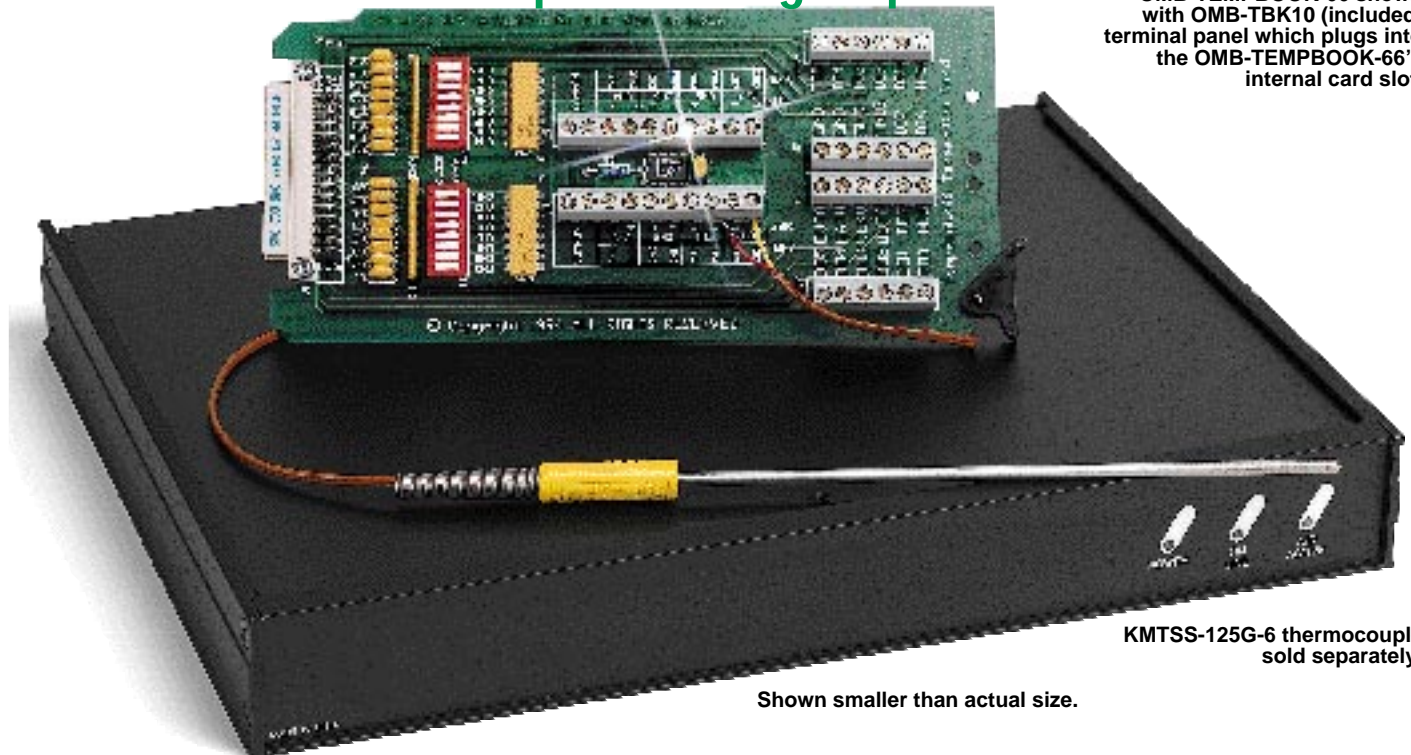




Data Acquisition System for Notebook & Desktop PCs

Thermocouple & Voltage Input

OMB-TEMPBOOK-66 shown with OMB-TBK10 (included) terminal panel which plugs into the OMB-TEMPBOOK-66's internal card slot.



KMTSS-125G-6 thermocouple sold separately.

Shown smaller than actual size.

OMB-TEMPBOOK-66

\$1095

- ✓ Attaches Directly to a Notebook or Desktop PC's Parallel Port—No Other Interface Hardware Required
- ✓ 8 Differential Thermocouple or Voltage Inputs or 16 Single-Ended Voltage Inputs
- ✓ On-Board Cold Junction and Offset-Drift Compensation
- ✓ Accepts J, K, T, E, S, B, R, and N Thermocouples
- ✓ Powerable from Included AC Adapter, Optional Nickel-Cadmium Power Module, 12 V Car Battery, or Any +7 to +20 Vdc Power Source
- ✓ Analog Input
 - 12-Bit, 100 kHz A/D Converter
 - 100K Readings/Sec Sampling and Real-Time Storage-to-Disk
 - 8 Differential or 16 Single-Ended Inputs
 - Channel/Gain and Bipolar/Unipolar Sequencing at 10 μ sec Intervals
- 512-Location Scan Memory for User-Defined Channel/Gain Sequencing
- x1, 2, 5, 10, 20, 50, 100 and 200 Programmable Gains
- ✓ Digital I/O
 - 8 Digital Input Lines, Scannable Along With Volts or Temperature Readings at Up to 100kHz
 - 8 Digital Output Lines
 - 1 Trigger Input
- ✓ One Programmable Counter/Timer
- ✓ Software Support Includes:
 - TempView for Windows Graphical Data-Logging Application
 - PostView for Windows, a Post-Acquisition Graphical Waveform Display Application
 - DOS and Windows Drivers

The OMB-TEMPBOOK-66 data acquisition system adds voltage and thermocouple measurement capability to notebook PCs for portable test applications and also provides an effective alternative to plug-in boards for desktop PCs. The OMB-TEMPBOOK-66 provides 12-bit, 100 kHz data acquisition and data transfer to a PC via an enhanced parallel port (EPP) interface or PCMCIA link. The unit can also connect to a standard



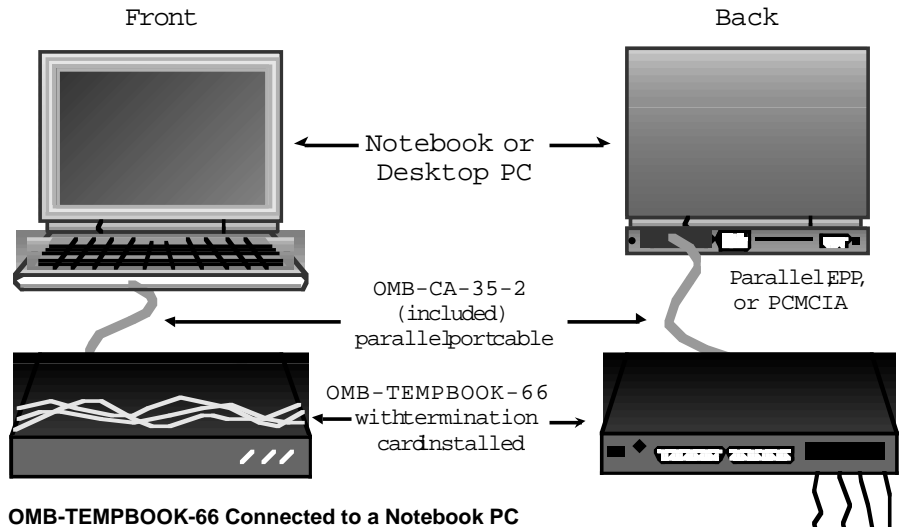
PC parallel port and can transfer readings directly to disk at 30K to 50K samples per second depending on the computer. An external module with the same footprint as a typical notebook PC, the OMB-TEMPBOOK-66 can be attached directly under a notebook PC for portability.

THERMOCOUPLE AND VOLTAGE INPUTS

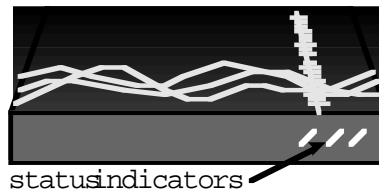
The OMB-TEMPBOOK-66 has a built-in analog capability that permits it to measure eight channels in differential input mode or 16 channels in single-ended mode. Its on-board programmable gain instrumentation amplifier can be set to gains of x1, 2, 5, 10, 20, 50, 100, or 200 on a per-channel basis. Its A/D converter scans selected channels at a constant 10 μ sec/channel rate, minimizing the time skew between consecutive channels. The time between the start of each scan sequence can be programmed to start immediately or at intervals of up to 10 hours.

FLEXIBLE TRIGGERING

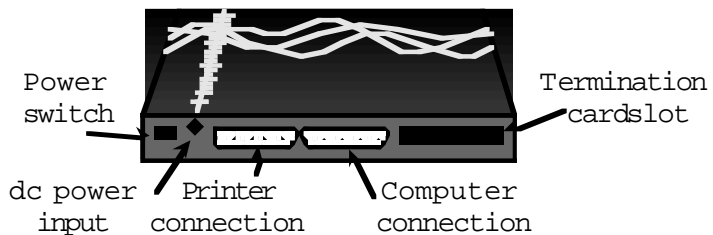
The OMB-TEMPBOOK-66 features a hardware-based digital/TTL trigger that minimizes trigger latency to less than 10 μ sec. The OMB-TEMP-BOOK-66 can also be triggered from a command from the PC.



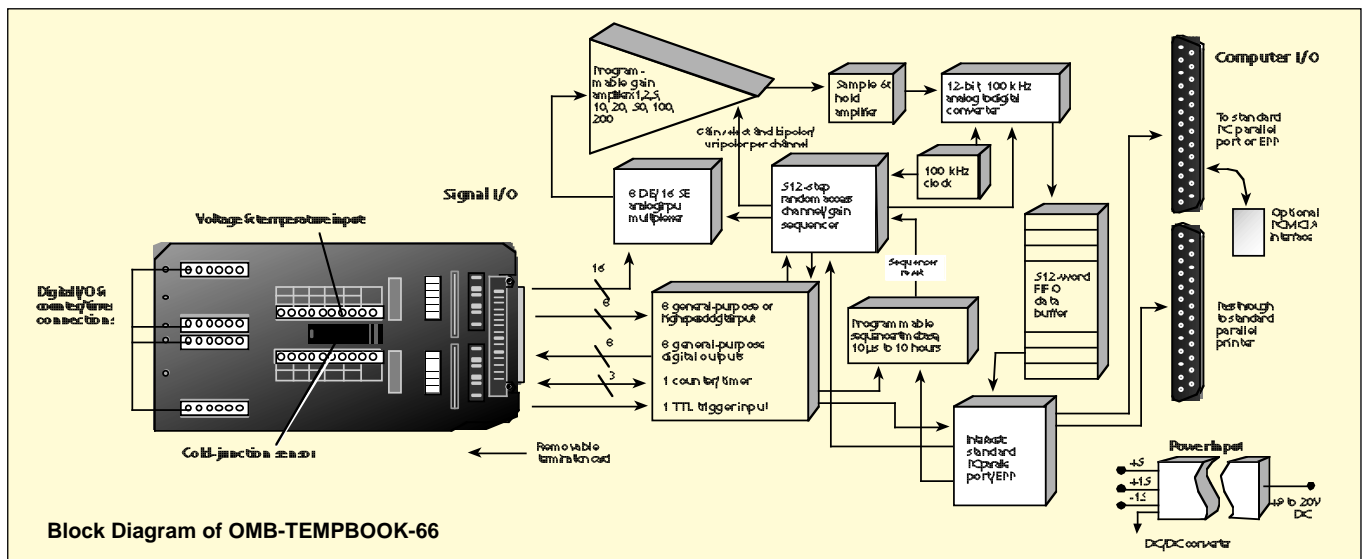
OMB-TEMPBOOK-66 Connected to a Notebook PC



status indicators



Front and Back Panels of the OMB-TEMPBOOK-66



Block Diagram of OMB-TEMPBOOK-66

AA



Thermocouple and Voltage Measurement Data Acquisition System for Notebook and Desktop PCs

GENERAL PURPOSE DIGITAL I/O

The OMB-TEMPBOOK-66 includes 8 general-purpose digital inputs and 8 general-purpose digital outputs. These TTL-level digital I/O lines can be accessed by the PC whenever OMB TEMPBOOK-66 is not transferring data from the A/D converter. If an application needs to read digital inputs concurrent with analog inputs, the 8 digital inputs can be read within the scan group as high-speed digital inputs.

SCREW TERMINAL CARD

The removable screw terminal card also accommodates easy and secure input connections and enables a single OMB-TEMPBOOK-66 to be used in multiple applications, by permitting the user to disengage the unit without disturbing any of the connections.

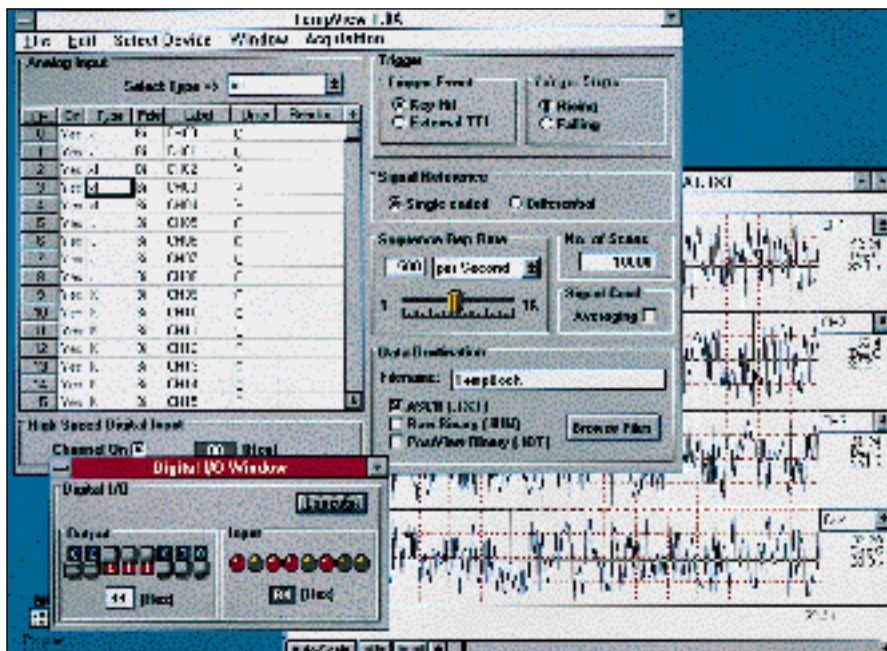
POWER

The OMB-TEMPBOOK-66 can be powered by the included ac adapter, a standard 12 V car battery, any +9 to 20 Vdc source, or an optional rechargeable nickel cadmium battery module (OMB-DBK30A). This makes it ideal for field and remote data acquisition applications.

SOFTWARE

The OMB-TEMPBOOK-66 is supplied with TempView, a Windows-based datalogging application that allows you to set up your acquisition application and save acquired data directly to disk. The package also includes thermocouple linearization for direct readout of temperatures. The OMB-TEMPBOOK-66 is also shipped with PostView, a Windows-based post-acquisition waveform display application that permits you to display acquired data previously saved to a file.

In addition, the OMB-TEMPBOOK-66 includes DOS drivers for Quick Basic, C, and Pascal; Windows drivers for Visual Basic and C for Windows; and VBx's (Visual Basic extensions). Several graphical analysis and control software packages also support the OMB-TEMPBOOK-66.



The OMB-TEMPBOOK-66 includes TempView software, a Windows-based setup and datalogging application.

RECHARGEABLE BATTERY MODULE

The optional OMB-DBK30A rechargeable nickel-cadmium battery module facilitates the OMB-TEMPBOOK-66's use in portable applications. Housed in a metal enclosure of the same size as the OMB-TEMPBOOK-66, the module includes industrial-strength Velcro-style tabs for easy attachment under the OMB-TEMPBOOK-66. The OMB-DBK30A's battery life is

6 hours and the unit can be recharged via the included ac adapter.

PCMCIA INTERFACE CARD

The OMB-DBK35 PCMCIA interface card enables you to connect the OMB-TEMPBOOK-66 to your notebook PC's Type II (5 mm) PCMCIA card socket. It transfers data at up to 800 kbytes/sec. The interface card is PC Card 2.1 compliant.

Specifications

ABOUT THERMOCOUPLE ACCURACY

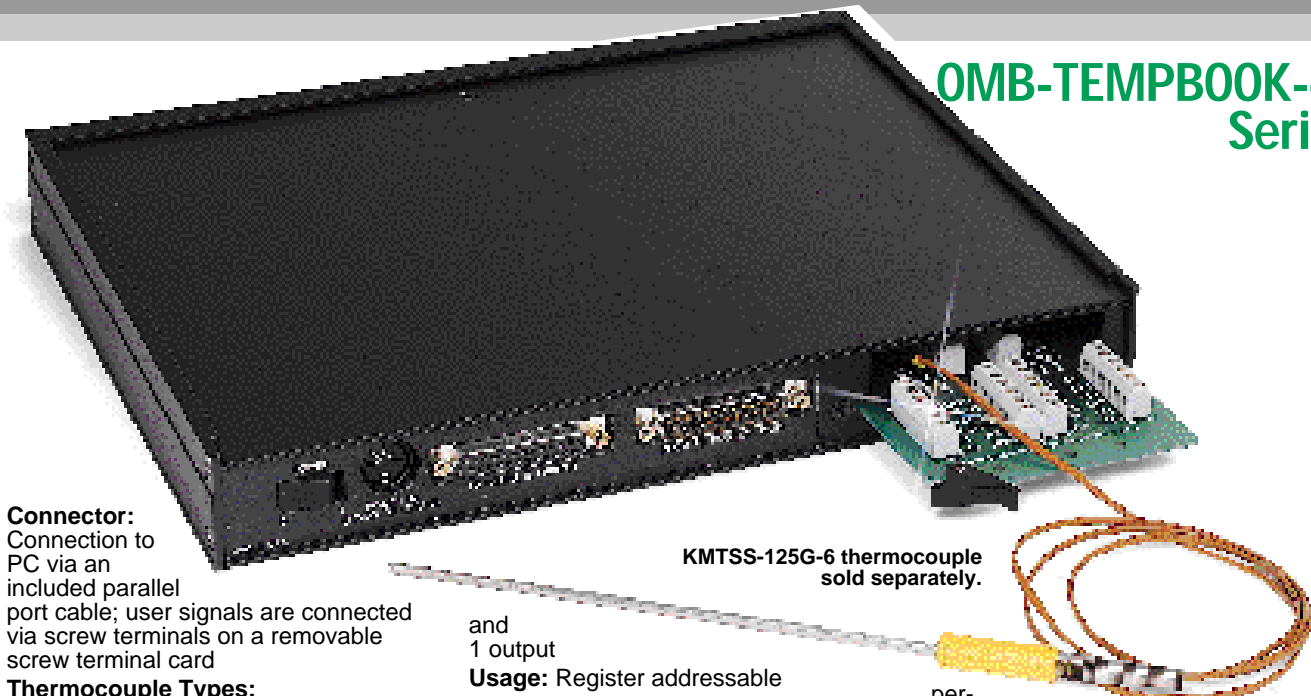
The accuracy of a thermocouple measurement depends on a number of factors, including thermocouple accuracy, cold junction sensor accuracy, A/D conversion measurement accuracy, and linearization accuracy.

The OMB-TEMPBOOK-66 employs accurate components and software compensation techniques to minimize or eliminate error from these sources. For example, an OMB-TEMPBOOK-66 system provides $\pm 1^\circ\text{C}$ cold-junction sensor accuracy, which directly contributes

to the accuracy of the overall thermocouple measurement. When the OMB-TEMPBOOK-66 is software calibrated, its gain and offset errors are virtually eliminated and are removed from subsequent readings as an error source. In addition, the OMB-TEMPBOOK-66's built-in auto-zero channel dynamically eliminates any other system offset errors.

In short, the OMB-TEMPBOOK-66 ensures accurate thermocouple measurements by giving you the ability to eliminate nearly all sources of error.

OMB-TEMPBOOK-66 Series



Connector:

Connection to PC via an included parallel port cable; user signals are connected via screw terminals on a removable screw terminal card

Thermocouple Types:

J, K, T, E, R, S, B, and N

Analog Input Ranges:

Unipolar: .05, .2, .5, 1, 2, 5, 10 V
Bipolar: ±.025, .05, .1, .25, .5, 1, 2.5, 5 V

Analog Inputs: 8 differential or 16 single-ended volts or 8 differential thermocouple inputs

CHANNEL SEQUENCER

Depth: 512 locations

Speed: 10 µsec per channel, fixed

Interval Between Scans: 10 µsec to 10 hr, software programmable

Gains: Sequencer programmable on a per-channel basis

Unipolar/Bipolar: Sequencer programmable on a per-channel basis

Single Ended/Differential: Software programmable for all channels (not individually)

DIGITAL I/O INPUTS

Number: 8 fixed as inputs

Usage: General-purpose register addressable or high-speed scanned via channel sequencer

Type: TTL compatible

High Voltage: 2.0 V min

Low Voltage: 0.8 V max

OUTPUTS

Number: 8 fixed as output

Usage: General-purpose register addressable

Type: TTL compatible

High Voltage: 3.0 V @ 2.5 mA source

Low Voltage: 0.4 V @ 2.5 mA sink

TRIGGER INPUT

Type: TTL compatible

High Voltage: 2.0 V min

Low Voltage: 0.8 V max

COUNTER/TIMER PORT

Device: 8254 (PO port only)

Number: 1 gate input, 1 clock input

KMTSS-125G-6 thermocouple sold separately.

and 1 output

Usage: Register addressable

Type: TTL compatible

Input High Voltage: 2.0 V min

Input Low Voltage: 0.8 V max

Output High Voltage: 3.0 V @ 2.5 mA source

Output Low Voltage: 0.4 V @ 2.5 mA sink

Cold Junction Sensor Output: 100 mV/°C

Input Impedance: 100 kohm/100 Mohm switch selectable on a per-channel basis

Input RC Filter -3 dB Frequency: 15.9 kHz switch selectable on a per-channel basis

per-channel basis

Gain Accuracy: 0.1%

Maximum Input Voltage: ±15 Vdc

CMRR (Input Stage): 90 dB typ, dc to 60 Hz

Offset: Software compensated

Offset Drift: Software compensated

Range, Accuracy (@ 0 to 50°C) and Resolution

Type	Min. (°C)	Max. (°C)	Accuracy		Resolution	
			(<0°C)	(>0°C)	<0°C	>0°C
J	-200	760	0.9	0.9	1.2	0.5
K	-200	1260	2.4	1.5	1.1	0.8
T	-200	400	2.1	1.2	0.8	0.3
E	-270	1000	2.1	1.3	1.9	0.9
N28	-270	400	1.2	1.2	0.9	0.9
N14	0	1300	-	1.5	-	5.0
S	0	1780	-	2.4	-	1.6
R	0	1780	-	2.4	-	1.5
B	0	1820	-	2.7	-	1.8

To Order (Specify Model No.)

Model No.	Price	Description
OMB-TEMPBOOK-66	\$1095	Thermocouple and voltage measurement system
OMB-DBK35	295	PCMCIA interface card and cable
OMB-DBK30A	595	Rechargeable battery module
OMB-TBK10	95	Spare terminal panel for OMB-TEMPBOOK-66 (one already included with unit)

The OMB-TEMPBOOK-66 comes complete with software, ac adapter, parallel cable, terminal panel and complete operators manual.

Ordering Example: OMB-TEMPBOOK-66 measurement system (\$1095), OMB-DBK35 PCMCIA interface card and cable (\$295), plus OMB-DBK30A rechargeable battery module (\$595), \$1095 + 295 + 595 = \$1985.