

HPS-120
HandyPort-Serial
Data Sheet

2019. 11. 08
SYD-2008-1E
Version 1.1
Production Information



Copyright

Status Information

The status of this data sheet is Production Information.

HandyWave products data sheets progress according to the following format:

Advance Information

Information for designers concerning HandyWave product in development. All values specified are the target values of the design. Minimum and maximum values specified are only given as guidance to the final specification limits and must not be considered as the final values.

All detailed specifications including pin-outs and electrical specifications may be changed by HandyWave without notice.

Pre-Production Information

Pin-out and mechanical dimension specifications finalized. All values specified are the target values of the design. Minimum and maximum values specified are only given as guidance to the final specification limits and must not be considered as the final values.

All electrical specifications may be changed by HandyWave without notice.

Production Information

Final Data Sheet including the guaranteed minimum and maximum limits for the electrical specifications.

Production Data Sheets supersede all previous document versions.

Life Support Policy and Use in Safety-Critical Applications

HandyWave's products are not authorized for use in life-support or safety-critical applications. Use in such applications is done at the sole discretion of the customer. HandyWave will not warrant the use of its devices in such applications.

RoHS Compliance

HandyPort devices meet the requirements of Directive 2002/95/EC of the European Parliament and of the Council on the Restriction of Hazardous Substance (RoHS).

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1. Introduction

1.1. General Descriptions

The HPS-120 from HandyWave is a ready-to-use short-range wireless connectivity solution for industrial. It provides the most economic and powerful way of cable replacement for the serial communication systems.

1.2. Key Features

- No need of external host and software
- Easy of installation and use
- Supports configuration of the local device
- Supports configuration of the remote device via Over-the-Air
- Easy of maintenance
- Supports up to 100 meter (Line of Sight)
- Supports RS-232
- Supports Point-to-Point and Point-to-Multipoint Topology

1.3. Key Specifications

- Operation Frequency: 2.4GHz ISM Band
- Transmitted Power: Max 20 / Typical 16dBm
- Received Sensitivity: More than -80dBm
- Power Supply: DC +5 ~ +12V
- Current Consumption: Up to 200mA at DC 5V
- Operation Temperature: -20 ~ 70 °C
- Dimension (w/o antenna): 35mm (W) x 65mm (D) x 16mm (H)
- Baud Rate: 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, and 115.2Kbps
- Antenna Interface: SMA Female
- Signal Interface: D_SUB 9 Pin Female

1.4. Record of changes

Table 1-1 Record of changes

Revision	Date	Reason for change
1.1	2019. 11. 08	Changed the zip code and web page address
1.0	2013. 08. 01	Original publication of Production Information Data Sheet (HandyWave reference SYD-2008-1E)

1.5. Acronyms and Definitions

Table 1-2 Acronyms and Definitions

Acronym	Definition
dBm	Decibels relative to 1mW
DC	Direct Current
HPS	HandyPort-Serial
ISM	Industrial, Scientific and Medical

2. Specifications

2.1. Package Information

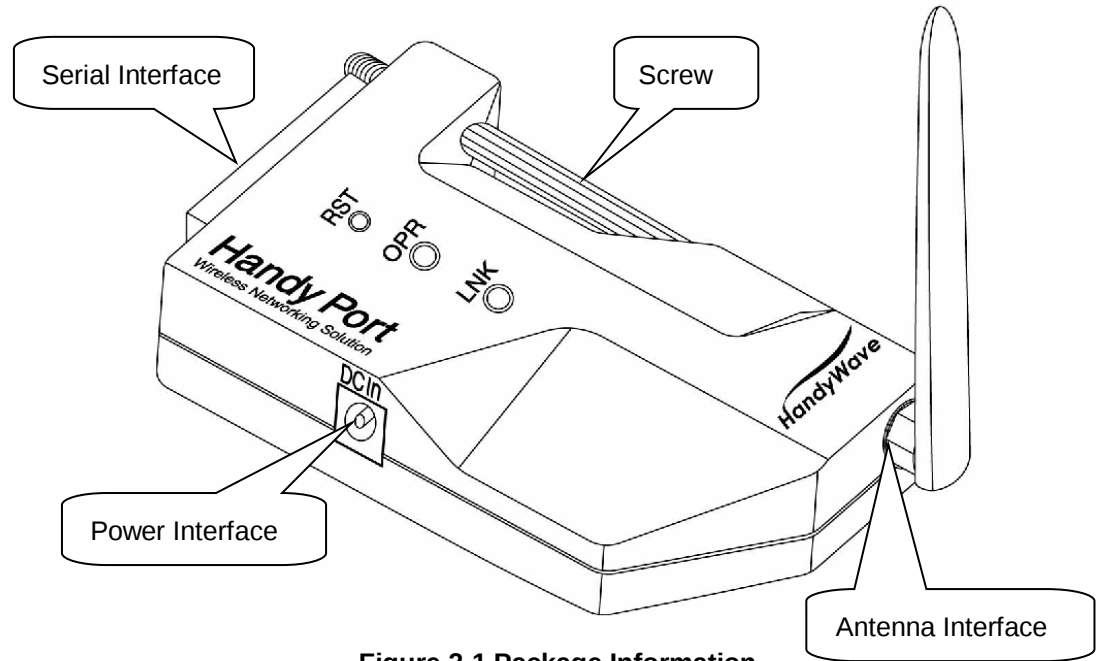


Figure 2-1 Package Information

Table 2-1 Package Information

Interface	
Serial Interface	D_SUB 9 Pin Female
Power Interface	DC Jack (DC +5V ~ +12V)
Antenna Interface	SMA Female
Others	
Notation	Description
LNK	Link Indication LED
OPR	Power Indication LED
RST	Reset Button

2.2. Electrical Characteristics

Table 2-2 Electrical Characteristics

Absolute Maximum Ratings		
Rating	Min	Max
Storage Temperature	-40°C	+150°C
Operating Temperature Range	-30°C	+70°C
Supply Voltage: Power	+5V	+15V
Recommended Operating Conditions		
Operating Condition	Min	Max
Operating Temperature Range	-20°C	+70°C
Supply Voltage: DC In	+5V	+12V

2.3. Serial Interface

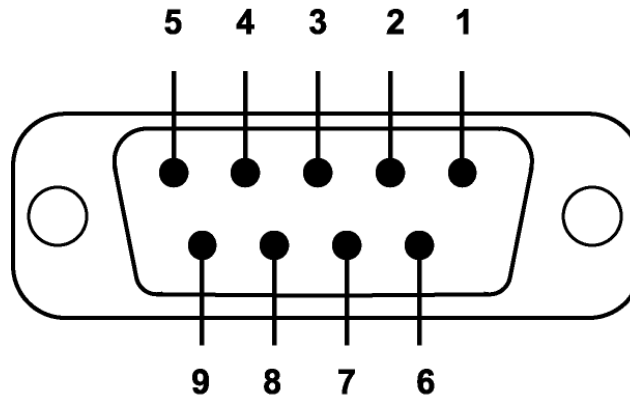


Figure 2-2 Serial Interface

Table 2-3 Serial Interface

Pin Number	Signal	Direction	Description
1	DCD	Output	Data Carrier Detect
2	TxD	Output	Transmitted Data
3	RxD	Input	Received Data
4	DSR	Input	Option: Data Set Ready
5	GND	N/A	Signal Ground
6	DTR	Output	Data Terminal Ready
7	CTS	Input	Clear to Send
8	RTS	Output	Request to Send
9	Vcc	Input	Power Supply (DC +5V ~ +12V)

2.4. Power Interface

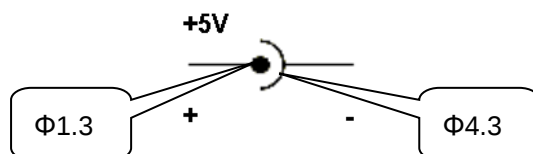


Figure 2-3 Power Interface

Table 2-4 Power Interface

Operation Temperature	-30°C ~ 70°C
Rated Current Capacity	DC 30V 200mA
Contact Resistance	$\leq 0.03\Omega$
Insulation Resistance	$\geq 100M\Omega$

2.5. Radio Characteristics

Table 2-5 Transmitter Performance

Transmitter Performance					
Parameter	Condition	Min	Typ	Max	Unit
Output Power	Normal/Extreme Test	-	18	-	dBm
Power Density	Normal/Extreme Test	-	-	20	dBm
Power Control	Normal/Extreme Test	2dB $\leq$ Step Size $\geq$ 8dB			
Frequency Range	Normal/Extreme Test	2400	-	2483.5	MHz
20dB Bandwidth	Normal/Extreme Test	-	850	1000	KHz
Adjacent Characteristics	$\pm 2\text{Mz}$	-	-	-20	dBm
	$\pm 3\text{Mz}$	-	-	-40	dBm
	$\pm 4\text{Mz}$	-	-	-40	dBm
Modulation Characteristics	$\Delta F1_{\text{avg}}$	140		175	KHz
	$\Delta F2_{\text{max}}$	115			KHz
	$\Delta F2_{\text{avg}} / \Delta F1_{\text{max}}$			80	%
Initial Carrier Frequency Tolerance		-75		75	KHz
Carrier Frequency Drift	One slot packet (DH1)	-25		25	KHz
	Three slot packet (DH3)	-40		40	KHz
	Five slot packet (DH5)	-40		40	KHz

Table 2-6 Transceiver Performance

Transceiver Performance					
Parameter	Condition	Min	Typ	Max	Unit
Out-of-Band Spurious Emissions	30MHz ~ 1MHz	-	-	-36	dBm
	1GHz ~ 12.75GHz	-	-	-30	dBm
	1.8GHz ~ 5.3GHz	-	-	-47	dBm
	5.1GHz ~ 5.3GHz	-	-	-47	dBm

Table 2-7 Receiver Performance

Receiver Performance					
Parameter	Condition	Min	Typ	Max	Unit
Sensitivity Level	Single slot packets	-	-90	-	dBm
	Multi slot packets	-	-88	-	dBm
C/I Performance	C/I _{co-channel}	-	-	11	dB
	C/I _{1MHz} (Adjacent channel selectivity)	-	-	0	dB
	C/I _{2MHz} (Adjacent channel selectivity)	-	-	-30	dB
	C/I _{≥3MHz} (Adjacent channel selectivity)	-	-	-40	dB
Blocking Performance	30MHz ~ 2000MHz	-10			dBm
	2000MHz ~ 2400MHz	-27			dBm
	2500MHz ~ 3000MHz	-27			dBm
	3000MHz ~ 12.75MHz	-10			dBm
Intermodulation Performance	N=5	-39	-		dBm
Maximum Input Level		-20	-10		dBm

2.6. Ordering Information

Table 2-8 Ordering Information

Package		Order Number
Size	Shipment Method	
210 x 127 x 24 (mm)	Box	HPS-120

Minimum Order Quantity: 1 box (Contains two HPS-120)

2.7. Contact Information

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