

QUASAR PROJECT KIT # 3145 - TEMPERATURE DATA LOGGER

This is an 8-pin microcontroller based circuit for temperature data logging via the serial port of any computer from between 1 and 4 remote digital temperature sensors, DS18S20 made by Dallas. The DS18S20 replaced the DS1820 during late 2000. Both data sheets are on our website at:

www.quasarelectronics.com/ds.htm

Features

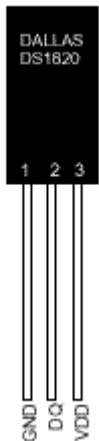
- provides realtime data via the serial port
- interfaces up to 4 x DS18S20 sensors
- accuracy to 0.5 degrees centigrade
- fahrenheit scale selected by a jumper
- no external power required
- data stream easily logged & processed
- over 200m distance for each sensor

We have only provided one DS18S20 in this kit due to the cost of this component. This allows you to test the kit. Then if it is what you want you may buy the 3 additional sensors either direct from us (£3.95 each plus standard postage).

We also have not provide cables to connect between the kit and each remote sensor. But we do provide a harness and connector to easily connection of the cables to the PCB. We have not tested the maximum distance which the sensors can be located from the PCB but believe it be much more than 200 meters.

Assembly

First check the components supplied against the Component Listing. Follow the overlay on the PCB to



assemble the kit. If you want to measure degrees Fahrenheit then add the Link 'F' to the board where shown. The default measurement is in degrees Centigrade, or you can add the Link at the 'C' position. The pinout of the DS18S20 is shown here. You can easily determine how to connect the sensor to the 3-wire harness by looking at the back of the PCB to see which is the ground connection. Or you can go by the harness color: red is GND, yellow is VDD and the middle wire black, is the signal line. No external power is required. The kit is powered from the

serial port of any type of computer.

Reading Data There are several ways to read the temperature data. You have to use a terminal program set to 2400 baud, 8 bits, no parity, 1 or 2 stop bits. The easiest way is to download **term.exe** from our website, run 'term 2400' and maybe hit the Esc key to get things started. You will see the data stream on your monitor. Use Alt-L to log the data. This log file may be dumped into an Excel spreadsheet for further processing.

The designer of the kit has also written some software which you may also download from our website address below. He has also provided the C sourcecode. Or you can write your own program in BASIC using the INPUT command to capture the data as it comes in.

If someone writes a good program in BASIC and will share it please send to me and I will put on my website for others to use.

Distance We believe the sensors may be located more than 200 metres from the PCB. Just check that the remote VDD is above 4.4Volts. The kit designer recommends 10uF tantalum capacitors be placed across the power supply pins (not supplied) to minimise random errors and possibly get increased range.

If power supply from your serial port is a problem you could use a lower current drawing 5 voltage regulator.

For more information about the technical details go to our detailed data webpage on kit 3145 at

www.quasarelectronics.com/3145data.htm

COMPONENT LISTING

| | | | | | |
|----------------------------------|-----|-----|-----|-----|---|
| 2K2 resistor 5% | R1 | R2 | R3 | R4 | 4 |
| 100uF mini | C1 | | | | 1 |
| Mono 104 | C2 | | | | 1 |
| 1N4004 | D1 | | | | 1 |
| 10uF mini | C3 | | | | 1 |
| 78L05 | IC1 | | | | 1 |
| Programmed 12C509 /P04 | IC2 | | | | 1 |
| 8 pin IC socket | | | | | 1 |
| DS1820 or DS18S20 | | | | | 1 |
| DB9 Right angle Female connector | | | | | 1 |
| 3 pin header and cable | DS1 | DS2 | DS3 | DS4 | 4 |
| 3145 PCB | | | | | 1 |

As mentioned, only one DS18S20 sensor has been supplied in this kit. The kit has room for 4 sensors. You may purchase additional sensors from us at £3.95 each plus our normal postage charge. **Call Sales on 0871 717 7168**

See our website at:

www.quasarelectronics.com

Email us at:

support@quasarelectronics.com

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