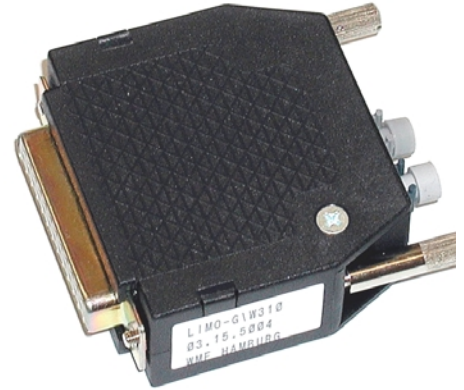


## FIBER OPTIC CABLE BASED DATA COMMUNICATION SYSTEM

- Full Duplex connection between two devices with RS232-C (V24) ports
- Interference free data transfer using optical fibers
- Full galvanic isolation between connected devices
- Data transfer rate: > 20kbit/s
- Suitable for 1mm plastic fiber, or 200µm HCS® glass fiber
- Versatile Link fiber connections
- Link distance: > 500m with 200µm HCS® glass fiber cable
- No external power supply required
- Configurable for use at DCE or DTE (specify when ordering)
- Selectable polarity of optical signal levels (specify when ordering)
- 25 way sub-D female connector (gender changer available if male version required)



The LIMO-G Fiber-optic data communications system may be used to replace existing electrical RS232-C (V24) connections between devices, whenever interference free data communications are required. This is achieved by converting the data stream into pulses of light, which are then transmitted along optical fibers. The integrity of the data transferred is therefore no longer susceptible to external electrostatic or electromagnetic fields. At the same time, the ports of the connected equipment are protected from damage by any potential differences between them. The conversion of the electrical signals into pulses of light is carried out by the LIMO interface.

No external power supply is required for the LIMO interfaces. The power for the transmit and receive circuitry is drawn from the port of the connected equipment.

### • TECHNICAL DATA

Data transfer rate:	> 20kbit/s
Link distance:	> 500m using 200µm HCS® type glass fiber cable > 75m using TC 1000W type plastic fiber cable
Receiver output levels:	as per RS232-C specification
Receiver input current consumption:	$I_R < 11\text{mA}$ drawn from the control lines of the RS232-C port
Transmitter input voltage:	$\pm 4\text{V} < V_T < \pm 12\text{V}$
Transmitter input current:	$5\text{mA} < I_T < 40\text{mA}$
Transmitter input impedance:	220Ω
Transmitter output optical power @ $I_T = 5\text{mA}$ :	> -19dBm into 1mm plastic fiber > -29dBm into 200µm HCS® fiber
Data port connector:	25 way female sub-D
Optical fiber connectors:	HP/Agilent Versatile Link
Optical fiber cable types:	200µm HCS® glass fiber 1mm plastic optical fiber
Optical state for MARK input state:	Light ON or Off (specify when ordering)
Optical wavelength:	$\lambda = 660\text{nm}$ (red)
Operating temperature range:	$0^\circ\text{C} < T_A < +60^\circ\text{C}$
Storage temperature range:	$-30^\circ\text{C} < T_S < +75^\circ\text{C}$
Physical dimensions (LxBxH):	55 x 55 x 21mm <sup>3</sup>
Weight:	52g
EMC:	CE compliant

Test conditions: Connection between two LIMO-G interface modules.  
Operation with ports using SN75188 transmitter driver and SN75189 receiver.  
DTE - Configuration, MARK  $\Leftrightarrow$  Light On.  
Ambient temperature: 25°C.

Specifications are subject to change without notice.

## • PIN OUT

Pin	Symbol	Signal Name	Comments
2	TxD	Transmit Data	
3	RxD	Receive Data	
4	RTS	Request To Send	connected to Pin 5
5	CTS	Clear To Send	connected to Pin 4
6	DSR	Data Set Ready	connected to Pin 8 and Pin 20
7	GND	Signal Ground	
8	DCD	Data Carrier Detect	connected to Pin 6 and Pin 20
20	DTR	Data Terminal Ready	connected to Pin 6 and Pin 8

**Note:** When configured for operation as Data Terminal Equipment (DTE), data is transmitted from pin 2 of the host device port and received to pin 3. For Data Communications Equipment (DCE), the opposite applies.

## • CONFIGURATION

The LIMO is configured using jumper links. Jumpers set the operating mode for the device connected to the LIMO (DTE or DCE interface).

It is possible to use the LIMO to connect between a device using an RS232-C interface and a device using a direct optical port. Please ask the technical support for implementation details. The logical polarity of the optical signals is set by using two jumpers. On request the polarity of the transmit and receive sides may be set independently of each other

The LIMO jumpers are not normally accessible and are set during manufacture to customer specification.

Correct connection of the duplex optical fibers is guaranteed through the mechanical design of the connectors.

In a full duplex connection using LIMO devices, data may be transmitted in both directions at the same time. Should flow control be required, the end systems should be configured to make use of Xon/Xoff handshaking.

The LIMO can be connected directly to 25 way RS232-C ports. An adapter is available for connection to 9 way ports.

## • JUMPER SETTINGS

W1	W2	W4	W3	Function	Comments
1 - 2	1 - 2			Operation at DTE	
2 - 3	2 - 3			Operation at DCE	
		1 - 2	1 - 2	RS232-C = MARK ⇔ LWL = Light on RS232-C = SPACE ⇔ LWL = Light off	W3 defines the polarity of the transmitted data, W4 defines the polarity of the received data
		2 - 3	2 - 3	RS232-C = MARK ⇔ LWL = Light off RS232-C = SPACE ⇔ LWL = Light on	

## • ORDERING INFORMATION

LIMO-G\W0	Optical interface module with female connector, Operation at DTE, MARK ⇔ Light on Standard configuration suitable for the connection to a typical PC serial port
LIMO-G\W3	Optical interface module with female connector, Operation at DTE, MARK ⇔ Light off
LIMO-G\WC	Optical interface module with female connector, Operation at DCE, MARK ⇔ Light on
LIMO-G\WF	Optical interface module with female connector, Operation at DCE, MARK ⇔ Light off
LWL-1000W-10	Terminated duplex standard 1mm plastic optical fiber, Length 10m
LWL-1000W-20	Terminated duplex standard 1mm plastic optical fiber, Length 20m
LWL-1000W-50	Terminated duplex standard 1mm plastic optical fiber, Length 50m
	Alternative cable lengths, glass fiber cables, ruggedized cables or UL specification cables available on request
LIMO-9/25	Adapter for 9-pole PC(AT)-Port
MGC25SS	MINI GENDER-CHANGER SUB-D 25 Pin / 25 Pin

**Two LIMO interface modules and a terminated optical fiber are required to connect between two devices with RS232-C ports.**

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