

# C Series DSP Perimeter and MultiLoop™ Drivers

The C Series hearing loop drivers from Ampetronic mark a substantial development in hearing loop technology for assistive listening. Compact, elegant, and sturdy, C Series units, the most versatile and powerful solutions available in their class, feature digital signal processing and networking functionality.

Four class 'D' drivers (two dual output and two single output models) make up the C Series; offering a significant increase in energy efficiency over existing solutions in a similar price range.

The drivers feature a simple digital user interface, enabling accurate adjustment and providing clear indicators, system diagnostics and built-in test tones. C series drivers are fully networkable with a Wi-Fi accessible standard browser based control panel for remote set-up, monitoring and email alerts.

The C5 and C7 feature 5 and 7 Amps RMS current per loop output, respectively, plus ample voltage headroom, making them suitable for a wide range of applications. Installation can be performed with total confidence; unique, multi-stage filtering ensures compatibility with other systems and global EMC regulations. The C Series also boasts dual slope Metal Loss Control that caters for a wide range of metal loss frequency characteristics (network versions only).



## Features

- **Simple digital interface enabling accurate adjustment**
- **Single or dual output options. Dual outputs featuring accurate and stable 90° phase shift**
- **Highly energy efficient Class-D amplifiers with low heat dissipation providing low running and maintenance costs**
- **Networking with browser interface for remote reporting, adjustment, active status monitoring and remote fault reporting via email or Telnet**
- **Built-in test tones**
- **AGC and dual slope configurable MLC**
- **Up to 2 x 675m<sup>2</sup> Perimeter Loops area coverage**
- **Up to 1100m<sup>2</sup> MultiLoop™ area coverage**
- **Compact 1U rack mount unit with internal transformer for simple rack installation**
- **Optimised for speech frequencies with unmatched intelligibility and capable of high quality musical reproduction**
- **Industry standard Phoenix connectors**
- **Data compliant with IEC 62489-1 Standard**
- **100V line input**

## Applications include

- **Lecture Theatres and Conference facilities**
- **Stadia, Sports Halls, Cinemas and Theatres**
- **Courtrooms, Airports and Railway Stations**

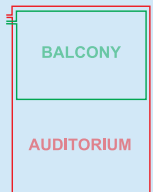
## MultiLoop™ System Design Configurations

MultiLoop Drivers can be used for different types of loop layout. You will need a MultiLoop system design for the loop layout which you can obtain from Ampetronic, or have your own design approved by Ampetronic free of charge through Loopworks™ Design.

### Perimeter MultiLoops

Two channels drive single area loops either side by side or overlaid.

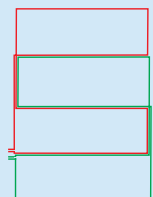
Suitable for applications where there is no metal in the buildings construction, or in areas of moderate metal up to a maximum loop width of 5 meters.



### Simple (non-overlap) MultiLoops™

A simplified layout which uses less cable than a Loss Control or Low Spill MultiLoop™, however, this is at the expense of evenness of coverage.

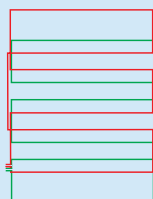
Particularly useful where a concrete floor is being slotted for the loop cable.



### Loss Control MultiLoops™

Multiple loop segments in two patterns each driven by one output channel.

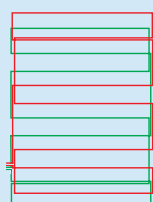
Best for optimal evenness of coverage across any area. Suitable for large areas and buildings with metal construction.



### Low Spill MultiLoops™

Suitable for applications where loops are close together or where confidentiality is an issue. Low Spill MultiLoops™ require careful and precise design.

Similar in design to a Loss Control MultiLoop™ but with a more complex pattern that requires more cable.



# C Series Product Information and Specifications

## INPUTS

<b>Power:</b>	35/55/95W 230V AC nominal, 45-65Hz [120V option available]
<b>Input 1 and 2</b>	3 way 3.5mm euroblock screw terminal input (supplied) with a balanced microphone and line level operation, selectable via rear panel switch
<b>Microphone / Line</b>	Microphone specification; 200 - 600Ω, sensitivity -67dBu. Selectable 24V phantom power on microphone only Line sensitivity -42dBu
<b>100V Line (Input 2 only)</b>	2 way 5mm euroblock screw terminal (supplied) sensitivity +7dBu

## OUTPUTS

<b>Loop Output Drive Voltage</b>	20V <sub>RMS</sub> (28Vpk) at maximum output current per channel
<b>Loop Output Drive Current</b>	<b>C5-X</b> 5A <sub>RMS</sub> (7Apk) up to 60 seconds continuous 1kHz sine wave, peak >7A per channel Cont. pink noise 2.3A <sub>RMS</sub> short term peaks >7A per ch.  <b>C7-X</b> 7A <sub>RMS</sub> (10Apk) up to 60 seconds continuous 1kHz sine wave, peak >10A per channel Cont. pink noise 3.3A <sub>RMS</sub> short term peaks >10A per ch.
<b>Loop Connectors</b>	4 way 5mm euroblock screw terminal (supplied) for each output, for star-quad configured feed cables
<b>DC Output</b>	2 way 3.5mm euroblock screw terminal Re-settable, fuse protected 12V 0.1A.
<b>Line Output</b>	3 way 3.5mm euroblock screw terminal (supplied) post AGC balanced output

## AUDIO SYSTEM

<b>Frequency Response</b>	80Hz to 6.5kHz
<b>Distortion</b>	THD+N <0.3% 1kHz sine at full current
<b>Automatic Gain Control</b>	The AGC is optimised for speech. Dynamic range >36dB
<b>Metal Loss Correction</b>	Corrects system frequency response issues due to metal structures in a building. Gain constant at 1kHz, adjustable gain slope from 0 to 4dB per octave in 0.25dB increments. Custom 2 slope MLC allows different slopes and transition frequency to be set via the menu (network models only). This does not compensate for signal loss from metal structures which can be significant.
<b>Phase Shift</b>	User selectable (network models only) at 0° or 90° between outputs

## ADDITIONAL FUNCTIONS

<b>STATUS</b>	Tri-colour LED: Solid GREEN = normal operation Flashing GREEN = sleep or standby mode Flashing RED = error Flashing AMBER = firmware updating
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## PHYSICAL

<b>Size</b>	Full width 1U 19" rack mount. Width 430mm Depth 190mm Height 44mm
<b>Mounting Options</b>	Freestanding 1U 19" rack mount (brackets fitted as standard)
<b>Weight</b>	<b>C5-1: 2.5 kg C5-2: 2.8 kg</b> <b>C7-1: 2.8 kg C7-2: 3.1 kg</b>
<b>Environment</b>	IP20 rated; 20 to 90% relative humidity; 0 to 35°C
<b>Cooling</b>	Passive

### Standards compliance

These products are designed to form part of a system that can meet all of the requirements of the international loop performance standard IEC60118-4, and the relevant parts of IEC TR 63079. To fully meet requirements of these standards, correct design, installation, commissioning and maintenance are required.

All specification data has been compiled in accordance with IEC62489-1, the international performance reporting standard for audio frequency induction loop equipment. Specification data should only be compared with data compliant to this standard.

This product is CE and RCM marked to all relevant safety and EMC standards, and is MET Labs approved for sale in North America.



## Indicative C-Series Max Area Coverage Scenarios

Perimeter Loop Systems m <sup>2</sup>			MultiLoop Array Systems m <sup>2</sup>		
Driver	Metal Loss	Perimeter Loop		Metal Loss	Loss Control Multiloop* Low Spill Multiloop
C5-1	None	240	C5-2	None	1089 900
	Moderate	Max 5m width		Moderate	342 256
C5-2	None	2 x 240		High	- -
	Moderate	Max 5m width	C7-2	None	1089 900
C7-1	None	460		Moderate	625 462
	Moderate	Max 5m width		High	289 210
C7-2	None	2 x 460			
	Moderate	Max 5m width			

Indicative metal loss scenarios are based on: Moderate - Calculated using "Concrete with moderate reinforcement" mode in Loopworks Design. Typical loss allowance of 5dB. High - Calculated using "Profiled Steel Deck" and "Metal System Floor" modes in Loopworks Design. Typical loss allowance of 9dB. All calculations based on square rooms. Perimeter loop systems modelled as single-turn loops using 2.5mm<sup>2</sup> single wire. Loops installed at height (essential in larger rooms). Multiloop systems modelled as floor-level installations using 3.0mm<sup>2</sup> Flat Copper Tape. \*Optimised



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