per chassis.

Beside the "Link-Through"-functionality this converter offers the advanced link monitor feature (ALM). This feature reflects the connection status of the fiber side, that means in case of the missing receive signal there is no link signal generated on the transmit side.

An additional version of this converter allows the integration into the MICROSENS SNMP/ web based management.

Twin Converter
2 x 100Base-FX/TX

The MICROSENS Fast Ethernet media converter offers the direct connection of twisted pair (100Base-TX) and fiber (100Base-FX) segments.

The twin converter supports all advanced link monitor (ALM) functions. „Link Through" and ALM can be configured with the integrated switches .

For the automatic recognition of the full duplex mode the autonegotiation mode of the 100Base-TX port can be activated.

Beside the SC- and ST-version, these converters are available with MTRJ- and VF-45-connector.

An additional version of this converter allows the integration into the MICROSENS SNMP/ web based management.

Order Information

Part-no.	Description
MS416205	Module 2x10Base-FL/T, Multimode 850nm, ST
MS416270	Module 2x10Base-FL/T, with ALM, ST
MS416205M	Module 2x10Base-FL/T, manageable

Order Information

Part-no.	Description
MS416231	Module 2x100Base-FX/TX Multimode, 2xSC
MS416231M	optional manageable
MS416238	Module 2x100Base-FX/TX Multimode, MTRJ
MS416239	Module 2x100Base-FX/TX Multimode, VF45

Converter Module
10Base-FL /10Base-2

MICROSENS

The MICROSENS 10Base-FL / 10Base-2 media converter allows the connection of coaxial cables (10Base-2) with fiber (10Base-FL) in an Ethernet network (IEEE 802.3).

Due to the direct coupling it is possible to extend existing coaxial cables over the limit of 185 m.

An additional version allows the use of single mode fiber where distances of up to 5 km can be reached.

Order Information

Part-no.	Description
MS416102	Module 10Base-FL/2 Multimode, 2xST
MS416114	Module 10Base-FL/2 Single Mode, 2xST

Converter Module
10Base-T /10Base-2

The MICROSENS 10Base-T / 10Base-2 media converter allows the connection of twisted pair cables (10Base-T) with coaxial cables (10Base-2) in an Ethernet network (IEEE 802.3).

Due to the direct coupling it is possible to use existing coaxial cables in twisted pair networks.

The advantage of the repeaterless conversion between the medias is that the use of media converters gives no further limitation regarding the maximum number of repeaters in a network.

The advanced version of the converter offers the complete signal regeneration (repeater).

Order Information

Part-no.	Description
MS416104	Module 10Base-T/ 10Base-2, Retiming

Converter Module
Token Ring / Fiber

MICROSENS

The MICROSENS Token Ring media converter allows the connection of end devices with fiber to token ring networks according IEEE802.5J.

The converter can be used seperately or in a pair, i.e. in combination with a desktop device or the Token Ring installation MAU.

The converter recognizes the position in the segment automatically and configures itself accordingly.

To connect two access units together the special RIRO version (Ring in /Ring out) is necessary.

The integrated cross switch allows to crossover transmit and recieve pait on the electrical side. Due to this no special crossed patch cables are necessary.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

Optional the converter can be integrated into the MICROSENS SNMP/web based management.

Technical Specifications

Type	Media converter module Token Ring
Fiber type	Multimode fiber, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST-connector
Datarate	4/16 Mbit/s
Wavelength	MM: 850 nm, SM: 1300 nm
Max. fiber length	MM: 2 km, SM: 10 km
LED displays	Power, Link, Phantom, Insert, Bypass, Modus

Order Information

Part-no.	Description	Connectors
MS416130	Module Token Ring, Multimode	1 x RJ45 2 x ST 850 nm
MS416131	Module Token Ring, Single Mode	1 x RJ45 2 x ST 1300 nm
MS416134	Module Token Ring, Ring In / Ring Out Multimode	1 x RJ45 2 x ST 850 nm
MS416135	Module Token Ring, Ring In / Ring Out Single Mode	1 x RJ45 2 x ST 1300 nm

Converter Module
RS-232/Fiber

MICROSENS

The MICROSENS RS-232 transceiver offers the transmission of standard RS-232/V.24 signals over fiber.

The conversion of the interface is transparent, so that no adjustment to the existing datarates is necessary. It is possible to transmit datarates from DC up to the maximum datarate of 128 kbit/s.

The transceiver has two ST connectors for the fiber connection. Using multimode fiber distances of up to 2 km can be covered.

Also available is a transceiver version for single mode fiber. With this version distances of up to 5 km can be reached.

Order Information

Part-no.	Description
MS416210	Module RS-232/Fiber Multimode, 2xST, SUBD9
MS416621	Module RS-232/Fiber Multimode, 2xST, RJ45

Module
RS-232 Multiplexer

The MICROSENS RS-232 multiplexer offers the transmission of four RS-232/V.24 interfaces including hardware handshake signals over one duplex fiber. The transmission of each channel is done with full duplex at a maximum datarate of 38.4 kbit/s.

Main application is the cost effective connection of terminals over fiber. Up to four terminals can be connected with one multiplexer to a duplex fiber connection.

In case the cabling changes to fiber, existing terminal connection can still be used. The fiber allows to cover distances of up to 2 km.

Also available are versions for V.11 and SS97 interfaces.

Order Information

Part-no.	Description
MS416200	Multiplexer-Module 4 x RS-232/V.24, ST
MS416203	Multiplexer-Module 2xV.24, 2xV.11, ST
MS416203	Multiplexer-Module 4xRS-422/V.11, ST

Transparent Converter Module Multimode / Single Mode

MICROSENS

The MICROSENS multimode / single mode media converter offers a protocol transparent bidirectional connection of multimode to single mode fiber.

Single mode fiber is the optimal media for information services with high datarates.

The transparent connection of MM/SM converters offer the direct connection without protocol conversion. Due to this the bandwith of the fiber is optimally used.

The MM/SM converters can be used in all applications in LAN and WAN areas, i.e. Fast Ethernet, ATM, Gigabit Ethernet as well as ISDN E1/T1 und Sonet/SDH.

Beside the classical applications in the backbone area, there are new fields like provider networks, city carriers and leased line applications.

Depending on the demands MICROSENS offers a converter with optimized optical power, wavelength and connector.

Technical Specifications

Type	Media converter module transparent up to 155Mbit/s
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Max. fiber length	15 km standard 125 km optional (Single Mode)
LED displays	Power, Link1, Link2

Order Information

Part-no.	Description	Connectors
MS416504	Multimode /Single Mode Converter up to 40 Mbit/s	MM:850nm ST SM:1300nm ST
MS416567	Multimode / Single Mode Converter up to 155 Mbit/s Laser min. 15 km	MM:1300nm SC SM:1300nm SC
MS416589	Multimode / Single Mode Converter up to 155 Mbit/s Laser min. 40 km	MM:1300nm SC SM: 1300nm SC
MS416589	Multimode / Single Mode Converter up to 155 Mbit/s DFB-Laser min. 125 km	MM:1300nm SC SM:1550nm SC
MS416554	Multimode / Single Mode Converter up to 622 Mbit/s	MM:1300nm SC SM:1300nm SC

Gigabit Converter Module Multimode / Single Mode

MICROSENS

The MICROSENS multimode / single mode media converter offers a protocol transparent bidirectional connection of multimode to single mode fiber at datarates ot up to 1.25 Gbit/s.

With these converters it is possible to connect communication equipment like switches, routers, bridges and PBXs over long distance single mode fiber in LAN, MAN and WAN areas.

Due to the given protocol transparency the use of the converter is not limited to one application. It is possible to transmit different protocols like Gigabit Ethernet, Fibre Channel and ATM OC-12 with the same converter.

If the maximum bandwith of Gigabit is not used, distances even longer than 100 km are possible.

In this way it is possible to transmit different applications in metro networks, backbones and leased lines without additional refreshing or amplifying of the signal.

Technical Specifications

Type	Media converter module transparent up to 1.25 Gbit/s
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, SC-connector
Datarate	max. 1.25 Gbit/s
LED displays	Power, Link1, Link2

Order Information

Part-no.	Description	Connectors
MS416590	1.25 Gbit/s Converter, Multimode / Single Mode max. 10 km	MM: SC 850nm SM: SC 1300nm
MS416591	1.25 Gbit/s Converter, Multimode / Single Mode max. 20 km	MM: SC 850nm SM: SC 1300nm
MS416594	1.25 Gbit/s Converter, Multimode / Single Mode DFB-Laser, max. 50 km	MM: SC 850nm SM: SC 1550nm
MS416595	1.25 Gbit/s Converter, Multimode / Single Mode DFB-Laser, max. 70 km	MM: SC 850nm SM: SC 1550nm

Media Converter with 3R Signal Regeneration

MICROSENS

MICROSENS is expanding its Enterprise Access product range of transparent multimode/single mode and single mode/single mode converters by incorporating modules with complete signal regeneration.

Converters available to date have only supported 2R signal regeneration (reamplification, reshaping). MICROSENS complements this functionality by adding 'retiming' to its product range of multimode/single mode and single mode/single mode converters.

The process of complete signal regeneration is usually called '3R' (reamplification, reshaping, retiming) and regenerates the amplitude, the curvature and the timing of the transmitted signal.

The deployment of converters with retiming functionality enables the implementation of far longer transmission distances, in particular for data volumes in the Gigabit range, and allows cascading several long-distance converters with sub-segment lengths of up to 70 kilometers (40 miles) each. Otherwise, 3R converters can be deployed wherever poor signal quality requires complete regeneration. This applies to both long distance single mode connections and local multimode lines.

This solution enables the operation of Gigabit multimode lines beyond 550 meters (1,800 feet).

Technical Specifications

Type	Converter with 3 R signal regeneration
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, SC/LC-connector
Datarate	1,0625 Gbit/s or 1,25 Gbit/s

Order Information

Part-no.	Description	Connectors
MS416481M	3R Gigabit Converter, Multimode/Single Mode max. 10 km	MM: SC 850nm SM: SC 1300nm
MS416483M	3R Gigabit Converter, Multimode/Single Mode max. 50 km	MM: SC 850nm SM: SC 1550nm
MS416484M	3R Gigabit Converter, Multimode/Single Mode max. 70 km	MM: SC 850nm SM: SC 1550nm
MS416497M	3R Gigabit Converter, Multimode/Single Mode 2 x max. 50 km	SM: SC 1550nm SM: SC 1550nm
MS416499M	3R Gigabit Converter, Multimode/Single Mode 2 x max. 70 km	SM: SC 1550nm SM: SC 1550nm

Transparent WDM-Media Converter Multimode / Single Mode

MICROSENS

The MICROSENS multimode/ single mode media converter for WDM applications is based on a two wavelength multiplexing technology.

The use of the two wavelength of 1300 nm and 1550 nm allows to transmit and receive at the same time over one single simplex fiber line.

The MICROSENS MM/SM WDM converter offers big advantages for existing networks. With these converters it is possible to transmit different services over an existing duplex fiber connection.

Another advantage is the cost reduction for leased lines, which is a result of doubling the capacity of the fiber.

Due to the given protocol transparency the use of the converter is not limited to one application. It is possible to transmit different protocols like Gigabit Ethernet, Fibre Channel and ATM OC-12 with the same converter.

Due to this it is possible to transmit inside of city networks, backbones and leased lines data and voice services simultaneously over existing duplex fiber lines.

Technical Specifications

Type	Media converter module transparent up to 155Mbit/s
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode simplex, 9/ 125µm, ST- or SC-connector
Max. fiber length	20 km standard 60 km optional (Single Mode)
Wavelength	1300 nm
LED displays	Power, Link1, Link2
Dimensions	128 x 31 mm (w x h)
Power supply	12 V DC / max. 400mA via backplane

Order Information

Part-no.	Description	Connectors
MS416570	Multimode / Single Mode WDM-Converter 155Mbit/s	MM: 2 x SC SM: 1 x SC
MS416572	Multimode / Single Mode WDM-Converter 155Mbit/s	MM: 2 x ST SM: 1 x ST

ITU G.703
Fiber Optic Converter

MICROSENS

The MICROSENS ITU G.703 optical converter allows the transmission of a 2.048 Mbit/s interface via fiber connection according to ITU G.703.

With this converter it is possible to connect communication equipment like PBXs and routers in LAN, MAN and WAN areas over long distance single mode connections.

The fiber optic transmission of the electrical G.703 signal is transparent, that means that the control information (i.e. frame synchronisation) is transmitted without influence.

Using the fiber optic transmission with multimode fiber it is possible to extend electrical connections up to 5 km distance.

The use of single mode fiber offers connections up to 125 km.

The converter is designed as an insertion card for the modular 19" converter chassis with a central power supply. For the single workstation use there are desktop versions available.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

Technical Specifications

Type	Fiber optic converter for ITU G.703 interface
Connectors	1 x RJ45, 2 x ST-/SC-Connector
Datarate	2,048 Mbit/s
Fiber type	Multimode fiber, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm
LED displays	Power, G.703 Link, Fiber Link, G.703 Los, Fiber Loss

Order Information

Part-no.	Description	Connectors
MS417001	Desktop Chassis for 1 x MS416xxx module, ext. supply	
MS416301	ITU G.703 converter, Multimode 1300 nm	1 x RJ45 2 x ST
MS416303	ITU G.703 converter, Single Mode 1300 nm Laser, max. 15 km	1 x RJ45 2 x ST
MS416305	ITU G.703 converter, Single Mode 1300 nm Laser, max. 40 km	1 x RJ45 2 x SC

SNMP-Management Module

MICROSENS

MICROSENS SNMP and web based management module for modular and multiport converter systems.

The standard Management Information Base (MIB) guarantees the necessary compability to the most common network management platforms. Additional, the web based management allows to visualise the management information on standard internet browsers.

The serial console port (SUBD-9) is for the configuration. Future updates of the firmware can be uploaded by FTP.

Actual status information like power, fan status, temperature and connection status are interpreted by the management module.

A special feature of the multiport media converter is the cascading of the management, which allows to manage multiple 19" systems with only one central management module (master). Additional rack systems need only a slave module. Due to this the number of necessary network ports, for the connection of the management is reduced.

Technical Specifications

Type	SNMP and web based management module
Network connection	10/100Base-TX, RJ45
Max. cable length	100 m
LED displays	Power, TP-Link, TP-Spd, Activity
Dimension	128 x 31 mm

Order Information

Part-no.	Description	Connectors
MS416020	SNMP management module for modular converter system	2 x RJ45 1 x SUBD-9
MS416021	SNMP management module for 1 HU multiport converter	2 x RJ45 1 x SUBD-9
MS416026	Slave module for 1 HU multiport converter	2 x RJ45

19" Ethernet Media Converter 10Base-T/10Base-FL

MICROSENS

12 Port Ethernet media converter for the direct repeaterless connection of twisted pair and fiber segments in an Ethernet network.

The converter has a height of 1 HU and can be mounted into 19" racks.

Main application is the cost effective converion of several twisted pair ports to fiber inside the central distribution. Due to the compact design it is possible to reach very high port densities inside the distribution rack.

The converter supports half as well as full duplex transmission.

The link status of the segment is forwarded by the converter (Link-Through), that means in case of a missing link on the fiber side there is no link generated on the copper side (and vice versa).

The converter is available with twelve RJ-45 ports or with TELCO connector on the 10Base-T side.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

Technical Specifications

Type	12 Port media converter 10Base-T/10Base-FL for mounting into 19" racks
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Cable type	STP Cat. 5 with RJ45, TELCO
Max. fiber length	MM: 2 km, SM: 5 km
Max. cable length	100 m each TP connection
Wavelength	850 nm, 1300 nm optional
LED displays	Power, FO-Link, TP-Link, FO-Receive, TP-Receive
Dimensions	1 HU x 84 DU x 245 mm

Order Information

Part-no.	Description	Connectors
MS416700	12 Port Ethernet Converter 10Base-T/FL	24 x ST 12 x RJ45
MS416701	12 Port Ethernet Converter 10Base-T/FL	24 x ST 1 x TELCO
MS416706	12 Port Ethernet Converter 10Base-T/FL Single Mode	24 x ST 12 x RJ45

19" Ethernet Media Converter 24 Port 10Base-T/10Base-FL

MICROSENS

24 port Ethernet media converter for the direct repeaterless connection of twisted pair and fiber segments in an Ethernet network.

The converter has a height of 1 HU and can be mounted into 19" racks.

Main application is the cost effective conversion of several twisted pair ports to fiber inside the central distribution. Due to the compact design it is possible to reach very high port densities inside the distribution rack.

The converter supports half as well as full duplex transmission.

The link status of the segment is forwarded by the converter (Link-Through), that means in case of a missing link on the fiber side there is no link generated on the copper side (and vice versa).

The twisted pair ports are conected with two TELCO connectors at the back side of the converter.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

Technical Specifications

Type	24 Port media converter 10Base-T/10Base-FL for mounting into 19" racks
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Cable type	STP Cat. 5 TELCO connector
Max. fiber length	MM: 2 km, SM: 5 km
Max. cable length	100 m each TP connection
Wavelength	850 nm, 1300 nm optional
LED displays	Power, FO-Link, TP-Link, FO-Receive, TP-Receive
Dimensions	1 HU x 84 DU x 245 mm

Order Information

Part-no.	Description	Connectors
MS416805	24 Port Ethernet Converter 10Base-T/FL	48 x ST 2 x TELCO
MS416806	24 Port Ethernet Converter 10Base-T/FL	48 x SC 2 x TELCO
MS416807	24 Port Ethernet Converter 10Base-T/FL Single Mode	48 x ST 2 x TELCO

19" Fast Ethernet Media Converter 6 Port 100Base-TX /FX

MICROSENS

6 port Fast Ethernet media converter for the direct repeaterless connection of twisted pair and fiber segments in a Fast Ethernet network.

The converter has a height of 1 HU and can be mounted into 19" racks.

Main application is the cost effective conversion of several twisted pair ports to fiber inside the central distribution. Due to the compact design it is possible to reach very high port densities inside the distribution rack.

The converter supports half as well as full duplex transmission.

The link status of the segment is forwarded by the converter (Link-Through), that means in case of a missing link on the fiber side there is no link generated on the copper side.

The data connectors are on the front side which makes the installation and maintenance easier.

Colour coded LEDs give status information about the converter and can be used for network diagnostics.

Technical Specifications

Type	6 Port media converter 100Base-TX/100Base-FX for mounting into 19" racks
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Cable type	Shielded Twisted-Pair, Cat. 5
Max. fiber length	2 km (Full Duplex Multimode)
Max. cable length	100 m each TP connection
Wavelength	1300 nm
LED displays	Power, FX-Link, TX-Link, FX-Receive
Dimensions	1 HU x 84 DU x 245 mm

Order Information

Part-no.	Description	Connectors
MS416850	6 Port Fast Ethernet Converter 100Base-TX/FX	12 x ST 6 x RJ45
MS416851	6 Port Fast Ethernet Converter 100Base-TX/FX	12 x SC 6 x RJ45
MS416856	6 Port Fast Ethernet Converter 100Base-TX/FX Single Mode	12 x SC 6 x RJ45

19" Fast Ethernet Media Converter 12 Port 100Base-FX/TX

MICROSENS

6 port Fast Ethernet media converter for the direct repeaterless connection of twisted pair and fiber segments in a Fast Ethernet network.

The converter has a height of 1 HU and can be mounted into 19" racks.

Main application is the cost effective conversion of several twisted pair ports to fiber inside the central distribution. Due to the compact design it is possible to reach very high port densities inside the distribution rack.

The converter supports half as well as full duplex transmission and can cover distances up to 2 km. Using single mode fiber it is possible to cover distances up to 100 km.

The link status of the segment is forwarded by the converter (Link-Through), that means in case of a missing link on the fiber side there is no link generated on the copper side.

The data connectors are on the front side which makes the installation and maintenance much easier.

Technical Specifications

Type	12 Port media converter 100Base-TX/100Base-FX for mounting into 19" racks
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Cable type	Shielded Twisted-Pair, Cat. 5
Max. fiber length	2 km (Full Duplex Multimode)
Max. cable length	100 m each TP connection
Wavelength	1300 nm
LED displays	Power, FX-Link, TX-Link, FX-Receive
Dimensions	1 HU x 84 DU x 245 mm

Order Information

Part-no.	Description	Connectors
MS416870	12 Port Fast Ethernet Converter 100Base-FX/TX	24 x ST 12 x RJ45
MS416871	12 Port Fast Ethernet Converter 100Base-FX/TX	24 x SC 12 x RJ45
MS416876	12 Port Fast Ethernet Converter 100Base-FX/TX Single Mode max. 15km	24 x SC 12 x RJ45

19" Media Converter Ethernet / Fast Ethernet SNMP-Management

MICROSENS

12 port Fast Ethernet media converter for the direct repeaterless connection of twisted pair and fiber segments in a Fast Ethernet network.

The converter has a height of 1 HU and can be mounted into 19" racks.

Main application is the cost effective conversion of several twisted pair ports to fiber inside the central distribution. Due to the compact design it is possible to reach very high port densities inside the distribution rack.

With the optional accesories it is possible to realise SNMP and web based management and redundant power supply.

The MICROSENS management module provides status information about connection, power supply, fan and temperature.

Up to nine converter systems can be supplied with the external power supply unit (RPSU).

The additional security features of the MICROSENS multiport converter system offers the highest reliability and so they are especially useful for sensitive enviroments.

Technical Specifications

Type	12 Port Media Converter for mounting into 19" racks
Fiber type	Multimode fiber, duplex, 50 or 62.5/125 µm, Single Mode fiber 9/125 µm, ST- or SC-connector
Max. fiber length	Multimode: 2 km
Max. cable length	100 m each TP connection
LED displays	Power, FO-Link, TP-Link, FO-Receive, TP-Receive
Dimensions	1 HU x 84 DU x 255 mm

Order Information

Part-no.	Description	Connectors
MS416700M	12 Port Ethernet Converter 10Base-T/FL	24 x ST / RJ45 RPSU-connector
MS416707M	12 Port Ethernet Converter 10Base-T/FL	24 x SC / RJ45 RPSU-connector
MS416860M	12 Port Fast Ethernet Converter 100BaseTX/FX	24 x ST / RJ45 RPSU-connector
MS416861M	12 Port Fast Ethernet Converter 100BaseTX/FX	24 x SC / RJ45 RPSU-connector
MS416021	SNMP management module	2 x RJ45 1 x SUBD-9

4 channel WDM Multiplexer

MICROSENS

The WDM system (Wavelength Division Multiplexer) has been developed for applications in the Metropolitan Area Network (MAN).

This system offers the transmission of four independent high speed services over one single mode fiber connection. The WDM technology is an efficient solution, where the capacity of existing fiber cables can be multiplied without changing the infrastructure.

The WDM system from MICROSENS allows telecommunication providers, ISPs, operators of metro networks and enterprises with a long distance network a right away and especially cost effective solution to increase the capacity of existing fiber connections.

Each channel allows high speed services such as ATM OC-12, Gigabit Fibre Channel and Gigabit Ethernet.

The system is based on the CWDM technology and uses the optical window around 1550 nm with a channel spacing of 20 nm. The system allows datarates of max. 10 Gbit/s (1.25 Gbit/s per channel and each direction).

The WDM sytsem has a slot for the optional SNMP/web based management. The power supply can be secured with the RPSU system (Redundant Power Supply Unit).

Technical Specifications

Type	4 ch. WDM for 19" mounting
Max. data rate	10 Gbit/s (4 x 1.25 Gbit/s each channel and direction)
Number of channels	max. 4
Distance	min. 50 km, optional 70 km
Management	SNMP/web based management as insertion module
Height	1 HU
Power supply	internal power supply, optional redundant with RPSU unit

Order Information

Part No.	Description	Connectors
MS419900	WDM Multiplexer 4 x 1.25 Gbit/s	4 x SC duplex 850 nm MM
MS419901	WDM Multiplexer 4 x 1.25 Gbit/s	4 x SC duplex 1300 nm SM
MS419920	SNMP / web based management module	1 x RJ45 1 x SUBD-9

4 channel CWDM Multiplexer simplex

MICROSENS

The WDM systems make it possible for telecommunication services providers, ISPs, metropolitan network operators, as well as for enterprises with large networks to expand quickly and cost-effectively the capacity of existing fiber optic lines.

By means of higher integration the connection capacities can now be doubled. The user is able to transmit 4 independent high-speed services over single simplex fiber. With this system the maximal transfer distance of 35 km can be achieved.

By the combination of two of these 4 channel-systems eight services can be transmitted over one standard duplex connection. The advantage of such an application is full separation of services.

This configuration brings considerable advantages with regard to security. The failure of one connection means that four of the eight services are still available. Through the intelligent switching the reconfiguration of the network can take place. The WDM systems can thus be fully integrated with the security policy of the customer.

Technical Specifications

Type	4 ch. WDM for 19" mounting
Max. data rate	10 Gbit/s (4 x 1.25 Gbit/s per channel and direction)
Number of channels	max. 4
Distance	up to 35 km
Management	SNMP/web based management as insertion module
Height	1 HU
Power supply	internal power supply, optional redundant with RPSU unit

Order Information

Part No.	Description	Connectors	
MS419950-L1	WDM Multiplexer 4 x 1.25 Gbit/s Multimode 850 nm, SM Power Budget 7 dBm	4 x SC 1 x SC	MM simplex
MS419950-L2	WDM Multiplexer 4 x 1.25 Gbit/s Multimode 850 nm, SM Power Budget 11 dBm	4 x SC 1 x SC	SM simplex
MS419920	SNMP / web based management module	1 x RJ45 1 x Stacking 1 x SUBD-9	

8 channel CWDM Multiplexer

MICROSENS

The WDM systems make it possible for telecommunication services providers, ISPs, metropolitan network operators, as well as for enterprises with large networks to expand quickly and cost-effectively the capacity of existing fiber optic lines.

By means of higher integration the connection capacities can now be doubled. The user is able to transmit 4 independent high-speed services over single simplex fiber. With this system the maximal transfer distance of 35 km can be achieved.

In this application, 4 channels are transmitted over each simplex fiber. This configuration brings considerable advantages with regard to security. The failure of one connection means that four of the eight services are still available. Through the intelligent switching the reconfiguration of the network can take place. The WDM systems can thus be fully integrated with the security policy of the customer.

The high data rates of the individual channels enable the transmission of services as ATM OC-12, ATM OC-48, Gigabit Fibre Channel and Gigabit Ethernet. All the systems offer one slot for connection of the optional SNMP / web based management module.

Technical Specifications

Type	8 ch. WDM for 19" mounting
Max. data rate	20 Gbit/s (4 x 1.25 Gbit/s per channel and direction)
Number of channels	max. 8
Distance	up to 35 km
Management	SNMP/web based management as insertion module
Height	1 HU
Power supply	internal power supply, optional redundant with RPSU unit

Order Information

Part No.	Description	Connectors
MS419970-L1	WDM Multiplexer 8 x 1.25 Gbit/s Multimode 850 nm, SM Power Budget 7 dBm	8 x SC MM 2 x SC line
MS419970-L2	WDM Multiplexer 8 x 1.25 Gbit/s Multimode 850 nm, SM Power Budget 11 dBm	8 x SC SM 2 x SC line
MS419920	SNMP / web based management module	1 x RJ45 1 x Stacking 1 x SUBD-9