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# 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

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

#### COUPLER/DECOUPLERS

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

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

### 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

<b>Waveforms</b>	Designed to couple combination waves of 1.2/50µs open-circuit voltage, 8/20µs short-circuit current
<b>Repetition Rate</b>	Up to 5 per minute at 4.4kV
<b>Data Line Frequency</b>	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
<b>Number of Lines</b>	8 lines - any line can be surged to any other line or ground
<b>Maximum Surge Voltage</b>	4.4kV
<b>Maximum Signal Line Voltage</b>	200V
<b>Maximum Signal Line Current</b>	1A AC or DC
<b>Clamping</b>	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

<b>Waveforms</b>	Designed to couple 1.2/50µs combination or 10/700µs telecom waves
<b>Telecom Line Frequency</b>	To 100kHz without significant degradation
<b>Number of Lines</b>	Up to four lines - one or two pairs of balanced Telecom lines
<b>Maximum Surge Voltage</b>	4.4kV
<b>Maximum Signal Line Voltage</b>	200V
<b>Maximum Signal Line Current</b>	1A AC or DC
<b>Clamping</b>	Selectable built-in clamps of 20V and 225V; external bias input for other clamp levels

### 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

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

\*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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