# yellobrik

OBD 1510 D

Serial and GPI Bidirectional Fiber Transceiver

- Bidirectional send and receive over single fiber link
- Extend serial and GPI connections up to 10km
- Supports serial RS232 or RS422 or RS485
- 2 x GPI connections
- Singlemode fiber up to 10km (6.2 miles)
- LC/PC duplex fiber connections
- Switchable RX/TX crossover
- Automatic or manual data direction
- Switchable end of line termination
- 'Plug and Play' - No PC software drivers needed
- Supports all serial protocols (standard or proprietary)
- 300 - 460K Baud (auto sensing and auto adjusting)
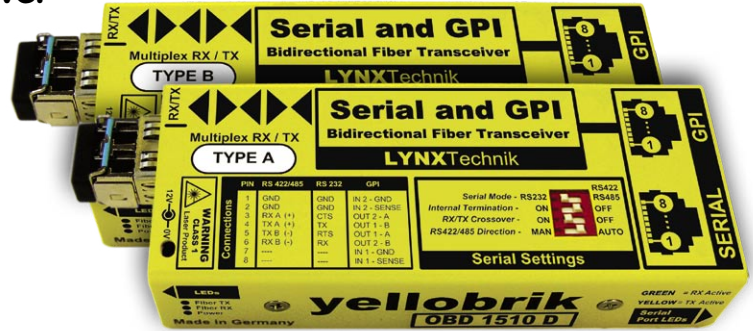
The OBD 1510 D is a pair of multi-function modules which will extend the reach of serial RS232, RS422 or RS485 as well as two GPI (general purpose interface) up to 10km (6.2 miles) over a single bidirectional fiber link (WDM)

A single RJ45 electrical serial connection can be configured for RS232, RS422 or RS485 serial standards. A separate RJ45 connector is provided for two electrical GPI inputs and outputs. Serial communications and GPI are transmitted and extended over the same fiber link.

The OBD 1510 D is completely agnostic to the serial protocol used, and supports all standard protocols and proprietary protocols at data rates from 300 to 460K Baud *(auto sensing and auto adjusting).*

The integrated dip switch provides precise control over the serial mode of operation with selections for the *serial standard, serial termination, RX/TX crossover and RS422/485 data direction (automatic or manual).* Data activity LEDs are provided for the serial port and the GPI port under the respective RJ45 connectors.
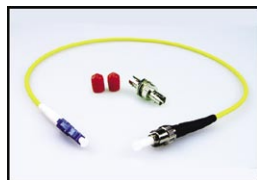
The OBD 1510 D also supports mixing and matching of serial standards. For example: the transmitting module can have a RS232 input, and the receiving module can be set for RS422 output.

The OBD 1510 D is 100% plug and play, hot pluggable and no special software drivers are required.

Fiber Adapter Options
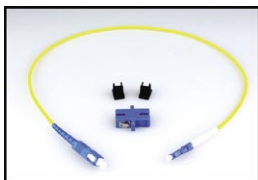
Model # **LC/SC SIM**
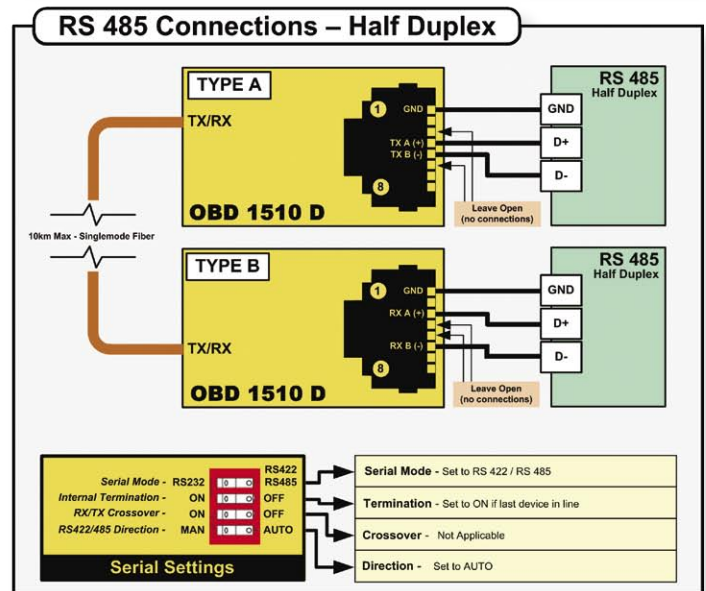LC/PC to SC/PC Adapter

Model # **LC/ST SIM**
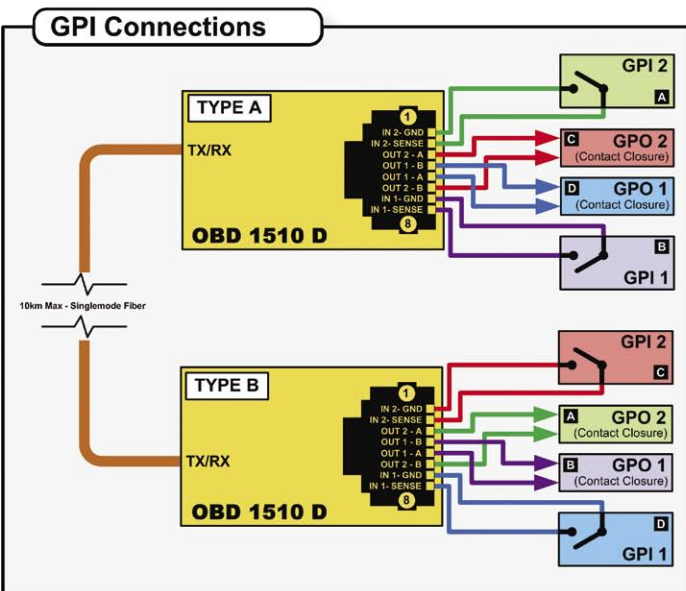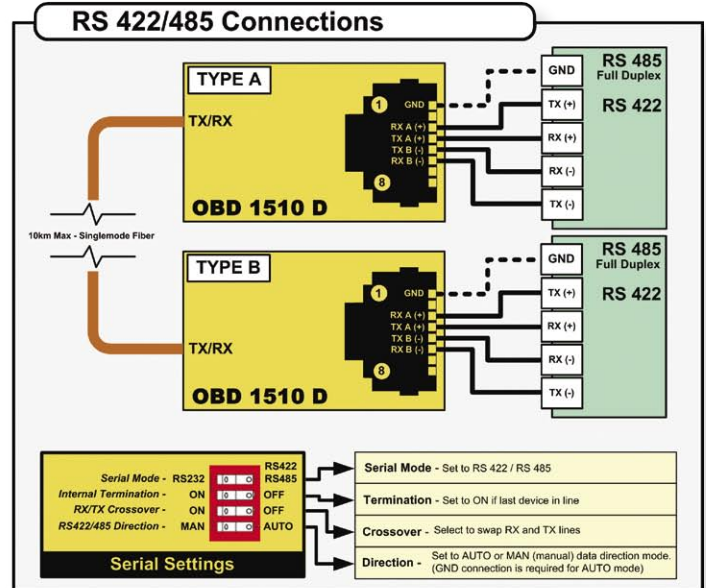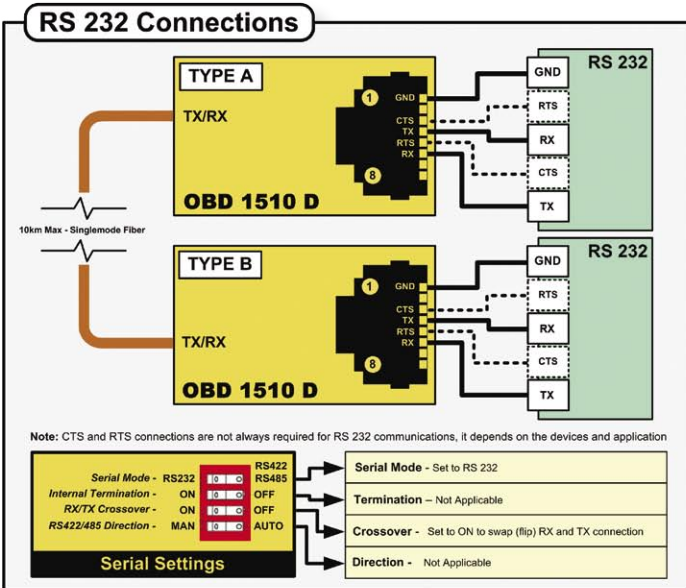LC/PC to ST/PC Adapter

These adapters allows the use of ST or SC fiber connections on the module. SMF 0.5m (19.6") tail introduces less than 0.25dB attenuation.

Technical Specifications

Serial I/O	EIA/ETA RS232C / RS422 / RS485 (selectable)
	Connector - RJ45
	Baud rate - Auto sense and auto adjust from 300 to 460K
	Serial setting dip switch provides settings for: • Select RS232 / RS422/485 modes • Select serial termination (for end of line) • RX/TX crossover to flip the RX and TX if needed • Set RS422/485 data direction to automatic or manual if needed
	LED status indicators (under RJ45 connector). Serial RX and TX activity
	RS422/485 Maximum number of electical nodes = 25
	ESD protection for up to 26kV
GPI	2 x general purpose inputs + 2 x general purpose outputs
	Connector - RJ45
	GPI Inputs: • External passive closure between pins (short) to trigger • Max input switching frequency 25Hz (50 operations / second) • Input insulation 3.75kV
	GPI outputs: • Internal contact closure (relay) • Max switching frequency 25Hz (50 operations / second) • Max switching power 220VDC / 0.25A or 250VAC / 0.25A • Output insulation 3.75kV
	LED status indicators (under RJ45 connector) GPI Input 1 activity GPI Input 2 activity GPI Output 1 activity GPI Output 2 activity
Fiber I/O	1 x fiber optic I/O port (bidirectional) Simplex (single mode) using LC/PC Connection
	WDM using 1310nm and 1550nm wavelengths Optical budget = 18dB
	Max distance 10km (6.2miles)
	RX and TX activity LEDs on side of module next to fiber I/O
Power	+12VDC @ 0.25A power supplies (included) Supports external power from 9 to 14VDC Power LED on side of module
Size	105mm x 40mm x 22mm (4.13" x 1.57" x 0.86")
Model #	OBD 1510 D
Includes	2 x OBD 1510 D modules (Type A and Type B), 2 x 12V DC power supplies, wall mounting brackets and plastic transport case

Specifications subject to change

yellobrik ® OBD 1510 D

Connection Diagrams

RS 232 Connections

TYPE A TX/RX — OBD 1510 D
TYPE B TX/RX — OBD 1510 D

10km Max - Singlemode Fiber

RS 232: GND, RTS, RX, CTS, TX

Note: CTS and RTS connections are not always required for RS 232 communications, it depends on the devices and application

Serial Settings

Serial Mode -	RS232 ... RS422/RS485	**Serial Mode** - Set to RS 232
Internal Termination -	ON ... OFF	**Termination** — Not Applicable
RX/TX Crossover -	ON ... OFF	**Crossover** - Set to ON to swap (flip) RX and TX connection
RS422/485 Direction -	MAN ... AUTO	**Direction** - Not Applicable

RS 422/485 Connections

TYPE A TX/RX — OBD 1510 D
TYPE B TX/RX — OBD 1510 D

10km Max - Singlemode Fiber

RS 485 Full Duplex / RS 422: GND, TX (+), RX (+), RX (-), TX (-)

Serial Settings

Serial Mode -	RS232 ... RS422/RS485	**Serial Mode** - Set to RS 422 / RS 485
Internal Termination -	ON ... OFF	**Termination** - Set to ON if last device in line
RX/TX Crossover -	ON ... OFF	**Crossover** - Select to swap RX and TX lines
RS422/485 Direction -	MAN ... AUTO	**Direction** - Set to AUTO or MAN (manual) data direction mode. (GND connection is required for AUTO mode)

GPI Connections

TYPE A TX/RX — OBD 1510 D

IN 2- GND, IN 2- SENSE, OUT 2 - A, OUT 1 - B, OUT 1 - A, OUT 2 - B, IN 1- GND, IN 1- SENSE

GPI 2 (A), GPO 2 (Contact Closure) (C), GPO 1 (Contact Closure) (D), GPI 1 (B)

TYPE B TX/RX — OBD 1510 D

GPI 2 (C), GPO 2 (Contact Closure) (A), GPO 1 (Contact Closure) (B), GPI 1 (D)

10km Max - Singlemode Fiber

RS 485 Connections – Half Duplex

TYPE A TX/RX — OBD 1510 D

TX A (+), TX B (-) — RS 485 Half Duplex: GND, D+, D-. Leave Open (no connections)

TYPE B TX/RX — OBD 1510 D

RX A (+), RX B (-) — RS 485 Half Duplex: GND, D+, D-. Leave Open (no connections)

10km Max - Singlemode Fiber

Serial Settings

Serial Mode -	RS232 ... RS422/RS485	**Serial Mode** - Set to RS 422 / RS 485
Internal Termination -	ON ... OFF	**Termination** - Set to ON if last device in line
RX/TX Crossover -	ON ... OFF	**Crossover** - Not Applicable
RS422/485 Direction -	MAN ... AUTO	**Direction** - Set to AUTO

Power Adapter Options

The kit **INCLUDES** AC power supplies. The power adapters below are optional.

P-TAP 1000
Use with a standard battery P-TAP power source.

XLR 1000
Use with a standard 4 pin XLR camera battery power source

Specifications subject to change