Description

Panel mount probe ES-DS18B20 is based on temperature sensor DS18B20. DS18B20 digital thermometer provides 9-bit to 12-bit Celsius temperature measurements and has an alarm function with nonvolatile user programmable upper and lower trigger points. 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 −10℃ to +85℃ and is accurate to ±0.5℃. In addition, the DS18B20 can derive power directly from the data line ("parasite power"), eliminating the need for an external power supply. Each ES-DS18B20 has a unique 64-bit serial code, which allows multiple probes to function on the same 1-Wire bus.

Operation and Communication

The ES-DS18B20 probe can be powered by an external supply on the VDD pin, or it can operate in "parasite power" mode, which allows the DS18B20 to function without a local external supply. Parasite power is very useful for applications that require remote temperature sensing or that are very space constrained.

When the DS18B20 is used in parasite power mode, the VDD pin must be connected to ground.

Each probe ES-DS18B20 contains a unique 64−bit code stored in ROM. The least significant 8 bits of the ROM code contain the DS18B20's 1-Wire family code: 28h. The next 48 bits contain a unique serial number. The most significant 8 bits contain a cyclic redundancy check (CRC) byte that is calculated from the first 56 bits of the ROM code. The 64-bit ROM code and associated ROM function control logic allow the DS18B20 to operate as a 1-Wire device using the protocol detailed in the 1-Wire Bus System section.

Features

- ✔ wide supply voltage range (3.0 V to 5.5 V)
- ✔ 1-Wire Interface with multiple devices
- ✔ Fully calibrated, linearized, and temperature compensated digital probe
- ✔ Cable length and connector type on demand
- ✔ Arduino & Raspberry compatible

Absolute Minimum and Maximum Ratings

Stress levels beyond those listed in Table may cause permanent damage to the device or affect the reliability of the sensor. These are stress ratings only and functional operation of the device at these conditions is not guaranteed. Ratings are only tested each at a time.

Parameter	Rating	Units
Voltage Range on Any Pin Relative to Ground	−0.5 to 6	V
Active Current (Vdd=5V)	1.5	mA
Supply Voltage (Vdd)	3.0 to 5.5	V
Operating temperature range (±0.5℃ Accuracy)	−10 to 85	℃

Pin Assignment

Wire	Signal	Notes
brown	VCC	Supply voltage
green	GND	Ground
white	DATA	Communication wire to "1-wire" interface. Probe can be parasitic powered from this pin.

Ordering Information

Name	Connector	Description
ES-DS18B20-A100	3x single pin header for Arduino debug	Cable L=100cm

Mechanical Solution
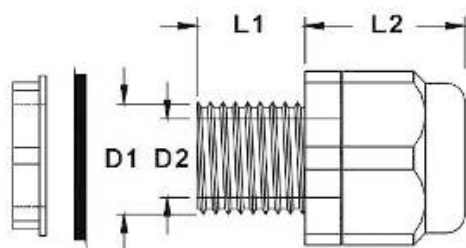
L1=7.9mm

L2=21mm

D1=15.2mm

D2=10.5mm

Ingress Protection: IP67
Screw thread: PG9
Wrecnch size (WS): 19