1-Wire Temp Sensor

User Guide

For GVxxx-Series Devices

ACCEACT100UG001

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Contents

0. Revision history

Revision	Date	Author	Description of change
1.00	2012-07-04	Cid Xu	Initial

1. General Description

AC100 is a convert cable, which is designed for connect 1-wire devices to GVxxx-series devices of Queclink.

This 1-Wire Temperature Sensor uses Maxim DS18B20 digital thermometer solution (Note1), which is designed to monitor the temperature of Refrigerator car.

Using AC100 and 1-Wire Temperature Sensor, GVxxx-series devices can support reading multiple Temperature Sensors at the same time.

Note1:
The DS18B20 digital thermometer provides 9-bit to 12-bit Celsius temperature measurements. The DS18B20 communicates over a 1-Wire bus that by definition requires only one data line (and ground) for communication with a central microprocessor. It has an operating temperature range of -55°C to +125°C and is accurate to ±0.5°C over the range of -10°C to +85°C. In addition, the DS18B20 can derive power directly from the data line (“parasite power”), eliminating the need for an external power supply.
Each DS18B20 has a unique 64-bit serial code, which allows multiple DS18B20s to function on the same 1-Wire bus. Thus, it is simple to use one microprocessor to control many DS18B20s distributed over a large area.

2. Product Specification

2.1. Appearance

1-Wire Temperature Sensor

AC100

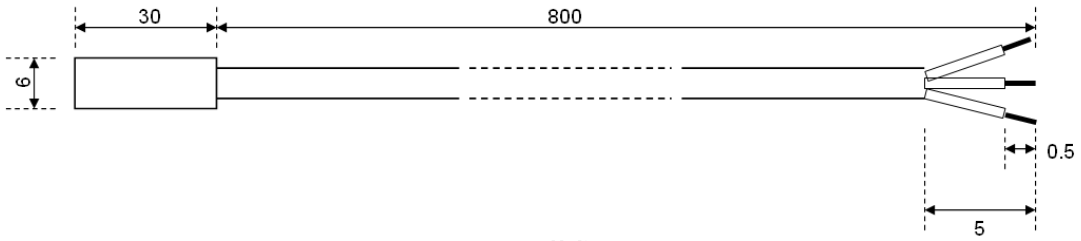
2.2. Basic Specification

NO.	ITEM	SPECIFICATION
1	Stainless steel case size	6mm*30mm
2	Wire Length	800±5cm
3	Voltage Range on Any Pin Relative to Ground	-0.5V to +6.0V
4	Supply Voltage (V_{DD})	3.0V~5.5V
5	Operating Temperature	-55℃～+125℃
6	Storage Temperature	-55℃～+125℃
7	Thermometer Error	±0.5℃ (-10℃～+85℃)
		±2℃ (-55℃～+125℃)
8	Input Logic-Low	-0.3V~+0.8V
9	Input Logic-High	Local Power：+2.2V ~ The lower of 5.5V or (V_{DD} + 0.3V)
		Parasite Power：+3.0V ~ The lower of 5.5V or (V_{DD} + 0.3V)
10	Standby Current	750nA (TYP), 1000nA (MAX)
11	Active Current (V_{DD} = 5V)	1mA (TYP), 1.5mA (MAX)

2.3. Parts List

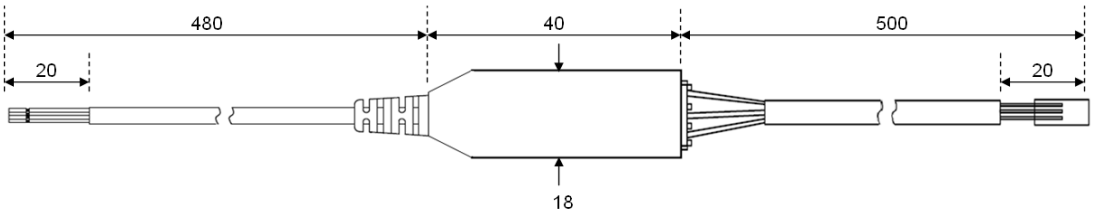
Name	Picture	Remark
AC100		Convert RS232 UART to 1-Wire interface.
1-Wire Temperature Sensor		DS18B20 1-Wire Temperature Sensor with 8M Cable

2.4. Product Outside Overview



Unit: cm

1-Wire Temperature Sensor



Unit: mm

AC100

3. Installation

3.1. Interface Description

There are 4 wires input and 3 wires output interface on AC100, the description of the wires and sample connection between AC100, Temperature Sensor and GV200/GV300 are showed as follow.

3.2. 4Pin Input Interface

AC100 Input Interface Connect to GVxxx

AC100	PIN Name	Color	Description	Connect to GV300	Connect to GV200
Input Interface	**PWRIN**	RED	8~32V input, can be connected to the vehicle battery directly.	PIN11 PWR	PIN24 VIN
	GND	BLACK	Ground	PIN6 GND	PIN18 GND
	TXD_232	WHITE	RS232 level, receiver data, connect to TXD of GVxxx devices	PIN5 TXD	PIN11 TXD2
	RXD_232	GREEN	RS232 level, transmit data, connect to RXD of GVxxx devices	PIN4 RXD	PIN9 RXD2

3.3. 3Pin Output Interface

AC100 Output Interface Connect to 1-Wire Temp. Sensor

AC100	PIN Name	Color	Description	TEMP SENSOR DS18B20
3PIN 1-Wire Interface	**VDD**	RED	Power output to the 1-Wire devices, the voltage output is 3.4V	1-Wire power (RED)
	GND	BLACK	Ground	1-Wire ground (GREEN)
	1WIRE	GRAY	1-Wire data	1-Wire data (YELLOW)

4. Message Format and Operation

Reference GVxxx @Track Air Interface Protocol.