

# OMB-DBK90

## 56-Channel Thermocouple Input Module for OMB-DAQSCAN-2000 Series



OMB-DBK90, shown smaller than actual size.

5SRTC-TT-K-24-26, 5 pack basic unit. Visit [omega.com](http://omega.com) for more details.

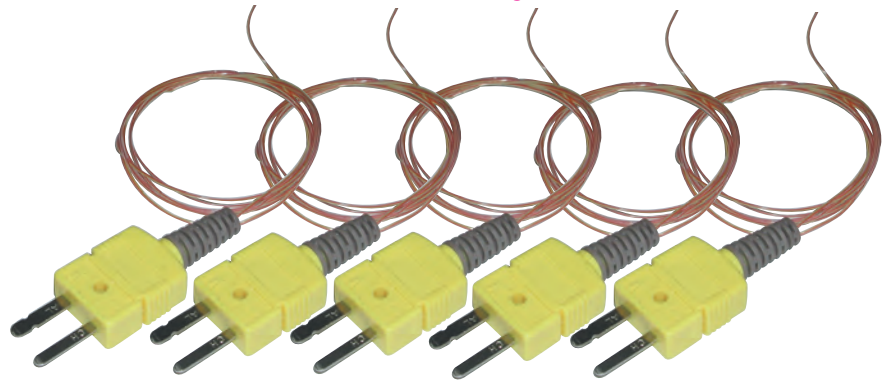
### Basic Unit



- ✓ 56 Thermocouple Channels in One Compact and Rugged Enclosure
- ✓ Supports Any Thermocouple Type on Any Channel
- ✓ Very Low Cost per Channel and Very High-Channel Density
- ✓ Attach Up to 16 Units Together for Up to 896 Channels per A/D Mainframe

The OMB-DBK90 module provides 56 channels of high-accuracy thermocouple (TC) inputs. The OMB-DBK90 is ideally suited for high-channel-count TC applications, with a maximum TC capacity of 896 channels per system. For larger channel-count applications, multiple mainframes can be combined for a maximum channel capacity of 3584 channels.

Thermocouples attach to the OMB-DBK90 via mini-TC input connectors, and any TC type can be installed into any channel. Each row of 14 TC inputs has a separate cold-junction sensor to ensure accurate readings.



Ready made insulated thermocouples with miniature male connector and heavy duty flex strain relief.

OMB-DBK90 modules are housed in a rugged all-metal package that can be connected to an OMB-DAQSCAN-2000 and rack-mounted with an optional rack-mount kit.

When multiple OMB-DBK90's are mounted together, a male and female P1 connector on either side of the unit provides all system connections so that only a single cable back to the A/D mainframe is required.

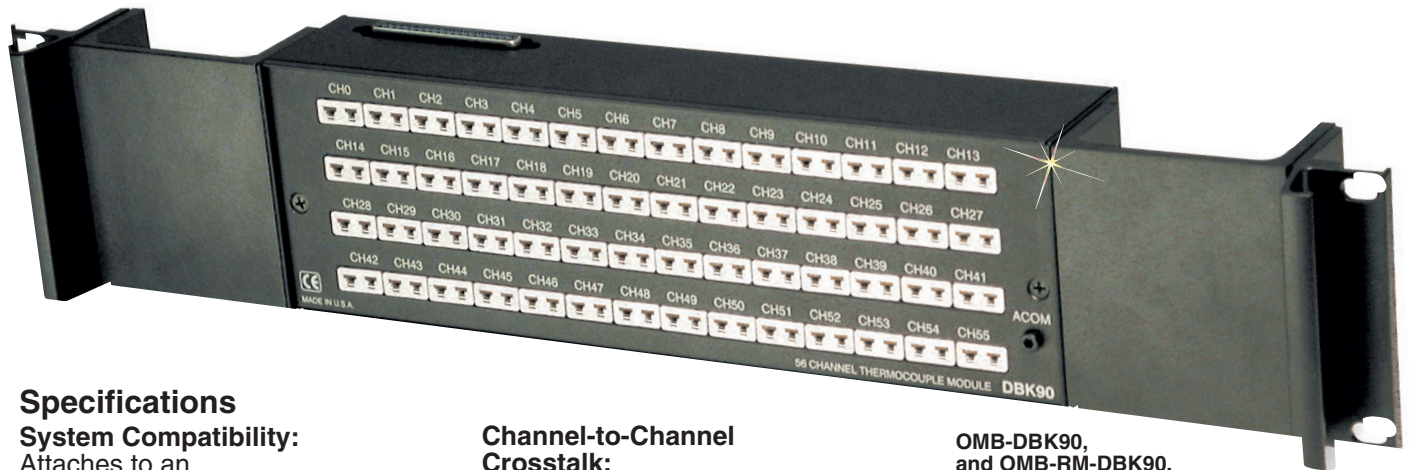
For distributed applications, such as throughout the cabin of a vehicle, OMB-DBK90 modules can be mounted as separate units.

Up to 20' of cable can be used to connect OMB-DBK90 modules.

Each OMB-DBK90 has a built-in auto-zero channel and a CJC channel. The OMB-DBK90 can measure one TC channel in 3 ms, 14 TC channels in 16 ms, and all 56 TC channels in 61 ms.

An OMB-DBK90 based system of 896 channels can be measured in 976 ms. This speed is slower than other OMB-DBK modules to ensure that the TC measurements are accurate, low noise, and stable. Typical measurement accuracies are better than 0.7°C, with channel-to-channel variation typically less than 0.5°C.

If OMB-DBK90 measurements are mixed with measurements from other OMB-DBK options, the other measurements can be made at their standard 5 or 10 µs/channel rate.



OMB-DBK90, and OMB-RM-DBK90, rack mount kit, shown smaller than actual size



OMB-DAQSCAN-2005, front and back, shown smaller than actual size.

## Specifications

### System Compatibility:

Attaches to an OMB-DAQSCAN-2000

**System Connector:** Male and female DB37 for unit-to-unit mating and mating with P1 on the acquisition mainframe

**TC Connector:** Mini-TC connectors

**ACOM Connector Type:** Pomona model 5936-0

**Inputs:** 56 differential TC inputs, open TC detection per channel

**TC Types:** J, K, T, E, S, R, B, N28, N14

**Speed:** 1 channel in 3 ms, 14 channels in 16 ms, 56 channels in 61 ms

### Dimensions:

285 W x 88 D x 52 mm H (11 x 3.44 x 2.05")

**Weight:** 0.96 kg (2.12 lb)

### Power Requirements:

40 mA max from ±15 V;  
40 mA max from 5 V;  
1400 mW total

**Input Impedance:** 4 MΩ (differential) in parallel with 400 pF

**Input Bandwidth:** 1 kHz

### Minimum Resolution:

0.1°C for all TC types

**TC Accuracy:** Valid for one year at 25°C ambient (see table)

**Operating Temperature:** -30 to 70°C (-22 to 158°F)

**Relative Humidity:** 0 to 95% non-condensing

**Temperature Coefficient of Accuracy for Type T TC:** ±0.05°C for every °C away from 25°C

### Channel-to-Channel Crosstalk:

-90 dB typ (0 to 100 Hz)

**DC CMRR:** -80 dB typ

**AC CMRR:** -80 dB typ (0 to 60 Hz)

### Maximum Common Mode Voltage:

±10 V

### Overvoltage Protection:

±40 V



OMEGACARE<sup>SM</sup> extended warranty program is available for models shown on this page. Ask your sales representative for full details when placing an order. OMEGACARE<sup>SM</sup> covers parts, labor and equivalent loaners.

## TC Accuracy at Measurement Temperature in °C (±°C)

Type	Min	Max	-100	0	100	300	500	700	900	1100	1400
J	-200	760	0.8	0.7	0.7	0.8	0.9	0.9	-	-	-
K	-200	1200	0.9	0.8	0.8	0.9	1.1	1.1	1.2	1.3	-
T	-200	400	0.9	0.8	0.8	0.8	-	-	-	-	-
E	-270	650	0.8	0.7	0.7	0.7	0.8	-	-	-	-
S	-50	1768	-	3.1	2.4	2.0	2.0	1.9	2.0	2.1	2.1
R	-50	1768	-	3.1	2.1	2.0	1.9	1.9	1.7	1.9	2.0
B	50	1780	-	-	-	4.9	3.2	2.8	2.4	2.3	2.0
N28	-270	400	1.2	0.9	0.9	0.9	-	-	-	-	-
N14	0	1300	-	0.9	0.9	0.9	1.1	1.1	1.2	1.5	-

Accuracy conditions: exclusive of thermocouple errors, exclusive of noise, VCM = 0 25°C ambient temperature, stabilized for 1 hour.

**AVAILABLE FOR FAST DELIVERY!**

## To Order (Specify Model Number)

Model No.	Description
OMB-DBK90	56-channel thermocouple input module
OMB-CA-37-1	37-pin cable, 0.18 m (7") long, connects OMB-DBK90 to OMB-DAQSCAN
OMB-DAQSCAN-2005	Ethernet system with 16 single-ended/8 differential 250 KHz 16 bit analog inputs, 40 digital I/O, 4 analog outputs, 4 frequency/pulse Counters and 2 frequency/pulse generators
OMB-RM-DBK90	Rack mount kit for OMB-DBK90

Each OMB-DBK90 module is supplied with complete operator's manual on CD ROM.

**Ordering Example:** OMB-DBK90 56-channel thermocouple input module and OMEGACARE<sup>SM</sup> 1 year extended warranty for OMB-DBK90 (adds 1 year to standard 1-year warranty) and OMB-CA-37-1 cable



#### UNITED STATES

[www.omega.com](http://www.omega.com)  
1-800-TC-OMEGA  
Stamford, CT.

#### CANADA

[www.omega.ca](http://www.omega.ca)  
Laval(Quebec)  
1-800-TC-OMEGA

#### GERMANY

[www.omega.de](http://www.omega.de)  
Deckenpfronn, Germany  
0800-8266342

#### UNITED KINGDOM

[www.omega.co.uk](http://www.omega.co.uk)  
Manchester, England  
0800-488-488

#### FRANCE

[www.omega.fr](http://www.omega.fr)  
Guyancourt, France  
088-466-342

#### CZECH REPUBLIC

[www.omegaeng.cz](http://www.omegaeng.cz)  
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