TwisterPro
UTP Transmitter/Receiver System

FSR

Video Products Group

DESCRIPTION

The TwisterPro™ UTP Transmitter / Receiver System allows video, stereo audio, RS-232 data and IR signal transmission over ordinary low cost CAT-5, 5e, 6 and cable. This system offers the highest level of signal integrity. These high quality devices ensure reliable, error free transmission that is immune to interference from electrical noise. Cable runs of up to 1000 feet are within the capabilities of the system (see specs for maximum cable length details).

There are wall plate style transmitters (1-gang and 2-gang) and receivers (2-gang) offered in three colors; black, white, and ivory. Matching Decora™ trim rings are included for stand alone use, or the units be populated along with FSR's IPS component and plates for a complete interface solution. There are also "brick" style housing versions that can be used on any surface or rack mounted using the accessory rack kits if preferred. (See TwisterPro™ accessories and ordering info).

TPRO receivers with skew compensation adjustments are optional and help adjust for mis-convergence of the red, green and blue video signals that can occur as a result of inherent delay caused by differences in cable twist lengths.

The system can be powered at either the transmitter or receiver end by the optional power supply(s). If a TPRO- HUB is used, the hub with it's included power supply, will power the other components in the system. This 1 in 8 out hub allows full expandability for demanding applications. Multiple hubs can be cascaded to achieve a maximum of 512 outputs.

FEATURES

RGB Video Transmission system
- HD-15 female connectors for video input and output
- CAT-5 connections are via RJ-45 Connectors (EIA/TIA-568B)
  - Video resolutions up to 1920 x 1080 (1080p)
- Cable skew compensation adjustments on -S model receiver
- Adjustable gain control on front panel

RS-232 Data Transmission
- DB-9 female connectors for the inputs and male for outputs (optional for TPRO-TX wallplate models)
- UTP connections are via RJ-45 Connectors (EIA/TIA-568B)
- Compatible with RS-232 standards
- UL and CSA approved external power source (wall plug-in)
- Simplex RS-232 up to 19.2k baud
- LED indication of RS232 data activity

IR Control Data Transmission
- Compatible with most IR devices
- Custom carrier frequencies are available per customer request
- Extends IR control up to 1000 feet
- Normal and high output emitter power level settings
- High output power level settings up to 60mW allows for multiple emitter connections - (emitters sold separately)
- Transmitters feature integrated IR sensors in addition to hard-wired input options
- LED indication of IR data activity

General
- Units can be powered at either end or through optional hub
- Over-current sensing with LED indication
- Video, RS-232 and IR LED indicators
- Optional 1 in 8 out TPRO-HUB with power supply available

APPLICATIONS
- Boardrooms
- Control Rooms
- Digital Signage
- Temporary Staging and Rental
- Houses of Worship
- Classrooms
- Hotel/Conference Facilities

FSR Inc.
244 Bergen Boulevard, Woodland Park, NJ 07424
Phone: 973.998.2300 · Fax: 973.785.4207
Web: www.fsrinc.com · E-mail: sales@fsrinc.com
Toll Free: 1-800-332-FSR1   LIT1283F

TwisterPro TYPICAL APPLICATIONS

Typical application with TPRO single Transmitter and Receiver

PROJECTOR

VIDEO

RS-232

PROJECTOR

REAR PANEL CONNECTION

OPTIONAL
T-PRO SERIAL
ADAPTER

POWER INPUT
(REAR PANEL)
OPTIONAL - FSR P/N
PS-24DC-500MA

COMPUTER VIDEO IN

VIDEO

COMPUTER
VIDEO OUT

POWER/
VIDEO

DATA

POWER/
VIDEO   DATA

AUDIO

IR OUT

SERIAL OUT

DATA

AUDIO IN   IR SENSOR

L   R
AUDIO OUT

TPRO-TXWP

TPRO-RXWP

OPTIONAL
IR-EC2-6
EMITTER

CAT5 CABLE
(SEE SPECS FOR
CABLE LENGTHS)

IR REMOTE
CONTROL

OR

INPUT FOR
EXTERNAL IR
SENSOR
(BY CUSTOMER)
(REAR PANEL)

TPRO-TXWP

TPRO-RXWP

STEREO AUDIO OUTPUT

POWER INPUT (REAR PANEL)
OPTIONAL - FSR P/N
PS-24DC-500MA

RS-232

PC/LAPTOP

Typical application using multiple TPRO-HUB's

PC

TRANSMITTER

RS-232 INPUT

INPUT FOR OUTPUT
DEVICE EXTERNAL IR
(BY CUSTOMER)

TPRO
UTP Input
to TPRO
Receiver

Local Monitor Out

RS232 IR
In-Gnd-In

Power
24VDC/0.19A
+ TPRO-Rx
+   -

UTP
PWR
OUT

Red = Overload

Computer Video In

L Gnd R
Audio In

STEREO AUDIO INPUT

MONITOR   MONITOR

RECEIVER   RECEIVER

RS-232   IR   RS-232   IR
OUTPUT   OUTPUT   OUTPUT   OUTPUT

TPRO   TPRO
UTP Input   UTP Input
from TPRO UTP   from TPRO UTP
Transmitter PWR   Transmitter PWR
out   out

Serial Out   Serial Out

IR   IR
Out   Out
Audio   Audio
Out   Out
L Gnd R Power 24VDC   L Gnd R Power 24VDC
.19A+TPRO-TX   .19A+TPRO-TX

Computer Video Out   Computer Video Out

STEREO   STEREO
AUDIO   AUDIO
OUTPUT   OUTPUT

TPRO-HUB

Model
TPRO-HUB   FSR   244 Bergen Blvd.
                  Woodland Park,
                  NJ 07424

1 2 3 4 OUTPUT 5 6 7 8   — INPUT —   POWER

24VDC, 2.7A MAX.

HUB POWER SUPPLY
(POWERS ALL DEVICES)

NO MORE THAN 3 HUBS DEEP

MONITOR   MONITOR

RECEIVER   RECEIVER

RS-232   IR   RS-232   IR
OUTPUT   OUTPUT   OUTPUT   OUTPUT

TPRO   TPRO
UTP Input   UTP Input
from TPRO UTP   from TPRO UTP
Transmitter PWR   Transmitter PWR
out   out

Serial Out   Serial Out

IR   IR
Out   Out
Audio   Audio
Out   Out
L Gnd R Power 24VDC   L Gnd R Power 24VDC
.19A+TPRO-TX   .19A+TPRO-TX

Computer Video Out   Computer Video Out

STEREO   STEREO
AUDIO   AUDIO
OUTPUT   OUTPUT

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TwisterPro ORDERING INFORMATION

TwisterPro requires a Transmitter (choose your preference), a Receiver (choose your preference), and Power Supply. No power supply is needed if you are connecting to the TwisterPro Hub.

Item #	Part #	Description
TwisterPro Wall Plate Transmitters - Includes Decora Trim Ring		
16991	TPRO-TXWP-BLK	1 Gang Decora PC Video, St Aud, IR Transmitter Wall Plate - Black
16992	TPRO-TXWP-WHT	1 Gang Decora PC Video, St Aud, IR Transmitter Wall Plate - White

TwisterPro 1RU x 1/4 Wide Brick Transmitter		
16998	TPRO-TXD	PC Vid, St Aud, IR and Serial Transmitter 1 RU x 1/4 Wide

TwisterPro Wall Plate Receiver - Includes Decora Trim Ring		
17009	TPRO-RXWPD-BLK	2 Gang Decora PC Video, St Aud, IR, Serial Receiver - Black
17012	TPRO-RXWPDS-BLK	2 Gang Decora PC Vid, St Aud, IR, Ser and Skew Comp Rx - Black

TwisterPro 1RU x 1/4 Wide Brick Receiver		
17015	TPRO-RXD	PC Vid, St Aud, IR, Serial Receiver 1 RU x 1/4 Wide
17016	TPRO-RXDS	PC Vid, St Aud, IR, Serial and Skew Comp Receiver 1 RU x 1/4 Wide

TwisterPro Power Supply		
15552	PS-24DC-500MA	24VDC 500ma Power Supply

TwisterPro Hub		
17017	TPRO-HUB	1 in 8 Out Hub with Power Supply

TwisterPro Accessories		
17019	IR-EC1-6	Single Head IR Emitter w/ 3.5mm Jack
15773	SS-P1DB-WHT	White Insert punched w/ 1 9-Pin D-Sub Hole
15775	SS-P1DB-BLK	Black Insert punched w/ 1 9-Pin D-Sub Hole
15706	SS-DPLT2-WHT	White Double Gang Decora Wall Plate
15708	SS-DPLT2-BLK	Black Double Gang Decora Wall Plate
16808	RK-1	1/4 and 1/2 Rack Mounting Kit
16809	RK-2	1/4 and 1/2 Rack and Module Mounting Shelf

TECHNICAL SPECIFICATIONS

RGB VIDEO INPUT

Connector	1-HD-15 female connector
Signal Type	1 RGBHV, RGBS, RGsB, RsGsBs, Component, S-video or Composite
Maximum Resolution	1920 X 1080 (1080P)
Impedance	75Ω
Level (nominal)	Analog 0.7V p-p
Level (maximum)	+-1.0 V

RGB VIDEO OUTPUT

Connector	1-HD-15 female connector (Brick models have an additional HD-15 loopback connector)
Signal Type	Same as input
Gain	Unity
Impedance	75Ω
Sync output	5V into Hi Z, 2.2V into 75Ω

AUDIO INPUT

Connector	1-3.5 mm stereo mini jack (wallplates), 3 pin Phoenix plug (bricks)
Signal type	Stereo unbalanced
Level (nominal)	0.25V RMS -10dBm
Level (maximum)	1.1V RMS, +3dBm
Impedance	50 kΩ
Encoding	Full stereo 24 bit, 96kHz sample rate
Frequency response	20Hz-15kHz +-0.5dB

AUDIO OUTPUT

Connector	Wallplate model receivers	2 RCA jack connectors
	Brick model receivers	3 pin pluggable screw terminals
Signal type	Stereo unbalanced	
Impedance	50Ω (Intended to drive a 600Ω or greater load)	
Gain	Unity +- 1.5dB	

CONTROL ADJUSTMENTS

Delay Adjust	Independent for R, G and B delay (Skew models only)
Delay range	0-62 ns (Skew models only)
Video Boost Switch	Dip switch (OFF 0-800'/ON 200-1000')
Gain control	Manual combined control for RGB

RS-232 DATA INPUT

Number/Type	One DB-9 female connector. (4 pin Phoenix plug on brick models) DCE type connection for direct connection to a PC serial port included on two gang transmitters only. Must order TPRO-Serial DB-9 accessory harness for one gang transmitters.
Handshaking	Local loopback only (Models with DB-9 connectors only)
RS-232 type	Unidirectional (data transmission from transmitter to receiver only)

RS-232 DATA OUTPUT

Number/Type	One DB-9 male connector. DTE type connection for direct connection to peripheral.
Data Rate	0-19.2k baud

INFRARED INPUT

Number/Type	Both models have internal sensor logically OR'd with hardwired input.	
	T-PRO TX brick models	One 4 pin pluggable Phoenix connector
	T-PRO-TX wallplate models	One C-grid SL 5-pin connector on the back of the unit.
Compatibility	Compatible with most IR outputs designed to drive an IR emitter LED.	

INFRARED OUTPUT

Number/Type	One3.5 mm mini jack, center positive. All TPRO-RX models (Use FSR IR-EC1-6 single or IR-EC2-6 dual emitter accessory.)
Output Switch	Dip switch (Normal 12 mW/High 60mW)
Carrier Range	40 kHz, custom frequencies available per request.

POWER REQUIREMENTS

TPRO-RX Receivers	24VDC@0.12A (Skew models are 24VDC@0.19A)
TPRO-TX Transmitters	24VDC@0.09A
	Power supplies are optional. Use FSR PS-24DC-500MA

MECHANICAL

	Model	Dimensions (inches)	Shipping weight lbs.
Transmitter enclosure	Brick	4.22 X 1.59 X 4.10	
	Wall plate	1.70 X 4.09 X 1.46	
Receiver enclosure	Brick	4.22 X 1.59 X 4.10	
	Wall plate	3.56 X 4.09 X 1.29	

GENERAL

UTP cable wiring standard/ type	EIA / TIA-568B CAT5, 5E, 6
Recommended transmission range	0-1000 ft with a single power supply (Up to 600' when powered at transmitter. Up to 1000' when powered at receiver. When using a TPRO-HUB with included power supply: The maximum distance to a transmitter is 1000'. The maximum distance to a receiver is 600' * * A distance of up to 1000' can be achieved by adding an additional power supply at the receiver