

General Description

The PDR FPV Optical Terminal is a compact, point-to-point fiber optic transmission system built around large-scale programmable logic devices. A single-fiber link carries a 1.25 Gbps optical transmission rate while simultaneously multiplexing a dedicated 10M/100M Ethernet data channel, composite video and TTL serial signals over one strand. The system pairs an airborne **Sky Unit (Type A)**, which accepts camera video and flight-controller telemetry, with a ground-side **Ground Unit (Type B)**, which outputs video to the display and interfaces with the remote controller, image-transmission module or FPV receiver. The Ground Unit supports both GH1.25 and cable interface modes with selectable CRSF or SBUS protocols via on-board dial switches. Designed for FPV drone and tethered-fiber applications, the terminal is safe, reliable and stable in performance while remaining lightweight and cost-effective.



FPV ground setup: remote controller linked to the Ground Unit

Key Features

- Point-to-point single-fiber optical link with 1.25 Gbps transmission rate
- Simultaneous multiplexing of composite video, 10M/100M Ethernet and TTL serial data over one fiber
- Airborne Sky Unit (Type A) and ground-side Ground Unit (Type B) as a matched pair
- Sky Unit available in four mounting sizes for flexible airframe integration
- Ground Unit dial-code selectable GH1.25 or cable interface mode
- Selectable CRSF or SBUS protocol for popular FPV / racing-drone flight controllers
- FC optical interface, RJ45 Ethernet and BNC video output on the Ground Unit
- PWR / SYC / Video / SDY status LEDs for at-a-glance link and signal diagnostics
- Wide DC input range (Sky Unit 5-12 V via GH1.25; Ground Unit 10-26 V via DC-IN)
- Lightweight, compact, reliable and cost-effective construction

PDR VIDEOTRONICS (INDIA) PRIVATE LIMITED

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Technical Specifications

Parameter	Specification
Architecture	Point-to-point optical terminal using large-scale programmable logic devices
Optical Transmission Rate	1.25 Gbps
Optical Connector	FC (single fiber)
Ethernet Channel	10M / 100M dedicated data channel (RJ45)
Video Channel	Composite video - input on Sky Unit, output on Ground Unit (BNC on Ground Unit)
Serial / Telemetry	TTL serial (Tx / Rx); PPM input; CRSF / SBUS protocol support (Ground Unit)
Interface Modes (Ground Unit)	GH1.25 interface mode (W) or Cable interface mode (C), dial-code selectable
Status Indicators	
Sky Unit (Type A) Sizes	Size 1: 88 x 88 x 26.5 mm Size 2: 108 x 88 x 26.5 mm Size 3: 115 x 115 x 26.5 mm Size 4: 141 x 120 x 26.5 mm
Ground Unit (Type B) Size	105 x 70 x 28 mm (L x W x H)
Sky Unit Power Input	5 - 12 V DC (via GH1.25 interface, pins marked P)
Ground Unit Power Input	10 - 26 V DC (via DC-IN terminal); GH1.25 provides 5 V output
Connector Type	GH1.25 (8P) on both units; RJ45 Ethernet; FC optical; BNC video (Ground Unit)
Design Attributes	Safe, reliable, stable, lightweight and cost-effective

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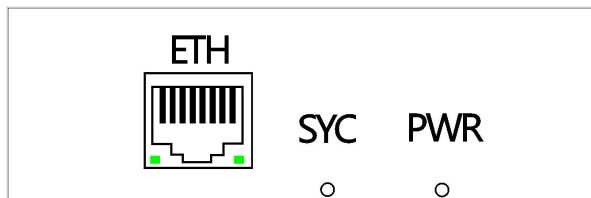
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Sky Unit (Type A) - Airborne Terminal

The airborne Sky Unit mounts on the aircraft and accepts camera video plus flight-controller telemetry, transmitting them down the fiber. It is offered in four sizes (Size 1: 88x88x26.5 mm; Size 2: 108x88x26.5 mm; Size 3: 115x115x26.5 mm; Size 4: 141x120x26.5 mm).



Sky Unit front panel - ETH (RJ45), SYC and PWR indicators

Front Panel Interfaces

No.	Interface Name	Interface Description
1	Pilot lamp (LED)	Status indicators - see Indicator Light table
2	Ethernet interface	RJ45 interface, 100M

Indicator Lights

Name	Color	Function Description
PWR	Green	On: power supply normal. Off: no power input.
SYC	Green	On: optical path signal synchronized. Off: optical path signal lost.

Back Panel - GH1.25 Interface (8P): provides power, TTL serial and video signal

Pin	Panel Silk	Signal Description
1	V	Video signal input
2	GND	Ground
3	R	TTL signal receive
4	T	TTL signal transmit
5	P	Power input (5 - 12 V DC)
6	P	Power input (5 - 12 V DC)
7	GND	Ground
8	GND	Ground

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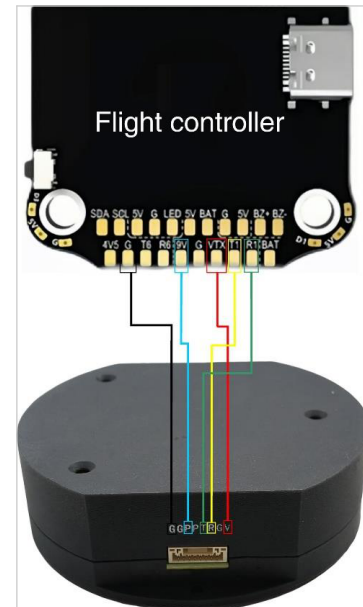
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Sky Unit (Type A) - Flight-Controller Connection

Wire the GH1.25 cable to the flight-control module per the colour codes below.

Sky Unit Silk	Wire Color	Flight Control Module
T	Green	R1
R	Yellow	T1
V	Red	VTX
GND	Black	GND
P	Blue	9 V



Sky Unit to flight-controller wiring

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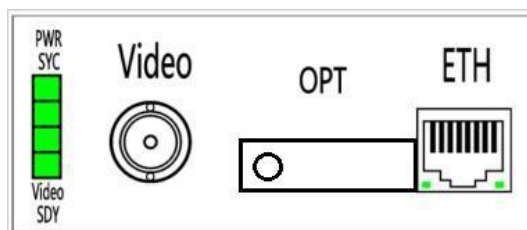
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Ground Unit (Type B) - Ground Terminal

The Ground Unit outputs video to the display and interfaces with the remote controller, image-transmission module or FPV receiver.
Size: 105 x 70 x 28 mm.



Ground Unit front panel - status LEDs, Video (BNC), OPT (FC) and ETH (RJ45)

Front Panel Interfaces

No.	Interface Name	Interface Description
1	Pilot lamp (LED)	Status indicators - see Indicator Light table
2	OPT	Optical path FC interface
3	ETH	100M Ethernet interface (RJ45)
4	Video	Video signal output (BNC)

Indicator Lights

Name	Color	Function Description
PWR	Green	On: power input normal. Off: no power input.
SYN	Green	On: optical path signal synchronized. Off: optical path signal lost.
Video	Green	On: video signal normal. Off: no video signal output.
SDY	Green	On: external PPM data input normal. Off: external PPM data input abnormal.

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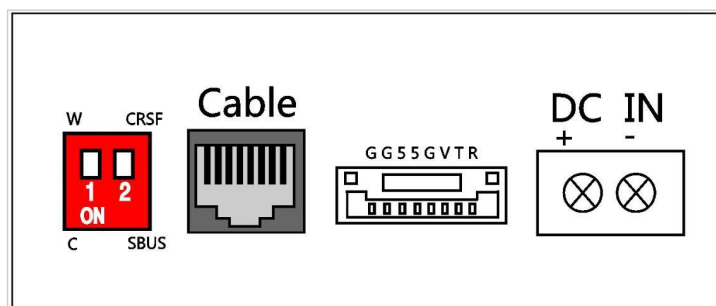
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Ground Unit (Type B) - Back Panel & Pinouts



Ground Unit back panel - dial-code switch, Cable port, GH1.25 connector and DC-IN

Dial-Code Switch Modes

Switch	Position	Mode
Dial code 1	W	GH1.25 interface mode
Dial code 1	C	Cable interface mode
Dial code 2	CRSF	Cable interface mode - FPV drone CRSF protocol
Dial code 2	SBUS	Cable interface mode - FPV drone SBUS protocol

Cable Interface (8P)

Pin	Signal Description
1	GND
2	GND
3	PPM signal input
4	Reserved
5	Reserved
6	Reserved
7	Reserved
8	Reserved

GH1.25 Interface (8P): provides 5 V power and TTL serial signal

Pin	Panel Silk	Signal Description
1	R	TTL signal reception
2	T	TTL signal transmission
3	V	Video signal output
4	GND	Ground
5	5	5 V power output
6	5	5 V power output
7	GND	Ground
8	GND	Ground

- DC-IN terminal - power input: 10 - 26 V DC

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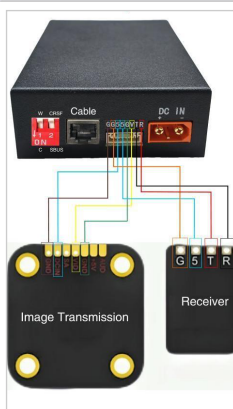
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Ground Unit (Type B) - Wiring Connections

Cable Interface Mode

Connect the remote-control DSC interface to the Cable port; set Dial-code 1 to **C** (cable mode) and Dial-code 2 to **CRSF** or **SBUS** per the FPV drone protocol. Wire the GH1.25 cable per the colour codes below.

Ground Unit Silk	Wire Color	Image-Transmission Module Silk
V	Yellow	VID
GND	Green	GND
5	White (grey in diagram)	DCIN
GND	Brown	GND



GH1.25 mode wiring - image-transmission module and receiver

GH1.25 Interface Mode

Set Dial-code 1 to **W** (GH1.25 mode); select the appropriate TTL connection for the receiver and wire per the colour codes below.

Ground Unit Silk	Wire Color	Image-Transmission Module	Receiver Module
V	Yellow	VID	-
GND	Green	GND	-
5	White (grey in diagram)	DCIN	-
GND	Brown	GND	-
R	Red	-	T
T	Black	-	R
5	Blue	-	5
GND	Orange	-	GND

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