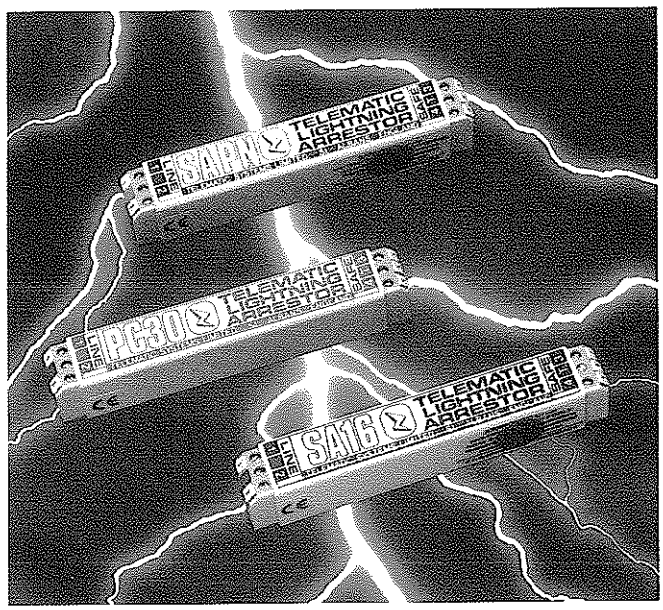
SA and PC series surge protection devices

Telematic

Protects electronic equipment and systems against surges on signal and I/O cabling

- **Multistage hybrid protection circuitry– 10kA peak current capability**
- **Fully autoresetting – maintenance free**
- **Easily installed**
- **Range of voltage ratings – to suit all process I/O applications**
- **High bandwidth, low resistance and PSTN versions available**



The Telematic SA and PC Series are a range of surge protection devices combining application versatility, proven reliable hybrid circuitry, and simple installation – features which make the series an ideal surge protection solution for process equipment, systems I/O and communications networks.

Sophisticated hybrid circuitry protects vulnerable equipment without affecting normal operation, passing ac or dc signals with little attenuation while diverting surge currents safely to earth and clamping output voltages to safe levels. Telematic surge protection devices can prevent costly damage to equipment, downtime or loss of production.

Modules with a comprehensive range of voltage ratings cover all process-related signals such as RTDs, THCs, 4 to 20mA loops, telemetry outstations, shut-down systems and fire and gas detectors. The SA series is suitable for general process I/O applications. Where higher currents are required or loop resistance is critical, the PC series is ideal.

Telecom applications are served by the SAPN which has been approved for use on telecom networks. Private wire installations can be protected using the standard SA range while the SAPN is specifically designed for public switched telephone networks (PSTN).

Mounting kits and enclosures, to simplify installation, are available for both the SA and PC series. Telematic offers a choice of enclosures to suit every application. Panel mounting can be achieved using either the MC range of mounting brackets, or for a larger number of units, the MK range of busbar mounting kits.

Surge protection – the facts

Many kinds of process control instrumentation and communication networks can be destroyed by surges (also referred to as "transient overvoltages") on power, signal and telecommunication lines. This invariably results in expensive downtime. Surges may be caused by lightning, heavy electrical load switching, electrical faults or electrical 'noise', from arc welding and other industrial sources. Those induced by lightning are on the increase globally, and it is recognised by European and other international standards that lightning can induce voltage surges of more than 10kV on equipment cables - and a 'near miss' can inject more than 5kA of current through electronic circuitry.

The only effective way of preventing such damage is to equip all vulnerable connections with surge protection devices (SPDs). These incorporate circuitry designed to divert surges safely to earth, and to control the voltage seen by sensitive equipment. The Telematic range includes SPDs for virtually all applications, including mains power supplies, process instrumentation, PSTN installations and computer networking, thus providing 'all-round' protection from one source. These products are available directly from Telematic and from distributors around the world. Further information on all aspects of surge protection can be found in Telematic's range of Technical Application Notes available by post or downloaded from our Web Site.

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INSTALLATION

Figure 1 shows the installation for a typical control system. Each signal pair enters the system via an SA or PC series surge protection device (SPD).

The instrument rail should be bonded to the SPD busbar and a short link (≤ 1 metre) taken from the SPD busbar down to the local electrical earth bar. This method, with the addition of ac power protection, provides the maximum protection for a given installation.

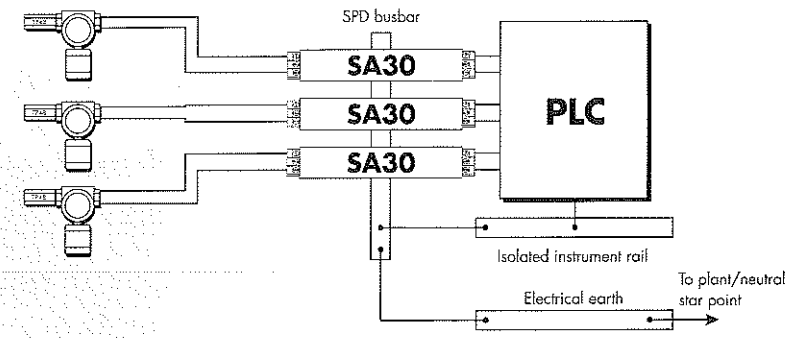

Figure 1 Installation and earthing for typical control systems

SPECIFICATIONS

(all figures typical at 25°C unless otherwise stated)

Maximum surge current
10kA (8/20µs waveform)

Ambient temperature limits
-40°C to +80°C (working)
-40°C to +100°C (storage)

Humidity
5% to 95% RH (non-condensing)

Terminals
2.5mm² (12AWG)

Weight
100g approx

EMC compliance
To Generic Immunity Standards, EN 50082, part 2 for industrial environments

LVD compliance (SAPN)
EN 41003:1993

Mounting options

MC1 mounting bracket for 1 device
MC2 mounting bracket for up to 2 devices

MK2 mounting kit for up to 2 devices
MK5 mounting kit for up to 5 devices
MK10 mounting kit for up to 10 devices

Weatherproof enclosures

WP0 Diecast to IP65, holds 1 device
WP3 Polycarbonate to IP65, holds up to 3 devices
WP5 Polycarbonate to IP65, holds up to 5 devices
WP12 Polycarbonate to IP65, holds up to 12 devices

APPROVALS

Model	Body	Certificate
SA06 SA51	BT	NS/2190/2/F/450911
SAPN	BT PTT ODTR	NS/2190/3/F/450912 NL 93040204 (The Netherlands) DOC 18/99 (Eire)

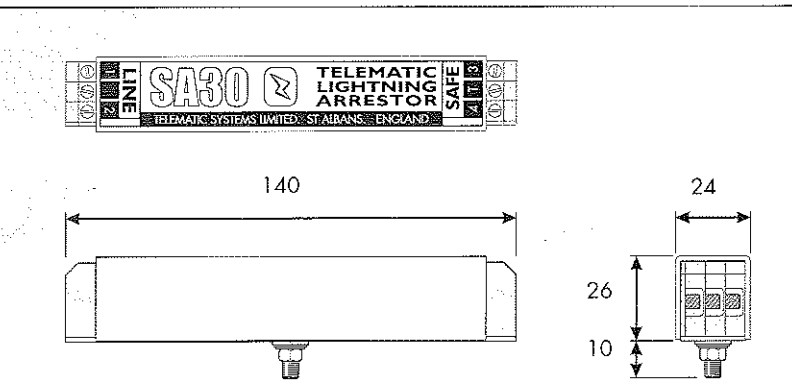

Figure 2 Dimensions (mm)

Model	Working voltage (V)	Rated load current (mA)	Nominal resistance per line (ohms)	Max. leakage current (µA)	Max. continuous operating voltage (V)	Limiting voltage (V)	Bandwidth
SA06	5.5	70	43	1000	6	30	220kHz
SA16	13.5	180	43	5	16	40	380kHz
SA30	25.5	340	43	5	30	60	500kHz
SA51	43.5	400	43	5	51	100	580kHz
SA75	64.0	400	43	5	75	150	600kHz
PC06	6	2A	1	2000	6	30	200kHz
PC16	15	2A	1	10	16	40	580kHz
PC30	27	2A	1	10	30	60	1.0MHz
PC51	47	2A	1	10	51	100	2.6MHz
SAPN	180		5	10	200	400	10MHz

Definitions of terminology used in table

Working voltage
Maximum voltage between lines or lines/ground for the specified leakage current

Maximum continuous operating voltage
Maximum voltage that can be applied to the protected terminals without damage

Limiting voltage
Peak output voltage after injection of test impulse from 6kV/3kA combination waveform generator (often known as 'let-through' voltage)

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