S1400-P33-MINI
User manual

SwiftLink series : 1.4GHz
Version: 20250501V1.1

Version history

Date	Version	Modification description
20240724	V1.0	Initial Version
20250501	V1.1	Reformat and add point-to-multipoint content

Catalogue

1.Product overview

S1400-P33-MINI is a self-developed miniaturized TDD bidirectional video integrated wireless transmission device. The product has the functions of real-time interference detection, adaptive frequency selection, adaptive stream, automatic retransmission and automatic power control, which greatly improves the ability of anti-multipath and anti-interference, and has the characteristics of high reliability, good stability and low delay.

This product is suitable for firefighting, inspection, monitoring and other scenarios, the transmission distance of 30KM+ when the environment is good.

2.Product Features

- Support long-distance transmission: 4M code flow can be transmitted up to 30km+.
- Supports large bandwidth transmission: Maximum support 24Mbps@20MHz.
- Supports automatic relay transmission: Supports automatic trunk addition.
- Supports multi-interface design: Single Ethernet port + two serial ports, supports RS232/TTL/SBUS.
- Automatic frequency selection is supported: Automatic detection of interference signals, real-time selection of the optimal frequency point.
- Supports automatic retransmission: Automatic retransmission of burst error data improves data reliability.
- Supports adaptive stream: The channel modulation mode is automatically adjusted according to the signal quality in real time.
- Supports automatic power control: Close range automatic adjustment of transmission power, reduce power consumption.
- Supports automatic antenna selection: According to the occlusion situation, the optimal antenna transmission is selected in real time.
- Supports upstream and downstream dynamic allocation: Upstream and downstream bandwidth ratio the bandwidth is automatically allocated based on the actual data volume.
- Supports the coexistence of multiple sets: A maximum of six devices can be used at the same fixed frequency.
- Supports the frequency matching function: You can use software to configure frequency alignment and hardware key alignment.

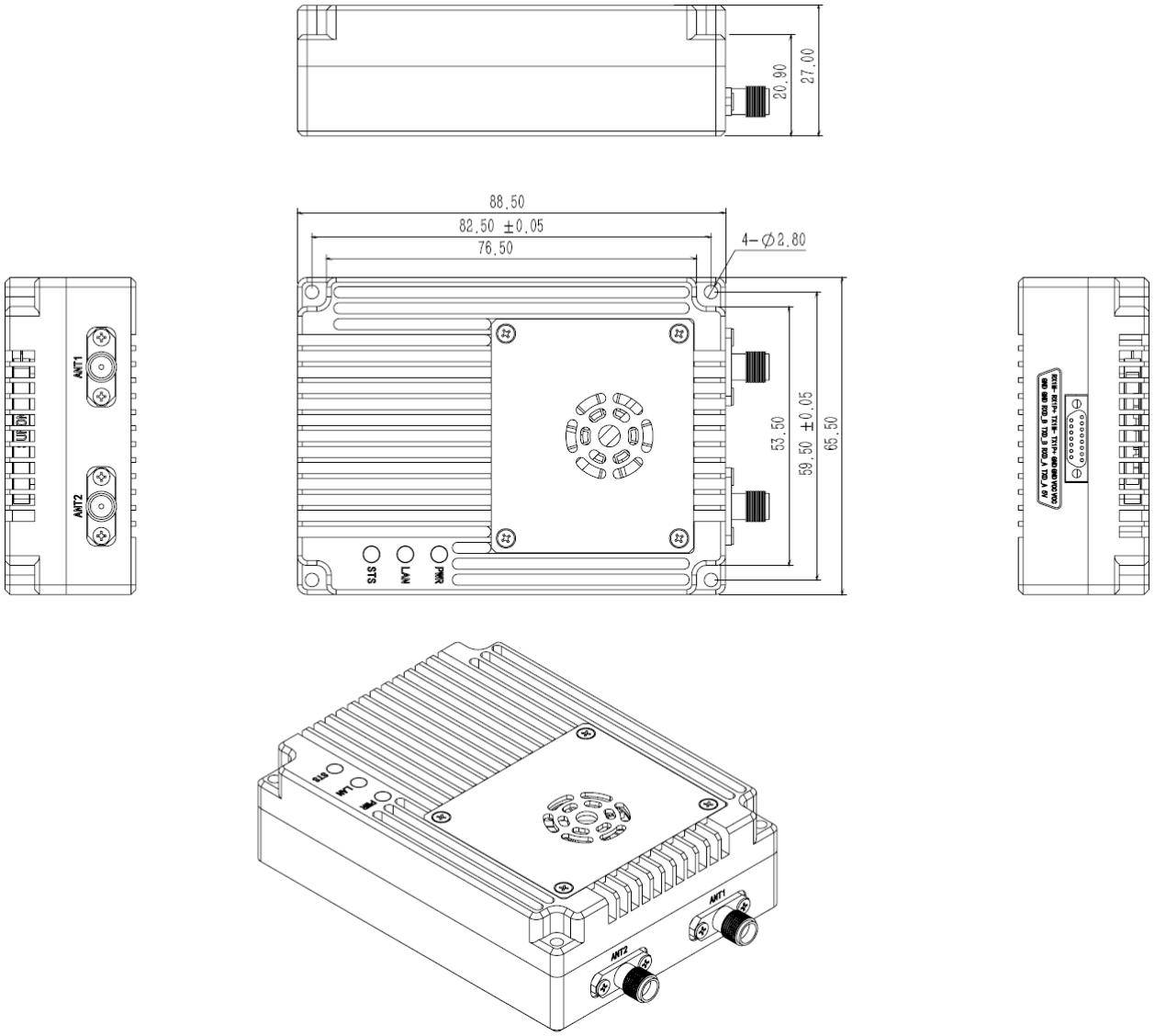
3.Product specifications

System parameter	Technical index
Equipment type	S1400-P33-MINI
Working frequency	1350~1470MHz
RF channel	2T2R
Transmission power	33dBm (2W)
Transmission distance	Air to ground 30KM+(LOS)
Channel bandwidth	10/20MHz
Modulation mode	QPSK/16QAM
Receiving sensitivity	See Table 2
Maximum speed	16.8Mbps@10M (P2P: Default) 26.4Mbps@20M (P2MP: Optional)
Encryption	AES256
Transmission delay	≤10ms
RF interface	SMA*2
Device interface	Ethernet *1
	Serial Port 1: TTL*1/RS232 *1
	Serial Port 2: TTL*1/RS232*1/SBUS*2
Consumption	≤ 25W @4Mbps (air unit)
	≤ 10W @1Mbps (ground unit)
Dimension(L*W*H)	98.5*65.5*27mm
Weight	198g
Working voltage	DC 9~26V, Typical value : +12V@3A
Working temperature	-40~+70℃

Table 2 MCS and total throughput （10/20MHz bandwidth）			
No	MCS	10M Total throughput(Mbps)	20M Total throughput (Mbps)
1	BPSK1/3	nonsupport	3.5
2	BPSK1/2	nonsupport	5.1
3	BPSK2/3	nonsupport	6.1
4	BPSK3/4	nonsupport	7.3
5	QPSK1/3	4.1	7.3
6	QPSK1/2	6.0	10.6
7	QPSK2/3	7.3	12.8
8	QPSK3/4	8.4	15.0
9	16QAM1/3	8.2	13.0
10	16QAM1/2	12.0	18.7
11	16QAM2/3	14.6	22.7
12	16QAM3/4	16.8	26.4

4. Product Dimension and weight

4.1 Dimensional diagram

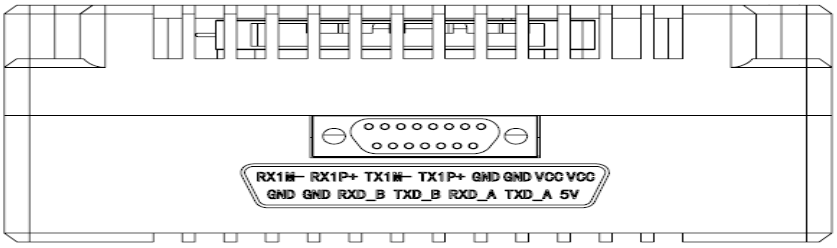


4.2 Dimension and weight

- Dimension: 98.5mm*65.5mm*27mm（include SMA 10mm）
- Weight: 198g

5.Product interface definition

5.1 Interface diagram



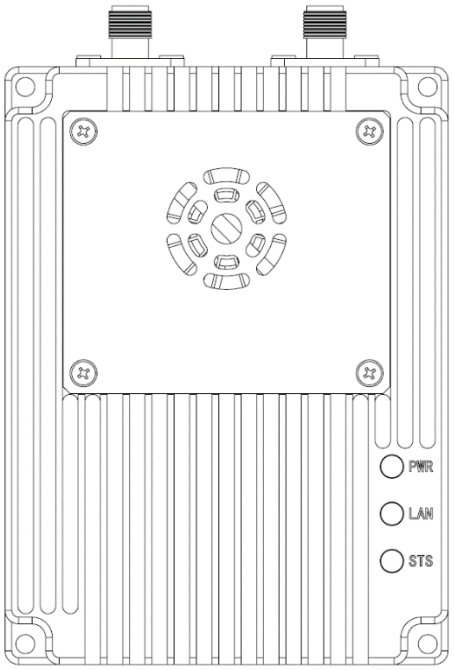
The interface of the S1400-P33-MINI device adopts J30J-15 PIN, with a total of 1 power supply, 1 network port and 2 serial ports. One of the serial ports is RS232*1/TTL*1, and the other one is TTL*1/RS232*1/SBUS*2. The levels of serial port 1 and Serial Port 2 are determined by the factory hardware. Customers are not allowed to modify through configuration.

5.2 Interface definition

Linear order	Pin name	Interface definition	Interface description	Signal direction
1	VCC	Power DC 9~26V	Power positive	I
2	VCC		Power positive	I
3	GND		Power negative	I
4	GND		Power negative	I
5	TX1P+	Ethernet *1	TX+	O
6	TX1M-		TX-	O
7	RX1P+		RX+	I
8	RX1M-		RX-	I
9	5V	5V Output	SBUS 5V Output	O
10	TXD_A	Serial port 1 RS232/TTL	Serial port 1 TX	O
11	RXD_A		Serial port 1 RX	I
12	SBUS /TXD_B	Serial port 2 SBUS/TTL/RS232 (NOTE 4,5)	Serial port 2 TX	O
13	SBUS /RXD-B		Serial port 2 RX	I
14	GND		Serial port 2 Ground	O
15	GND	Ground	Serial port 1 Ground	O

Note 1: Signal direction I indicates radio input and direction O indicates radio output.
Note 2: Serial port 1 can be used only with RS232/TTL, PIN10,11,15. Delivery is determined by the hardware.
Note 3: Serial port 2 can be used as RS232/TTL/SBUS. The factory is determined by hardware. TTL and SBUS can be switched to software.
Note 4: When serial port 2 uses one SBUS, PIN9,13,14 is used at the ground end. Use PIN12,14 for the sky end.
Note 5: If two SBUS are required, configure pin12->pin12 for the sky SBUS mapping. pin13->pin13.

6.Description of the product status indicator



PWR（green light）

The device is powered on, and the PWR keeps on.

LAN（green light）

The network port indicator blinks when data is being sent or received.

STS（Four-colour light）

Different colored lights indicate the current signal quality.

The STS light represents the SNR size of the received signal	
STS colour	SNR
green	SNR>10dBm
yellow	6dBm<SNR<10dBm
red	SNR<6dBm

Module type	Mode	PWR	LAN	STS
master	unsynchronized	The green light is steady on	Data is being transmitted and blinking	Blue light on
master	synchronization	The green light is steady on	Data is being transmitted and blinking	(green/yellow/red) Proportional to the strength of the received signal
slave	unsynchronized	The green light is steady on	Data is being transmitted and blinking	Blue light on
slave	synchronization	The green light is steady on	Data is being transmitted and blinking	(green/yellow/red) Proportional to the strength of the received signal

When the master and slave devices are not synchronized, the power PWR indicator of the master and slave devices is steady , and the STS blue indicator of the master device is always on. The blue light from the device's STS flashes. When the master and slave are synchronized, the master and slave's STS light becomes a three-color light, and the green light is displayed if the signal quality is good. A yellow light indicates moderate communication quality. A red light indicates poor communication quality. When the network port is sending or receiving data, the LAN indicators of the master and slave devices blink.