Convergent Series™ Modular Rackmount Communication Line Protectors:

Some face persistent communications and network system performance problems when operating without in-building voice & data line protection or when using conventional technology. Others face performance expectations that demand zero tolerance for downtime. ONEAC communication line protectors are specifically engineered to satisfy these rigorous applications in converged voice/data applications.

Ultimate assurance of system reliability

Leading telecommunication and networking companies employ ONEAC line protectors in their installations for good reason; because they provide greater assurance of network, Voice over Internet Protocol (VoIP) and PBX uptime with a lower service cost than conventional protectors. Events such as system lockups, transmission errors, "no-trouble-found" service calls, shortened component life — all are problems that can result from surge voltages on networking and communications equipment.

The ONEAC solution

ONEAC protects all copper paths by which electrical disturbances can enter a system. Providing protection for analog, digital and high-speed data lines from the back room of a convenience store to a large corporate data center. ONEAC's Convergent Series Modular Rackmount Protectors provide the best protection by achieving maximum uptime without inhibiting communication channel performance.

The ONEAC difference

ONEAC Convergent Series protectors for data and telecommunications applications employ a StarBalanced™ protection to overcome the limitation of conventionally-balanced protectors. In addition, Convergent Series protectors feature ONEAC's patented "switched filter technology" to provide transient let-through voltages below the DC breakdown voltage of the protector, in combination with low insertion loss and fast reaction time.

From simple analog protectors with an RJ11 interface to T1 protectors with an RJ48C interface, each is designed for easy installation and no maintenance. The modular rackmount design, for both rack and flat surface mounting, is rugged and built to last – suitable for virtually all environments, from the warehouse to the data center.

Convergent Series
Modular Communications Line Protectors
mounted in 16-port Rackmount Base

- **The perfect solution for VoIP and PoE applications:** protecting key data and converged voice/data applications and services.

- **Simple installation:** convenient ground connection and flexible rackmount design make installation a snap.

- **Flexibility to change as your needs change:** modular communication line protector design allows you to mix and match up to 16 protectors per rack.

- **Wide variety of protection:** analog and digital protectors for a wide variety of applications including simple one and two line for telephone, credit card authorization and fax lines as well as DS1/T1, DS0/64 Kbps, ISDN (BRI) & PRI (xDSL), RS232/RS485/RS422. and 10/100BaseT Ethernet and PoE protectors.

- **Robust/solid state overvoltage protection:** lasts longer in the field.

- **High amperage surge impulse design:** provides longer lasting protection.

- **Lower let-through voltage:** extends equipment life.

- **Rugged 1U low-profile design:** saves valuable rack space.

- **FCC, UL and cUL listed:** UL/cUL primary 497; secondary 497A; isolated loop 497B

- **Designed & manufactured under ISO 9001:** assures consistent quality and performance

- **5-year warranty:** your best assurance of product performance and reliability in the industry.

- **Free 24-hour technical support**

Proven to reduce service costs

By removing electrical transients, ONEAC improves system reliability for microprocessor-based products. Look at the evidence — installers of large communications systems using both ONEAC transmission line protectors and ONEAC AC power conditioning report a reduction of 83% in total trouble calls due to hardware problems and 43% fewer calls in which no trouble was found.

Rackmount Base Unit* Specifications

ONEAC part number:	RM-16
# of protector ports:	16
Max dimensions (in.):	1.72 (H) x 17.18 (W) x 4.15 (D)
Max dimensions (cm.):	4.5 (H) x 43.6 (W) x 10.5 (D)
Net weight in lbs. (kgs.):	3.27 (1.5)

Surface Mount Base Unit** Specifications

ONEAC part number:	RM-5
# of protector ports :	5
Max dimensions (in.):	1.72 (H) x 5.95 (W) x 4.15 (D)
Max dimensions (cm.):	4.5 (H) x 15.1 (W) x 10.5 (D)
Net weight in lbs. (kgs.):	1.38 (.63)

ONEAC part number:	RM-10
# of protector ports:	10
Max dimensions (in.):	1.72 (H) x 10.95 (W) x 4.15 (D)
Max dimensions (cm.):	4.5 (H) x 27.81 (W) x 10.5 (D)
Net weight in lbs. (kgs.):	2.21 (1.0)

*   Fits in standard 19″ rack using brackets included.
** Surface mount only.

Part Number	RM-AP11 RM-AP14	RM-AD11 RM-AD14	RM-DC11 RM-DC14	RM-DP11/RM-DP14 RM-DP48C/RM-DP48S
Impulse Voltage Performance @ 10/1000µS, 1.5 kV, 100A				
Let-through voltage-line to earth, (typ./max.)	310 V/350 V	310 V/350V	310 V/350 V	78 V/95 V
Let-through voltage-line to line, (typ./max.)	75 V/100 V	180 V/230 V	100 V/150 V	50 V/75 V
DC Breakdown Voltage 0-1 kV @ 100 V/sec				
Let-through voltage-line to earth, (typ./range)	310 V/270-350 V	310 V/270-350 V	310 V/270-350 V	78 V/60-95 V
Let-through voltage-line to line, (typ./range)	310 V/70-350 V	310 V/270-350 V	310 V/270-350 V	78 V/60-95 V
Module Loop Resistance @ 25°C each leg (min./max.)	12 Ω /18 Ω	3 Ω /6 Ω	3 Ω /6 Ω	3 Ω /6 Ω
Holding Current	>150 mA	>150 mA	>150 mA	>150 mA
Response Time	<1 ns	<1 ns	<1 ns	<1 ns
Insulation Resistance	>7.5 MΩ	>100 MΩ	>100 MΩ	>7.5 MΩ
Capacitance @ 50 VDC, 1VAC, 10 khz - 1 MHz (line to line/line to earth)	<150 pf / <75 pf	<150 pf / <75 pf	<150 pf / < 75pf	<150 pf / <75 pf
On-State Voltage @ 1 Amp	<5 V	<5 V	<5 V	<5 V
Overcurrent Protection @ 25°C				
Self-resetting (PTC)	300 mA	300 mA	300 mA	300 mA
Non-resetting (fuse)	1.1 A	1.1 A	1.1 A	1.1 A
Regulatory				
UL Primary/Secondary/Isolated loop	497 / 497A	497 / 497A	497 / 497A	497 / 497A
FCC	PT 68	PT 68	PT 68	PT 68
Maximum Dimensions in Inches (cm) - (H)	1.3 (3.3)	1.3 (3.3)	1.3 (3.3)	1.3 (3.3)
Maximum Dimensions in Inches (cm) - (W)	0.75 (2)	0.75 (2)	0.75 (2)	0.75 (2)
Maximum Dimensions in Inches (cm) - (D)	4.0 (10)	4.0 (10)	4.0 (10)	4.0 (10)
Net Weight - oz. (grams)	3.5 (99.23)	3.5 99.23)	3.5 (99.23)	3.5 (99.23)
Ship Weight - lbs (kg)	1 (0.5)	1 (0.5)	1 (0.5)	1 (0.5)

Application	Part No.	Color	Digital OPX by Vendor	Part No.	Color
Analog: Standard service —trunk lines, analog OPX stations with ring signal	RM-AP11 RM-AP14	Black Black	Toshiba 24 V (1pr)	RM-DSP36	Yellow
Digital: ISDN	RM-DP11 RM-DP14	Yellow Yellow	Toshiba 24 V (2 pr)	RM-DSP36	Yellow
			Samsung 24 V (1 pr)	RM-DSP36	Yellow
Digital: Services T1/PRI	RM-DP48C	Yellow	Samsung 24 V (2 pr, 12 V/pr)	RM-DSP20	Yellow
Digital Subrate : (DS0)	RM-DP48S	Yellow	Executone 24 V (2 pr, 12 V/pr)	RM-DSP20	Yellow
ADSL: Services with local analog service	RM-AD11 RM-AD14	Yellow Yellow	Nortel 24 V (1 pr)	RM-DSP36	Yellow
			ROLM/Siemens 24 V (1 pr)	RM-DSP36	Yellow
xDSL: Services without local analog service	RM-DC11 RM-DC14	Blue Blue	NEC 48 V (1 pr)	RM-DSP68	Yellow
			Fuji 48 V (1 pr)	RM-DSP68	Yellow
Ethernet: Services without power option	RM-ELP100	White	Mitel 48 V (1 pr)	RM-DSP68	Yellow
Ethernet: Services with power option Power Over Ethernet (PoE)	RM-PELP100	White			

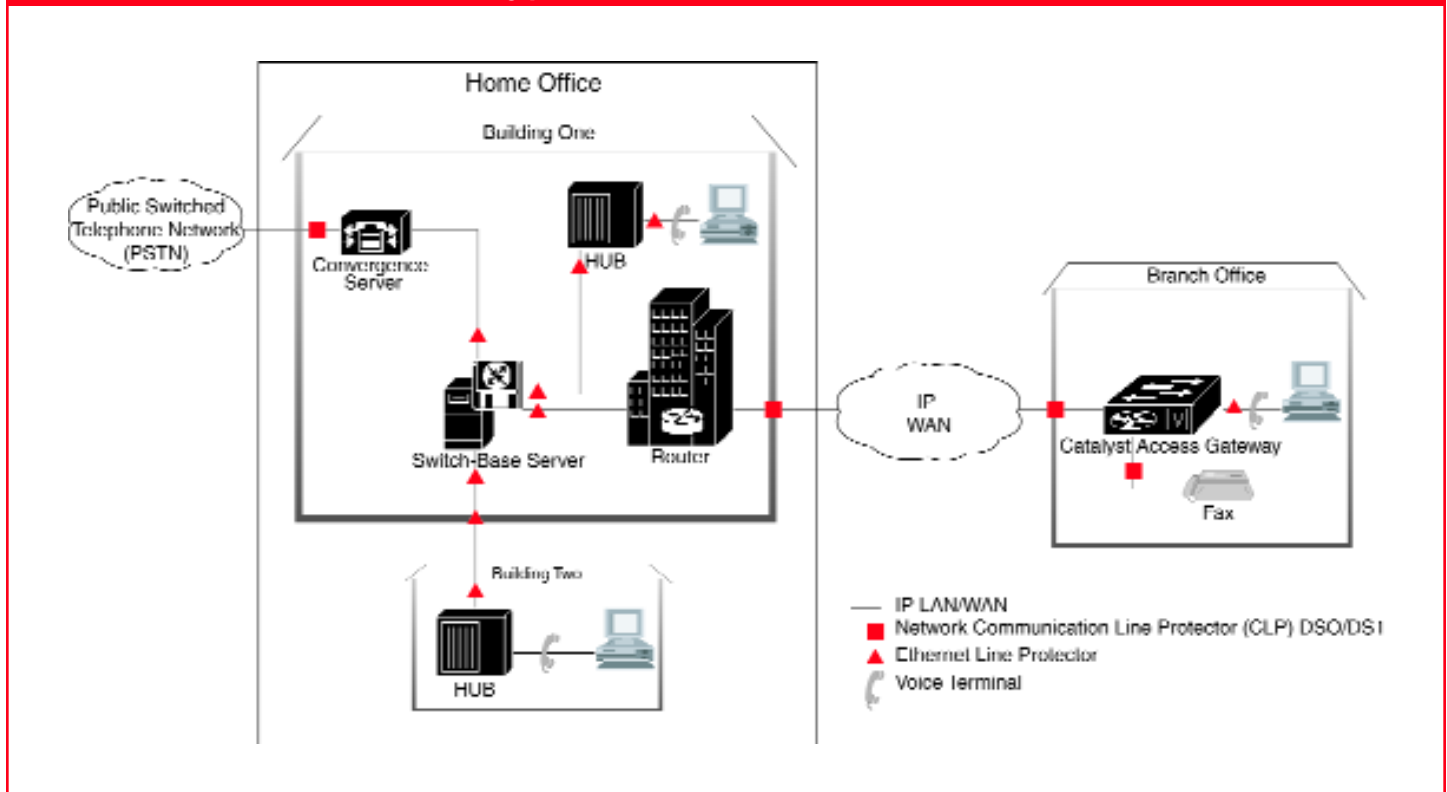| RM-ELP100	RM-PELP100	RM-DA30	RM-DSP20	RM-DSP36	RM-DSP68
460 V/540 V 45 V/55 V	100 V/150 V 45 V/55 V	32 V/55 V 32 V/55 V	55 V/65 V 55 V/65 V	65 V/75 V 65 V/75 V	100 V/110 V 100 V/110 V
460 V/400-540 V 10.5 V/9-13 V	90 V/74-101 V 10.5 V/9-13 V	32 V/25-40 V 32 V/25-40 V	20 V/18-23 V 20 V/18-23 V	36 V/32-42 V 36 V/32-42 V	68 V/64-74 V 68 V/64-74 V
.3 Ω	.3 Ω	.3 Ω	≤1 Ω	≤1 Ω	≤1 Ω
NA	NA	>150 mA	—	—	—
<5 ns	<5 ns	<1 ns	<5 ns	<5 ns	<5 ns
>750 kΩ	>750 kΩ	>100 MΩ	>1 MΩ	>1 MΩ	>1 MΩ
@ 0 VDC <75 pf / < 75pf	@ 0 VDC <75 pf / <75 pf	@ 0 VDC <50 pf / <50 pf	<75 pf / < 75pf	<75 pf / < 75pf	<75 pf / < 75pf
NA	NA	<5 V	—	—	—
NA NA	NA NA	NA NA	— 1.1 A	— 1.1 A	— 1.1 A
497B NA	497B NA	497B NA	497 / 497A NA	497 / 497A NA	497 / 497A NA
1.3 (3.3)	1.3 (3.3)	1.3 (3.3)	1.3 (3.3)	1.3 (3.3)	1.3 (3.3)
0.75 (2)	0.75 (2)	0.75 (2)	0.75 (2)	0.75 (2)	0.75 (2)
4.0 (10)	4.0 (10)	4.0 (10)	4.0 (10)	4.0 (10)	4.0 (10)
3.5 (99.23)	3.5 (99.23)	3.5 (99.23)	3.5 (99.23)	3.5 (99.23)	3.5 (99.23)
1 (0.5)	1 (0.5)	1 (0.5)	1 (0.5)	1 (0.5)	1 (0.5)

Convergent Series Communications Line Protectors: Specifications

Voice and data converging

Gateways that support VoIP applications are the central focus for a wide variety of communications services. T1 facilities connect to the public switched network, providing ISDN PRI or channelized DS1 services. Analog FXO connect outlying locations, that are easier to reach, via analog loops. FXS connect analog stations, providing fax, modem, and voice access. Ethernet and Power over Ethernet (PoE) connections link other gateways, routers, and intranetwork components, or they provide access to WANs and LANs throughout the enterprise.

Wherever copper lines are used, lightning and other transient power sources can gain access and disrupt the enterprise. With the mixture of communications services available today, protection solutions must be tailored to the transmission parameters of the individual links - low-voltage protection for Ethernet and PoE lines and high-voltage protection for T1 and exchange lines.

Typical Protection Scheme

Home Office
Building One

Public Switched Telephone Network (PSTN)

Convergence Server

HUB

Switch-Base Server

Router

Building Two

HUB

Branch Office

IP WAN

Catalyst Access Gateway

Fax

— IP LAN/WAN
■ Network Communication Line Protector (CLP) DS0/DS1
▲ Ethernet Line Protector
☎ Voice Terminal

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ONEAC is a UL/BSI registered corporation — Certification No. A2900

ISO 9001

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