



DASH7 - IP Gateway for Industrial Applications

868MHz / 915MHz

1 Introduction

Features

- Full D7A-IP Gateway for DASH7 Alliance Protocol v0.2 and v1.x.
- Controlled over HTTPS and MQTT
- Enhanced RX/TX radio performance
- Ethernet or 3G Connectivity (option)
- 868 MHz SRD or 915 MHz ISM band operation
- Modulation schemes: 2-FSK, GFSK
- Output power up to +20 dBm
- Data rate 9.6 / 55.6 / 166.7 kbps
- Power Over Ethernet (PoE) 12 V to 42.0 V supply
- Operating temperature: -40 °C to 85 °C

Applications

- Wireless sensor network
- Security systems
- Industrial monitor and control
- Internet of things (IoT)

Description

The GW is a fully integrated DASH7 gateway operating respectively in the 868 MHz SRD and 915 MHz ISM bands integrating the GW1101 Module.

The GW1101 module integrates an on-board LNA for superior receive sensitivity and a SAW filter to remove out of band unwanted signals. The separate Tx path allows output power up to 20 dBm.

The GW1101 is compatible with DASH7 Alliance v0.2 and v1.x specification.



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2 Hardware specification

2.1 Recommended operating conditions

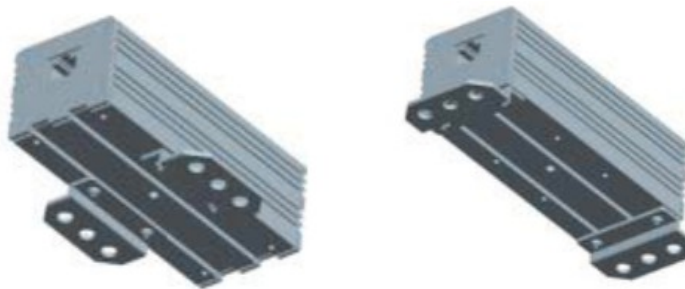
Table 1. Recommended operating conditions

Symbol	Parameter	Min.	Typ.	Max.	Units
T _A	Operating ambient temperature range	-40	-	85	°C
V _{CC}	Operating supply voltage	8.0	12.0	42.0	V
RH	Non-condensing Relative Humidity	Less than 95% at 40°C			%

2.2 Mechanical



Parameter	Value	Units
Dimensions, Length x Width x Height	115 x 55 x 42	mm
Weight	300	g



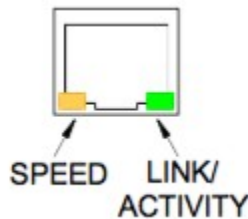
Wall Mount Brackets - Side or End Location

2.3 Interfaces

2.3.1 10/100/1000 Ethernet

The GW supports one GbE port. The Ethernet port operates in a 10BASE-T, 100BASE-TX or 1000BASE-T configuration and supports auto MDI/MDIX for automatically switching data receive and data transmit pairs. Additional features include full-duplex operation as well as support for auto-negotiation. The Ethernet MAC address is programmed during manufacturing.

The Ethernet port is available through a standard RJ45 connector with integrated status lights. The green status light indicates link and activity. The green light is on for link and blinking for activity. The yellow status light indicates speed. The yellow light is off for 10Mbps, on for 100Mbps, and blinking for 1000Mbps. The connector supports passive power over Ethernet by combining input power and ground with the data pairs. The power connections are diode protected to prevent power applied on one data pair from back feeding onto other data pairs



Drawing 1: Ethernet RJ45 Connector

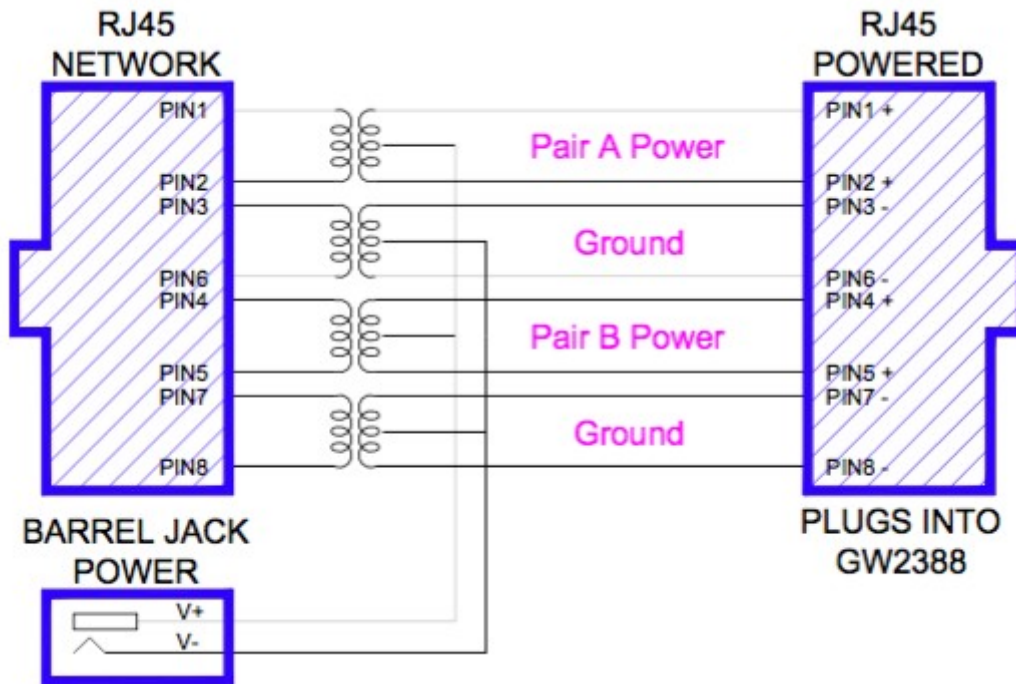
2.3.2 Power Supply

The input power is supplied through the RJ45 Ethernet connector in a passive power over Ethernet configuration. The following guidelines should be used when power is supplied through the RJ45 Ethernet connector:

- If using an 802.3af supply, the device signature should be disabled and the deliverable power set to maximum. The passive PoE architecture does not return a device signature.
- If using a passive PoE supply or injector, ensure that it is rated for the necessary voltage and power. The positive input voltage must be applied to the data pair connected to pins 1 and 2 and to the data pair connected to pins 4 and 5 of the RJ45 cable as shown in the diagram below.
- The negative input voltage must be applied to the data pair connected to pins 3 and 6 and to the data pair connected to pins 7 and 8 of the RJ45 cable as shown in the diagram below.
- The positive inputs are all diode protected so that powering through one will not back feed through the others.
- The RJ45 connector is rated for a 0.6A maximum current per data pair for a total of 1.2A per

connector. If the 3G card option is installed, it is necessary to use both connectors or to increase the operating voltage to lower the current depending on the total power required.

- The RJ45 connector is not a hot plug connector and **ALL CABLE CONNECTIONS SHOULD BE MADE BEFORE POWER IS APPLIED.**



Drawing 2: Passive Power over Ethernet Schematic

2.3.3 SubGHz communication Antenna

A reverse polarity SMA connector is provided for connecting an externally mounted antenna (868MHz Europe – 915MHz USA)

2.3.4 Cellular communication Antenna (Option)

When the 3G option is installed, a SMA connector is provided for connecting an externally mounted 3G antenna.

3 Current consumption

3.1 Operating Current

Table 2. Current consumption @ 25°C

Symbol	Parameter	Test conditions	Min.	Typ.	Max.	Units
I _{CC}	Supply current VCC=8V	Sleep	340	360	393	μA
		Run*	414	423	492	mA
		Run with 3G option inactive		TBD		mA
		Run with 3G option active in GPRS		TBD		mA
		Run with 3G option active in 3G		TBD		mA
	Supply current VCC=12V	Sleep	516	530	556	μA
		Run*	253	262	298	mA
		Run with 3G option disabled	282	310	430	mA
		Run with 3G option active in GPRS	322	361	415	mA
		Run with 3G option active in 3G	388	430	490	mA
	Supply current VCC=15V	Sleep	646	661	687	μA
		Run*	208	212	237	mA
		Run with 3G option disabled		TBD		mA
		Run with 3G option active in GPRS		TBD		mA
		Run with 3G option active in 3G		TBD		mA

*3G Option not installed

Boot time 1min 45.

4 Ordering information

Contact us at : contact@wizzilab.com

Or visit our website: <http://www.wizzilab.com/>

5 Revision history

Table 3. Document revision history

Date	Revision	Changes
24-Jun-2015	1.0	Document creation
07-Sep-2016	1.1	Support D7A 1.x