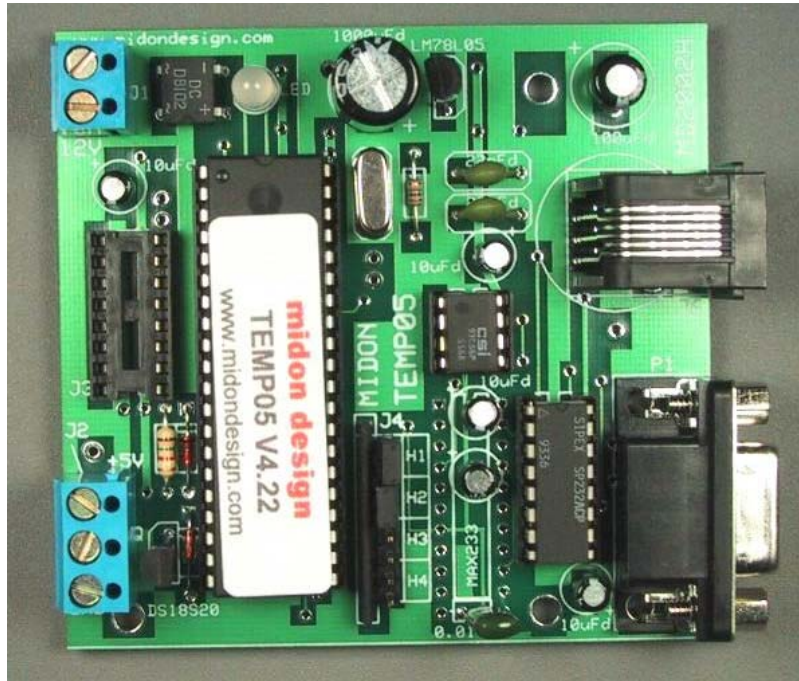


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A Temperature Logging Serial Interface **TEMP05**



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Introduction

Thank you for your purchase of the TEMP05 kit. The following instructions assume that you have properly assembled the units according to instructions and that preliminary tests have been run.

To complete this project, you will need to connect a 12 to 16 Volt (AC or DC) transformer to the terminal J1 (see Figure 2 for location of J1). If you are using the auxiliary RELAY05 unit with TEMP05, choose a transformer that is as close to 12 Volts as possible and that provides at least 0.7 Amperes. Otherwise, any 12 to 16 Volt adapter capable of at least 100mA will do.

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If you are using a sensor network of DS1820's for temperature readings, connect them now to connector J2. Only 2 pins of each DS18S20 need be connected, however a connection is required between the VDD and GND pins of the DS1820 if you are using parasitic power. See Figure's 1 and 2 for connections.

On Rev G or higher PCB's, a third terminal on J2 is provided for distributing +5V to the one-wire bus.

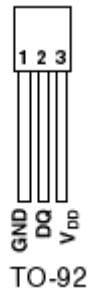


Figure 1 DS18S20 Pin-out

If you are using a Dallas Semiconductor One-Wire Weather Station Version 1, then remove the jumper H1 located on connector J4. Refer to Figure 2 for the location of this jumper. If you are using a Dallas Semiconductor One-Wire Weather Station Version 3, then add jumper to position H3 and make sure that a jumper is also installed in position H1.

If you are using a Dallas Semiconductor Rain Gauge, then remove the jumper H2 located on connector J4. Refer to Figure 2 for the location of this jumper.

If you require stronger signal strength for sensors located far away from the TEMP05, then install a jumper to connector J5 (Note: this is only applicable to software 4.20 or less and PCB's Rev F or lower).

Pre-assembled versions of this project include H1, H2 and J5 jumpers pre-inserted. J5 is not available on PCB rev G or higher.

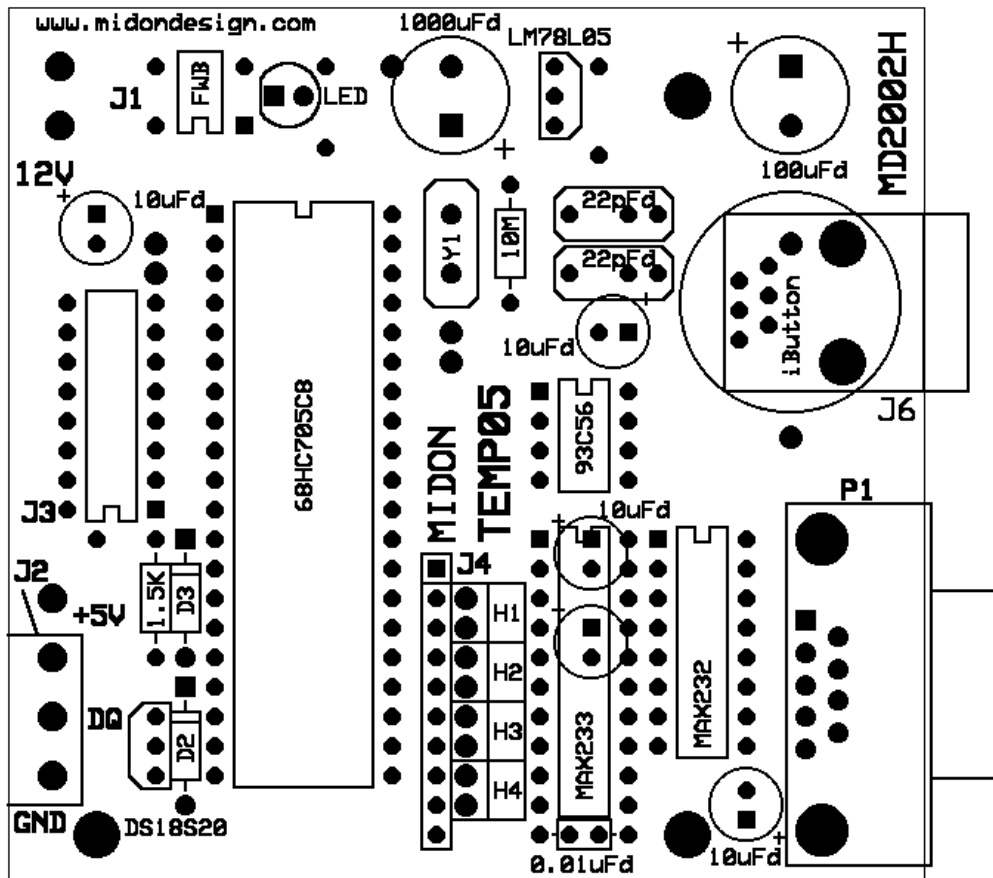


Figure 2 Parts Placement

Using the TEMP05

Power up the TEMP05 and configure the unit for the devices that you have connected. Connect up a straight-through serial cable between TEMP05's P1 connector and your PC. Open up HyperTerminal (or equivalent terminal emulator program) on your PC. Configure it to 9600 BPS, No parity, 8 bits, 1 start bit and NO hardware handshaking (very important!).

Issue an INI command to configure any connected sensors on the One Wire bus. If you get any error messages, it is most likely a result of a bad connection to the DS1820(s). Verify the connections.

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Now program the configuration by using the SET command. Just type SET and the program will prompt you for the 2 required settings, logging interval and Fahrenheit/Celsius (F/C) display. Pre-assembled units are pre-configured for 1 minute logging interval and Fahrenheit display.

If you also have a Version 1 One Wire Weather Station (OWWS), connect it up to the one-wire port J2. The setup process for a V1 OWWS is slightly more complex. I recommend that you first configure the OWWS using the Dallas Semiconductor software and instructions provided. If you have the OWWS up and running, shut down the software that is controlling it, locate the file INI.TXT that was generated by that software, and transfer the INI.TXT file to the TEMP05. You can use Hyperterm, or any equivalent communication package, to transfer the file. First issue the ONE command to the TEMP05, followed by an ASCII download of the INI.TXT file. Alternatively, you can simply type in the serial numbers that are in the INI.TXT file. Use the EEP command to enter them. Start at address 0 (use EEP 00).

If you are using the optional rain gauge and a version 1 OWWS, then the INI.TXT file will be truncated before reaching the rain gauge's serial numbers. No problem! Simply issue the INI command (with the rain gauge connected) after installing the weather station. The TEMP05 will locate the rain gauge and set itself up to use it.

If you have a version 3 One Wire Weather Station, installation is significantly simpler. Attach the OWWS to J2. Issue an INI command. Next, issue a NOR command to set the proper direction for North. Done! If you are also using a Rain Gauge, then attach it now and issue another INI command.

If you are using a wind direction sensor (any version), then ensure that the wind direction polarity is set to your requirements. Use the REV command if necessary.

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TEMP05 Commands

Table 1. Commands Available

Command	Description	Syntax	Available in
CRC	Check all device checksums	CRC	V4.14 or higher
DIS	Display serial numbers of all configured One-Wire devices	DIS	all
EEP	Display and change specific EEPROM memory locations	EEP <start location>	all
ERA	Erase the EEPROM	ERA	all
GET	Obtain and display wind and rain.	GET	all
HLP	Display a list of available commands	HLP	all
HUM	Request and display humidity sensor readings	HUM	V4.14 or higher
INI	Search for a list of available DS18S20's and rain gauge	INI	all
MEM	Display and change specific memory locations	MEM <start location>	all
NOR	Set North for a One Wire Weather Station	NOR	V4.17 or higher
ONE	Begin receipt of a Dallas Semiconductor V1 One Wire Weather Station INI.TXT file	ONE	all
QTY	Display a count of DS18S20 Sensors	QTY	V4.15 or higher
REV	Will reverse the wind direction to compensate for a reversed board in a One Wire Weather Station. North will stay N, and South will stay S, but East will become W, West will become E, etc.	REV	V4.18 or higher
RLB	Actuate all relays at once	RLB x where x = an 8 bit binary number representing all relays. The MSB is relays 8 and a 1 turns on a relay.	V4.17 or higher
RLT	Set the relay off timer. This timer will turn off all relays y minutes after the last RLYxOn command.	RLT You will be prompted for the relay timer value in decimal minutes.	V4.18 or higher
RLY	Actuate a specific relay	RLY <relay number> <on off> where <relay number> = 1 to 8 or A for All. RLY S (displays status of all relays)	all
RST	Reset the Rain Gauge counter	RST	all
SET	Configure the interval and F/C display	SET	all

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SID	Enables or disables serial number display for the temperature sensors.	SID <on off>	all
TMP	Display temperatures of all connected DS18S20's in either verbose (includes serial numbers) or non-verbose (similar to GET) manner	TMP	all
VER	Displays the current version of the software loaded	VER	all
VIE	Display 16 bytes of memory in HEX and ASCII	VIE <start location>	all

The MEM and EEP commands can be used for debugging, but I don't recommend this unless you know what the memory locations are used for. If you want to explore the software, please e-mail us for a copy of the listing file. You will need to quote the version number of the software when you request the listing file.

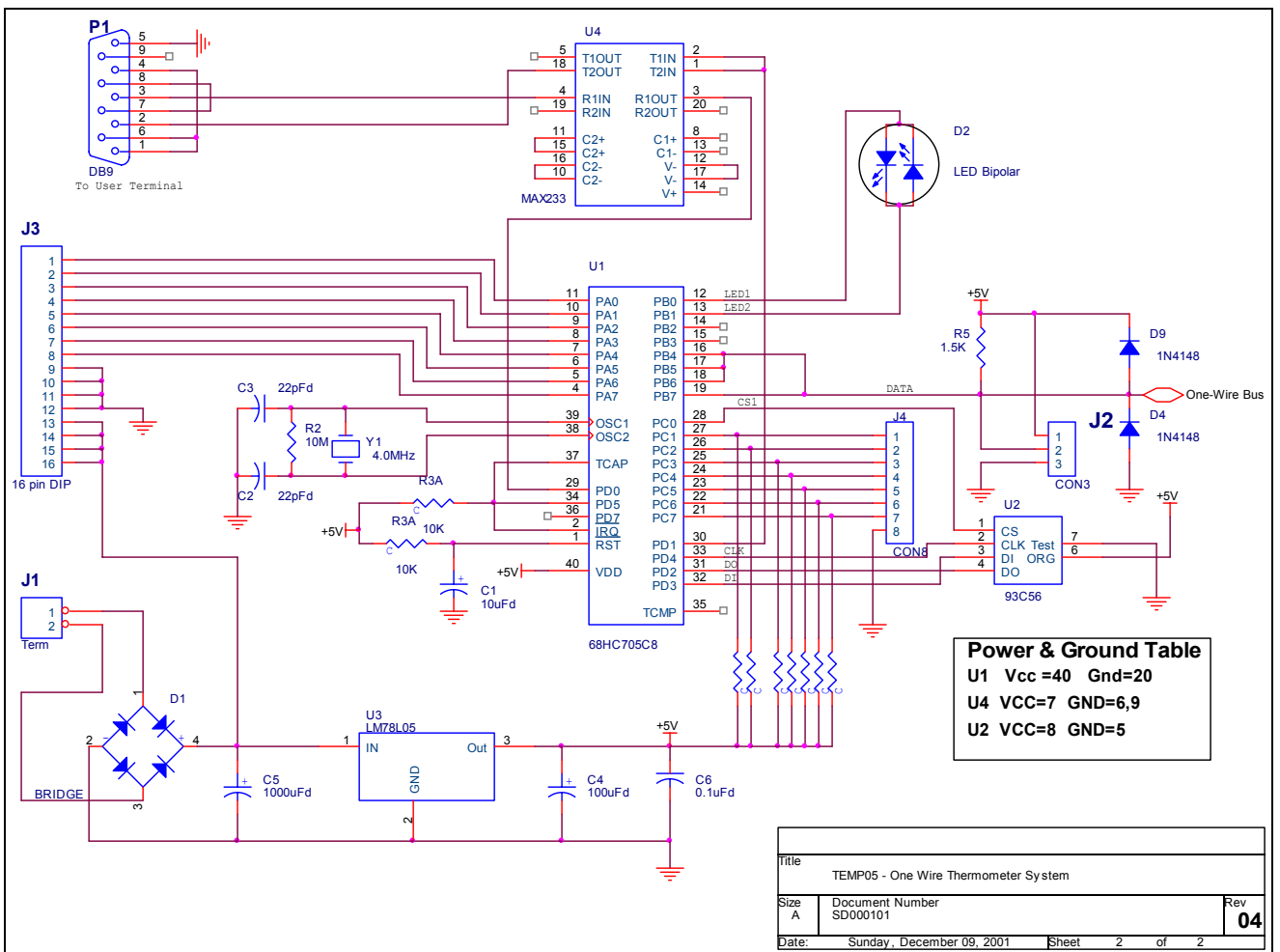


Figure 3 TEMP05 Schematic Diagram (REV G)

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Jumper Definitions

Jumper	Meaning if installed	Meaning if not installed
J4 H1	No V1 OWWS connected	A V1 OWWS is connected
J4 H2	No Rain Gauge connected	A Dallas Rain Gauge is connected
J4 H3	A V3 OWWS is connected	No V3 OWWS is connected
J4 H4	Not defined	Not defined
J5	Boost drive current available	No Boost current is provided to the sensors

Note: units shipped with V4.21, or higher, software will not include a jumper for J5. The connection will be permanent. PCB's with rev G or higher will not have a Jumper J5.

Note: H1 and H3 are mutually inclusive. Here are the valid combinations:

H1	H3	Valid?
installed	installed	Yes - a V3 OWWS is connected
installed	not installed	Yes - no OWWS is connected
not installed	installed	NO
not installed	not installed	Yes - a V1 OWWS is connected

What the heck is J6?

On rev G or higher PCB's, there is a spot for inserting a RJ-11, RJ-12, or iButton holder. This location is connected to the One Wire bus and can be used for adding connectivity to One Wire busses configured for RJ-11/12 connection. This can also be used, but not at the same time, as a place to insert an iButton. A Dallas/Maxim iButton holder DS9094F is required to use J6 for iButton connection.

Software Change History

Version	Date	Major Changes from Previous Loads
4.25	2/11/02	Added 93C66 EEPROM capabilities with an auto-check on power up for EEPROM type.
4.24	2/10/02	Minor tweaks to code size
4.23	12/15/01	Added parasitic check and display for DIS and QTY commands.
4.22	10/26/01	Fixed HUM command to ensure continuation of humidity readings even after an error on one reading.
4.21	9/1/2001	Added support for DS18B20 and DS1822 temperature sensors. Added check on OW bus for shorts or reversed sensors. QTY command now counts DS18S20, DS18B20 and DS1822 sensors

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		separately. Changed sensor numbering to start at 1 instead of zero.
4.20	8/30/2001	Fixed bug in 4.19 - will only read 1 humidity sensor.
4.19	8/10/2001	Code compaction only
4.18	7/22/2001	Added REV and RLT commands.
4.17	7/9/2001	Added support for V3 OWWS by AAG. Added NOR command to set true north on OWWS. Added RLB command to control all Relays at once.
4.16	7/7/2001	Beta version of DS2450 based weather station support
4.15	6/16/2001	Added QTY command
4.14	5/27/2001	Added capability of connecting multiple humidity sensors
4.13	5/12/2001	Added CRC command
4.12	3/20/2001	Added humidity sensor capability and increased temperature display precision

Your comments are appreciated. If you would like to submit feature requests or product recommendations, please e-mail us.

Please also check the Frequently Asked Questions link on the TEMP05 web page.

Legal Disclaimer

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Thank you!

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