

FIBER OPTIC CABLE BASED DATA COMMUNICATION SYSTEM

- Full Duplex connection between two devices with RS-422-B 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
- Configurable for use at DCE or DTE (specify when ordering)
- Selectable polarity of optical signal levels (specify when ordering)



The F422-G Fiber-optic data communications system may be used to replace existing electrical RS-422-B 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 F422-G interface.

● 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
RS-422 port I/O levels:	as per RS-422-B specification
RS-422 port input termination:	100Ω
RS-422 port connector:	8 way RJ45
F/O Transmitter output optical power:	-20 ... -10dBm into 1mm plastic fiber -29 ... -19dBm into 200µm HCS® fiber
F/O Receiver input sensitivity:	-39dBm
Optical fiber connectors:	HP/Agilent Versatile Link
Optical fiber cable types:	200µm HCS® glass fiber 1mm plastic optical fiber
Optical wavelength:	λ = 660nm (red)
External power supply:	7.5 ... 12Vdc / 100mA
Power supply connector:	4 way RJ11
Operating temperature range:	0°C < T _A < +60°C
Storage temperature range:	-30°C < T _S < +75°C
Physical dimensions (LxBxH):	105 x 60 x 26mm ³
Weight:	100g

Test conditions: Connection between two F422-G interface modules.
DTE - Configuration, MARK ⇔ Light On.
Ambient temperature: 25°C.

Specifications are subject to change without notice.

● PIN OUT RJ11 POWER CONNECTOR

Pin	Function
1	GND (-)
2	GND (-)
3	7.5 ... 12V (+)
4	7.5 ... 12V (+)

• OPERATION / CONFIGURATION

The F422-G is configured using jumper links. Jumpers set the operating mode for the device connected to the F422-G (DTE or DCE interface).

It is possible to use the F422-G to connect between a device using an RS-422-B 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. The polarity of the transmit and receive sides may be set independently of each other

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

In a full duplex connection using F422-G 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.

Two LEDs indicate traffic on the data-lines. The yellow **Rx** LED lights whenever data is being received from the RS-422 port. The green **Tx** LED lights when the F422-G transmits data to the RS-422 port. In case of static signal levels the LEDs will be off.

• PIN OUT RJ45 SIGNAL CONNECTOR

Pin	W1/W2/W3 = E		W1/W2/W3 = G	
	W4 = DTE	W4 = DCE	W4 = DTE	W4 = DCE
1	Tx+	Rx+	Tx+	Rx+
2	Tx-	Rx-	n.c.	n.c.
3	Rx+	Tx+	GND	GND
4	GND	GND	Rx+	Tx+
5	GND	GND	GND	GND
6	Rx-	Tx-	Rx-	Tx-
7	n.c.	n.c.	Tx-	Rx-
8	n.c.	n.c.	n.c.	n.c.

Tx means a signal being driven from the F422-G into the RS-422 line.

Rx means a signal being received from the RS-422 line into the F422-G.

• JUMPER SETTINGS

W1 W2 W3	W4	W5	W6	W7	Function	Comments
E G					Ethernet cabling compatible pin out Special pin out	see pin out RJ45
	DTE DCE				Operation at DTE Operation at DCE	see pin out RJ45
		ON OFF			RS-422 100Ω input termination resistor on RS-422 100Ω input termination resistor off	
			M:D M:L		RS-422 MARK ⇒ F/O = Light off RS-422 SPACE ⇒ F/O = Light on	
				D:M L:M	F/O = Light off ⇒ RS-422 MARK F/O = Light on ⇒ RS-422 SPACE	

• ORDERING INFORMATION

F422-G\10	RS-422 to Fiber Optic Interface
9725-0906	Plug-In Power Supply 90-264Vac 9Vdc / 0.6A EU mains plug RJ10
9725-0906-US	Plug-In Power Supply 90-264Vac 9Vdc / 0.6A US mains plug RJ10
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

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