

# HPS-110 HandyPort-Serial *Data Sheet*

## 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).

## 1.1. General Descriptions

The HPS-110 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

- Supports Bluetooth Serial Port Profile and Generic Access Profile
- 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

- Standard: Bluetooth Specification Version 1.2 and/or above
- Operation Frequency: 2.4GHz ISM Band
- Transmitted Power: Max 20 / Typical 16dBm (Class 1)
- Received Sensitivity: More than -80dBm
- Power Supply: DC +3.3 ~ +16V
- Current Consumption: Up to 200mA at DC 5V
- Operation Temperature: -20 ~ 70 °C
- Dimension (PBA): 52.3mm (W) x 33.03mm (D) x 13.8mm (H)
- Dimension (Enclosure, option): 69mm (W) x 36.5mm (D) x 15.5mm (H)
- Baud Rate: 1.2, 2.4, 4.8, 9.6, 19.2, 38.4, 57.6, and 115.2Kbps
- Antenna Interface: SMA Female
- Serial Interface: 2.5mm Wire to Board Connector Angle Type 4 Pin Male

## 2. Specifications

### 2.1. Package Information

Figure 2-1 Package Information

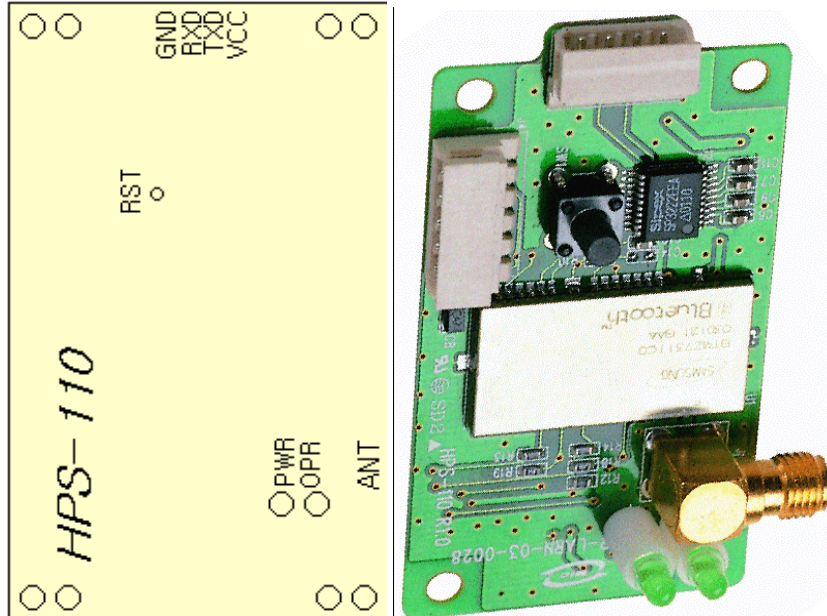


Table 2-1 Package Information

<u>Serial Interface</u>			
Pin Number	Notation	Direction	Description
1	VCC	Input	Power Supply (DC +3.3V ~ +16V)
2	TxD	Output	RS-232 Transmitted Data
3	RxD	Input	RS-232 Received Data
4	GND	N/A	Signal Ground
<u>Others</u>			
	Notation		Description
	ANT		Antenna Interface (SMA Female)
	OPR		Link Indication LED
	PWR		Power Indication LED
	RST		Reset Button

## 2.2. Electrical Characteristics

**Table 2-2 Electrical Characteristics**

<b>Absolute Maximum Ratings</b>		
Rating	Min	Max
Storage Temperature	-40°C	+150°C
Operating Temperature Range	-40°C	+85°C
Supply Voltage: Power	+3.3V	+16V
<b>Recommended Operating Conditions</b>		
Operating Condition	Min	Max
Operating Temperature Range	-20°C	+70°C
Supply Voltage: VCC	+3.3V	+16V

## 2.3. Serial Interface

**Table 2-3 Serial Interface**

General	
Manufacturer	Molex
Part Number	22-05-7045 (Old Part Number: 5268-04A)1
Orientation	Right Angle
Pitch	2.50mm (2.5mm Wire to Board Connector Angle Type 4 Pin Male)
Electrical	
Max Current	3.0A
Max Voltage	250V
Temperature Range	-40°C ~ +105°C
Physical	
Housing Material	PA Polyamide (Nylon) 6/6, Glass-filled
Flammability	UL 94V-0
Contact	Brass (CuZn)
Plating Contact	Tin (Sn)
Plating Tail	Tin (Sn)
Under Plating	Copper (Cu)

## 2.4. Radio Characteristics

**Table 2-4 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 ≤ Step Size ≥ 8dB			
Frequency Range	Normal/Extreme Test	2400	-	2483.5	MHz
20dB Bandwidth	Normal/Extreme Test	-	850	1000	KHz
Adjacent Characteristics	±2Mz	-	-	-20	dBm
	±3Mz	-	-	-40	dBm
	±4Mz	-	-	-40	dBm
Modulation Characteristics	ΔF1avg	140		175	KHz
	ΔF2max	115			KHz
	ΔF2avg / ΔF1max			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 2-5 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 2-6 Receiver Performance**

<b>Receiver Performance</b>					
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/I1MHz(Adjacent channel selectivity)	-	-	0	dB
	C/I2MHz(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

## 2.5. Package Dimensions

