



KeyTek EMC Test System Options & Accessories

For KeyTek ECAT® and EMCPro® PLUS precision test systems



TECHNICAL SPECIFICATIONS

COMBINED EFT & SURGE MAINS COUPLER/DECOUPLERS

KeyTek Models CM-3CD-16 and CM-3CD-32*



Semi-automatic, stand alone, three-phase AC/DC mains coupler/decouplers for EFT and Surge as specified by IEC 61000-4-4 Edition 2 and IEC 61000-4-5.

WAVEFORMS

EFT	5/50ns, per IEC 61000-4-4
Surge	Combination wave: 1.2/50µs open-circuit voltage, 8/20µs short-circuit current, per IEC 61000-4-5
Maximum Surge Voltage & Current	6.6kV, 3.3kA
Maximum EFT Voltage	4.4kV
Coupling Modes	
EFT	L1, L2, L3, N or PE
Surge Hi	L1, L2, L3 or N
Surge Lo	L1, L2, L3, N or PE

COUPLER/DECOUPLERS

AC Voltage	50 to 250V, 50/60Hz line to ground, 50 to 433V line to line		
AC Current			
CM-3CD-16	16A/phase continuous		
CM-3CD-32	32A/phase continuous		
DC Current			
CM-3CD-16	16A	up to	48V
	8A	up to	110V
	1.2A	up to	220V
	0.3A	up to	440V
CM-3CD-32	25A	up to	48V
	8A	up to	220V
	1.2A	up to	220V
	0.3A	up to	440V

EUT Mains Output Connectors Safety Sockets

Power Requirements

Input Voltage	90-250VAC, 50/60Hz
Input Current	1A at 120VAC; 0.5A at 240VAC
Minimum System Requirements	KeyTek EMCPro PLUS or any simulator with EFT test capability

PQF® (DIPS & INTERRUPTS) TEST CIRCUIT

KeyTek Model PQF-QUAL



A highly recommended, self-contained test circuit for qualifying PQF® generator inrush capability per IEC 61000-4-11 Annex A.

RATINGS

AC Voltage	0 to 264V, 50/60Hz
Peak Current	> 500A @ 220V
Capacitor	1700µF ±20%
Capacitor DC Resistance	< 0.1Ω
Discharge Resistance	8.33KΩ
Minimum System Requirements	EMCPro PLUS or any simulator with PQF test capability (requires 16A current limiting device in PQF generator)

SURGE COUPLER/DECOUPLERS

KeyTek Model CM-I/OCD



I/O coupler/decoupler - provides the ability to couple surges from EMCPro® PLUS or any surge simulator, to I/O or data lines per IEC 61000-4-5

Waveforms

Designed to couple combination waves of 1.2/50µs open-circuit voltage, 8/20µs short-circuit current

Repetition Rate

Up to 5 per minute at 4.4kV

Data Line Frequency

Greater than 100kHz without significant degradation when CM-I/OCD-HS is installed. Option CM-I/OCD-HS is recommended for data line frequencies greater than 1kHz

Number of Lines

8 lines - any line can be surged to any other line or ground

Maximum Surge Voltage

4.4kV

Maximum Signal Line Voltage

200V

Maximum Signal Line Current

1A AC or DC

Clamping

Selectable built-in clamps of 20V and 220V; external bias input for other clamp levels

KeyTek Model CM-I/OCD-HS

Internally-Installed

Provides selectable parallel resistors (400s, 200s, 100s) - highly recommended for data line frequencies greater than 1kHz.

KeyTek Model CM-TELCD



Telecom line coupler/decoupler - provides the ability to couple both the telecom wave and combination wave per IEC 61000-4-5

ELECTRICAL

Waveforms

Designed to couple 1.2/50µs combination or 10/700µs telecom waves

Telecom Line Frequency

To 100kHz without significant degradation

Number of Lines

Up to four lines - one or two pairs of balanced Telecom lines

Maximum Surge Voltage

4.4kV

Maximum Signal Line Voltage

200V

Maximum Signal Line Current

1A AC or DC

Clamping

Selectable built-in clamps of 20V and 225V; external bias input for other clamp levels

*Not available for delivery until October 2004.

SURGE PROBE

KeyTek Model PK1001D/PK1002D

Differential high-voltage surge and transient probe



ELECTRICAL

EACH INPUT

Input Resistance	10K \pm 2%
Peak transient voltage, repetitive	0 to \pm 6kV
Transient duration	1 ms max
Rise Time	<10 ns
Overshoot	<5% typical
Maximum steady-state input	277V rms or dc

TRANSIENT REPETITION RATE

Maximum with max steady-state input superimposed	10 pulses/minute
Maximum with zero steady-state input superimposed	120 pulses/minute

EACH OUTPUT

Impedance	50 ohms \pm 1% (Use 1 megohm scope input impedance)
Attenuation	200:1 \pm 3%
Compensation Adjustments	None

RECOMMENDED OSCILLOSCOPE

Typical 500 MHz BW: i.e.: H/P 54542A or similar utilizing the high impedance 1 megohm inputs which are adjustable to a ratio of 200:1

SAFETY

The Interlock Unit opens connections between the high voltage probes, and the pins and shells of the BNC coax connectors intended for scope connection, until:

- The BNC's are connected to the oscilloscope, and;
- The oscilloscope is connected, via its power cord, to earth ground
- Panel lights indicate "ready" and "not ready" status

Power 100/120/220/240V, 10W, 50-60 Hz

POWER FREQUENCY MAGNETIC FIELD

KeyTek Model CM-HMON

Measurement probe for power frequency magnetic fields



KeyTek Model CM-HCOIL

1m x 1m magnetic field coil



KeyTek Model HPOWER-EXT

External generator for power frequency magnetic field to 30A/m continuous, 100A/m intermittent with optional KeyTek Model CM-HCOIL (not software controlled - coil not included with KeyTek Model HPOWER-EXT)

UPGRADES FOR KeyTek EMCPRO® TO EDITION 2

KeyTek Model PRO-SW-EFT

This upgrade gives you the critical capability to meet new requirements for a 100 kHz burst rate per IEC 61000-4-4, Edition 2 (EFT).

KeyTek Model PRO-80-PQF

External transformer ensures compliance by adding the 80% dip level required by IEC 61000-4-11, Edition 2 (PQF).

EFT CAPACITIVE COUPLING CLAMP

KeyTek Model CCL



Capacitive coupling clamp for coupling EFT onto data I/O lines – requires EFT test capability

KeyTek Model CCL/C

Capacitive coupling clamp cover for operating the KeyTek Model CCL with increased safety

EFT ATTENUATOR

KeyTek Model EFT-ATTN

EFT attenuator for oscilloscope monitoring of EFT pulses - 50 and 2K impedances

Specialists who understand the challenges you face. Innovative ideas. Leading technologies. Breadth of EMC test equipment. Thermo—your EMC test solutions partner. Contact us today for details.

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