UC485
OPTICALLY ISOLATED
USB to RS422/RS485
CONVERTER

DESCRIPTION

The **UC485** is an **optically isolated USB to one port RS-422/485** converter. The provided cable plugs into any available USB port on your computer or USB hub and the device will show up as an additional COM port in the Windows Device Manager, making the **UC485** compatible with Windows applications. The **UC485** is an USB to RS485 converter that draws power from the USB port so no power supply is required.

The **UC485** is an accessory for the Fireye® BurnerLogix, FLAME-MONITOR™ and MicroM flame safeguard control systems, the NEXUS system when using a ComFire or an NXMBI, the 45FS1 and 45UVFS1 Flame *Signature Scanners*™ and the 95IRS2, 95UVS2 and 95DSS2 InSight integrated scanners and the 105F1-1 Paragon scanner.

Optical isolation offers a significant improvement in noise immunity and improves reliability in communications throughput. The **UC485** is an USB to RS485 converter used to perform the following functions:

1. Customize the operating control messages and lockout alarm messages of the YZ300 Interlock Annunciator use in the BurnerLogix YB and ZB systems.
2. Customize the operating control messages and lockout alarm messages of the E300 Expansion Module used in the FLAME-MONITOR system.
3. Interface between a Windows based PC running the FS700W Communication Software and the 45FS1 and 45UVFS1 Flame *Signature Scanner* to provide remote communications capability.
4. Interface between a Windows based PC running the FS950W Communication Software and the 95IRS2, 95UVS2 and 95DSS2 InSight integrated scanners to provide remote communications capability.
5. Interface between a Windows based PC running the E720W BoilerWorx Communication Software and the E340 Burner Management Control System to provide remote communications capability.
6. Interface between a Windows based PC running the ComFire NEXUS Communication Software and the NEXUS parallel positioning combustion control systems to provide remote communications capability.
7. Interface between a Windows based PC running the PGEXLT (Explorer Lite), FEX1 (Fireye Explorer) Communication Software and the 105F1-1 Paragon or 95DSS3 InSight II integrated scanners to provide remote communications capability.

The UC485 provides the means to directly connect to any device that has RS485 communication capability.

The UC485 is packaged with an RJ12 telephone jack mounted on a PC board, (ED612), to provide an easy method to use the ED512 cables to interface to the BurnerLogix system including the YZ300/YZ320 Interlock Annunciators and EP programmers for customizing messages.

The UC485 includes TRANSMIT and RECEIVE LED's that indicate the transmission and reception of data respectively. The LED's are also useful when first configuring a system.
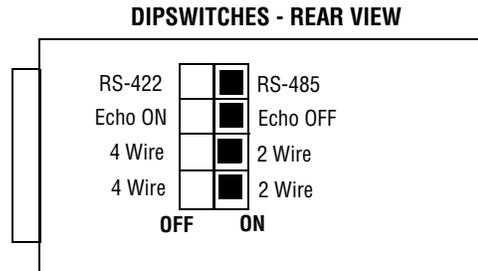
RS-485 Control

No special software is required to control the RS-485 receiver or transmit line driver. The driver is automatically enabled during each byte transmitted in RS-485 mode. The transmitter is always enabled in RS-422 mode. The receiver is tri-stated during each byte transmitted in the echo-off mode. The receiver is always enabled in the echo-on mode. There are 4.7k Ohm pull-up/pull-down resistors on the RDA and RDB lines. A termination resistor is usually not necessary but may be added if needed.

Dip Switch Set-up

Dip switches allow the **UC485** module to be configured for two-wire or four-wire, RS-422 or RS-485 modes. In two-wire mode the TDA(-) and RDA(-) are tied together so are TDB (+) and RDB (+), making multi-dropping the UC485 converter into an existing network easy.

Switch	OFF	ON
One (1)	TD always enabled **(TD 422)**	TD always enabled during data transmission **(TD 485)**
Two (2)	RD always enabled **(ECHO ON)**	RD disabled during data transmission **(ECHO OFF)**
Three (3)	Four-wire mode **(4-Wire)**	Two-wire mode **(2-Wire)**
Four (4)	Four-wire mode **(4-Wire)**	Two-wire mode **(2-Wire)**

DIPSWITCHES - REAR VIEW

RS-422	RS-485
Echo ON	Echo OFF
4 Wire	2 Wire
4 Wire	2 Wire

OFF   ON

For use with Fireye equipment it is recommended to have all dip switches set to the ON position.
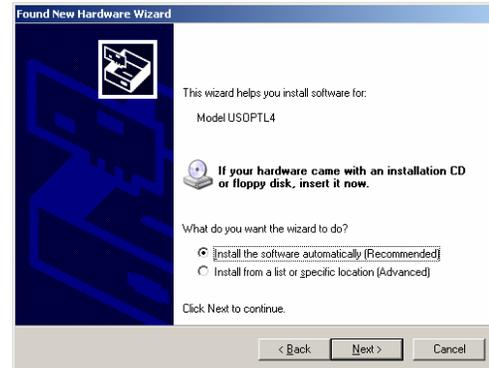
SPECIFICATIONS

Dimensions: .0.5 x 1.7 x 0.8 in (8.9 x 4.3 x 2.1 cm)

Temperature Range: 0° to 70° C (32° to 158° F)

Rs-422/485 Baud Rate: Pluggable (removable terminal block with ED612

RS-422/484 Connector: 12 Mbps

USB Connector: USB type-B female

USB Power: Low power device (<100 mA)

USB Compatibility: USB 1.0, 1.1 and 2.0

Operating System: Windows 98/SE, 2000, ME XP, Vista, 7

Isolation: 2000 V RMS

Surge Protection: 15KV ESD

Accessories: Driver CD, USB Cable, ED612

DECLARATION OF CONFORMITY

Manufacturer's Name: B&B Electronics Manufacturing Company
Manufacturer's Address: P.O. Box 1040
                            707 Dayton Road
                            Ottawa, IL 61350 USA
Model Numbers: USOPTL4, USPTL4
Description: Optically Isolated USB to RS-422/485 Converter
Type: Light Industrial equipment
Application of Council Directive: 89/336/EEC
Standards: EN 55022
                            EN 61000-6-1
                            EN 61000 (-4-2, -4-3, -4-4, -4-5, -4-6, -4-8, -4-11)

CE

Michael J.Fahrion, Director of Engineering

INSTALLATION FOR WINDOWS

#1. Plug the UC485 into an available USB port on your Windows compatible computer or connected hub. The screen above appears, telling you that there is a new device plugged into the USB bus. Click on *No, not this time,* then the **Next>** button.

#2. The screen above appears. Make sure *Install the software automatically* is selected. Then select the **Next>** button.

You may be prompted to BROWSE the CD to select the correct folder that contains the proper driver.

#3. The screen above will appear. Click the **Finish** button to complete the installation.

#4. Continue to install the serial port in the same way as installing the converter. Click the **Next** button followed by the **Finish** button. It takes a couple of seconds for the serial port to be installed.

CUSTOMIZING BurnerLogix YZ300 OR FLAME-MONITOR E300 MESSAGES

You can customize the recycle and lockout alarm message associated with each pair of terminals of the E300 Expansion Module and YZ300 Interlock Annunciator. Each customized message can be up to 40 characters in length.

The following equipment is required:

A Windows compatible PC with E300 (Flame-Monitor) or YZ300P (BurnerLogix) programming software.
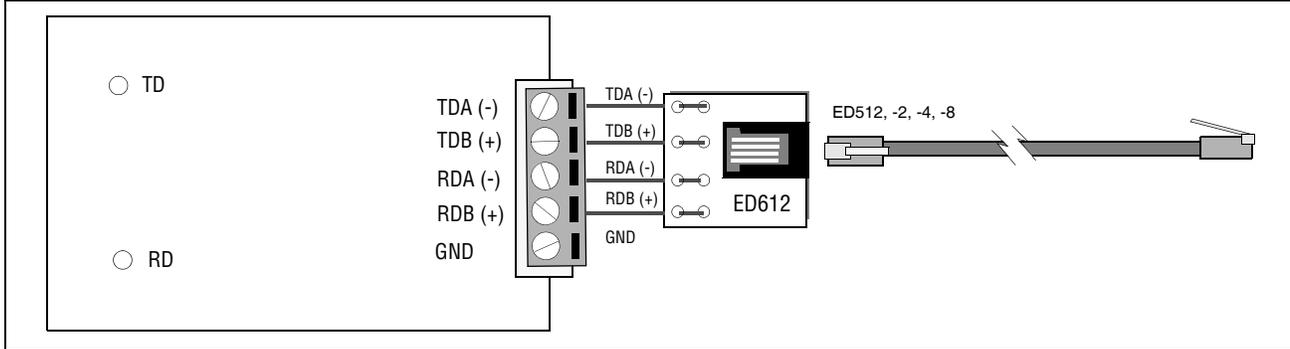
UC485 USB to RS485 converter with USB cable.

ED612 with RJ12 connector mounted and wired into terminal block of the UC485.

For E300 messages, an EP programmer with an engineering code of 28 or later.

For BurnerLogix, a YZ300 Interlock Annunciator.

1. Connect the UC485 converter to an available USB port of a Windows compatible computer.

FIGURE 1. .

2. Connect the ED612 (RJ12 female connector provided with the UC485) to terminals TD(A), TD(B), RD(A), and RD(B) on the UC485
3. Plug one end of the ED512-2, -4, -8 cable into the jack on the ED612 and the other end into either of the jacks located on the EP programmer for a FLAME-MONITOR system or directly into the YZ300 for a BurnerLogix system.

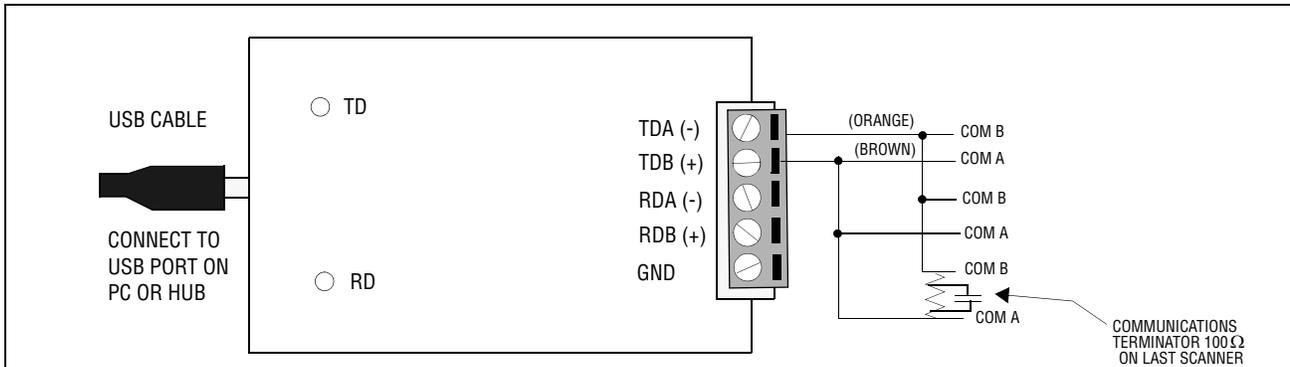For complete details on customizing the E300 messages, refer to bulletin E-3001.

For complete details on customizing the YZ300 messages, refer to bulletin YZEM-3001.

COMMUNICATING WITH 45FS1/45UVFS1 SIGNATURE SCANNERS OR 95IRS2/95UVS2/95DSS2 AND 95DSS3 INSIGHT II FAMILY OF INTEGRATED SCANNERS OR PARAGON SCANNERS

These flame scanners provide remote communications capability over an RS485 communication data link. The data link uses a single, twisted shielded pair wire (e.g. Belden 8761) in a multi-drop (e.g. daisy chain) wiring configuration. A Fireye communication software program running on a Windows compatible PC is required for communicating with the flame scanners.

Since the flame scanners communicate over the data link via RS485, the UC485 USB/RS485 converter is required for the communications Port of the PC. The UC485 converter is wired in the following manner:

FIGURE 2.   **UC485 WIRING**

For complete wiring details on wiring and communicating with these flame scanners, refer to the following bulletins:
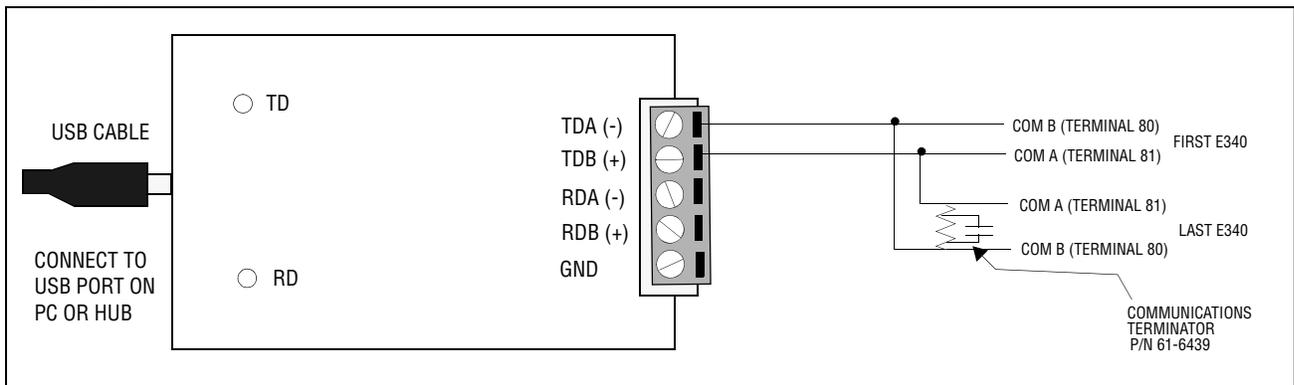
	SCANNER BULLETINS	SOFTWARE BULLETINS
45FS1/45UVFS1 SIGNATURE SCANNER	CU-32 & CU-33	CU-56 (FS700W/WINDOWS)
95IRS2/95UVS2/95DSS2 INSIGHT INTEGRATED SCANNERS	CU-95	CU-102 (FS950W/WINDOWS)
95DSS3 INSIGHT II INTEGRATED SCANNERS	CU-113	CU-109 (FEX1/WINDOWS)
105F1-1 PARAGON SCANNERS	CU-108	CU-111 (PGEXLT/WINDOWS)

COMMUNICATING WITH THE E340 BOILER CONTROL

The E340 Boiler Control also communicates over an RS485 communication data link. The data link uses a single, twisted shielded pair wire (Belden 8761) with the E340 controls wired in a multi-drop (e.g. daily-chain) wiring configuration. The Fireye communication software program (P/N E720W) is required for communication with the E340 controls.

Wire the UC485 converter to the E340 controls in the following manner:

FIGURE 3.

NOTICE

When Fireye products are combined with equipment manufactured by others and/or integrated into systems designed or manufactured by others, the Fireye warranty, as stated it its General Terms and Conditions of Sale, pertains only to the Fireye products and not to any other equipment or to the combined system or its overall performance.

WARRANTIES

FIREYE guarantees for *one year from the date of installation or 18 months from date of manufacture* of its products to replace, or, at its option, to repair any product or part thereof (except lamps and photocells) which is found defective in material or workmanship or which otherwise fails to conform to the description of the product on the face of its sales order. **THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES AND FIREYE MAKES NO WARRANTY OF MERCHANT-ABILITY OR ANY OTHER WARRANTY, EXPRESS OR IMPLIED.** Except as specifically stated in these general terms and conditions of sale, remedies with respect to any product or part number manufactured or sold by Fireye shall be limited exclusively to the right to replacement or repair as above provided. In no event shall Fireye be liable for consequential or special damages of any nature that may arise in connection with such product or part.

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