

SCD96

96 Channel DMX Source Controller
with 8 x 3A Relays



Contents

Introduction	3
Weight	3
Dimensions	3
Specification	3
Mounting	5
Supply Wiring	5
iCAN Network Connections	6
DMX Connections	7
RS485 Connections	7
RJ12 Connector	8
Alarm Inputs	8
Relay Outputs	9
Analog/Digital Inputs	9
Digital Outputs	9
Service Switches and LEDs	10



WARNING HAZARDOUS VOLTAGES DISCONNECT FROM SUPPLY BEFORE REMOVING COVERS

NO USER SERVICEABLE PARTS INSIDE
SERVICE BY QUALIFIED PERSONNEL ONLY



WARNING

- To reduce the risk of fire or electric shock,
DO NOT expose this device to rain or moisture.
DO NOT energise unless the front cover is in place.
- This device must be earthed.
- Installation, programming and maintenance must be carried out by qualified personnel.
- Cooper Controls cannot accept responsibility for repairs or modifications that are not competently executed and in accordance with service or upgrade information.



CE compliant to all relevant standards

Introduction

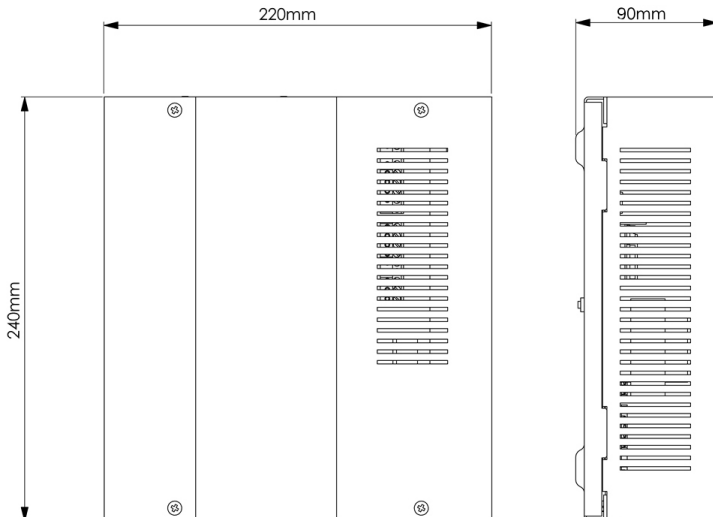
This unit provides DMX output across 96 channels. Eight of these control volt-free mains rated low power relays and a further eight control digital outputs which can be used to control the power to the DMX sources or control channels in their own right. These allow lighting sources that use DMX as the control signal to be used as part of the iCAN network.

Fitting in the smallest of the iCAN network metal controller boxes this compact unit can be mounted virtually anywhere. As well as the essential connections to the iCAN network, there are also terminals provided for connection to an RS485 system and fire alarm system.

Weight:

- Packed: 2.6 kg
- Unpacked: 2.4 kg

Dimensions



Specification

Electrical

Supply: 230 volts +/- 10% 50/60 Hz 1 Amp
(optionally, 127 volt 60 Hz)

Protection: Requires external circuit breaker

Load Types:

DMX controlled loads (96 DMX addresses total)
8 x Relay outputs 3Amps AC

Terminal Sizes:

Incoming supply, max' cable size: 4mm²

iCANnet™ network cable size: 5 x 1mm²

DMX output: 2 x 1mm²

Memory:

FLASH memory to be able to upgrade software

EEPROM for 128 scene memory

Fade Times: 0.1 seconds to 60 minutes

Environmental Data

Temperature: 0°C to 40°C

Humidity: 0 to 95% non-condensing

8 Analog / digital inputs

Individually programmable as analog or digital inputs

Analog input mode:

- Suitable for use with rotary and linear variable resistors
- Reads input voltages from 0 – 10 VDC
- Inputs protected for use up to 12 VDC

Digital input mode works with:

Switch closure from the IN to Common

- For use with both momentary and maintained inputs
- Minimum momentary input pulse duration 20 msec
- Switch will see up to 60uA when closed

Open collector NPN active low circuit

- On-state voltage \leq 500mV and capable of sinking 60uA
- Collector-emitter leakage current \leq 10 uA
- Collector-emitter voltage \geq supply voltage

Actively driven circuit

- Active low voltage \leq 500mV and capable of sinking 60uA
- Active high voltage \geq supply – 1 volt
- All analog / digital inputs wire with 2 part connectors with screw terminals. Wire sizes 12 AWG (4mm²) to 24 AWG (0.25mm²).

8 Digital Outputs

- LED indication of switched output status
- Configurable as digital control channels
- Outputs will drive a single LED, or two LEDs in a series with up to 20mA of current; exact current will depend upon the forward voltage drop of the LED used.
- Outputs are actively driven high and low to TTL voltages with an internal series impedance of 220 ohms.
- All digital outputs wire with 2 part connectors with screw terminals. Wire sizes 12 AWG (4mm²) to 24 AWG (0.25mm²).

Support for multiple control protocols

- 2 sets of terminals for the iCANnet network
- RS485 connection to third party devices
- DMX 512A output to third party devices

2 Alarm switch inputs

- For integration with emergency control devices and building management systems
- For DC use only
- Maximum open circuit voltage, 5V

Mounting

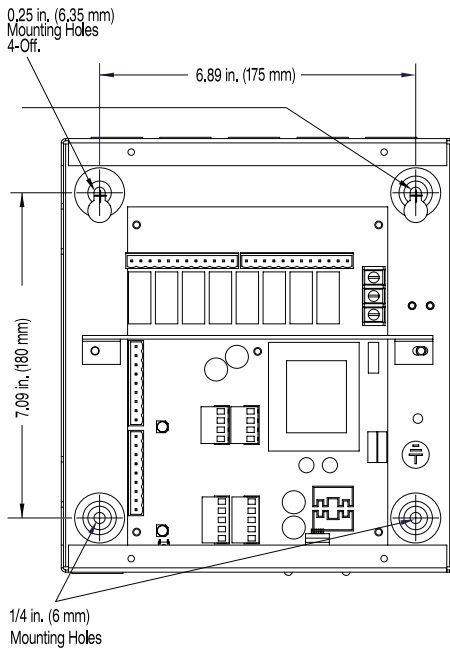
Location and spacing

The DMX Output Interface should be installed in a dry ventilated location, where ambient conditions are maintained within the requirements of the unit.

The unit has ventilation slots on its sides to allow convection cooling and under no circumstances should these be blocked. Allow 50mm above and below the unit if trunking with a depth greater than 50mm is used.

Mounting Holes

The unit is provided with four 1/4in (6mm) diameter fixing holes for wall mounting. The mounting holes can be accessed by undoing the four screws on the front cover and removing it.



Supply Wiring

Connecting the Supply

This unit requires a nominal 240V single phase supply (Live, Neutral, and Earth) with 1A capability.

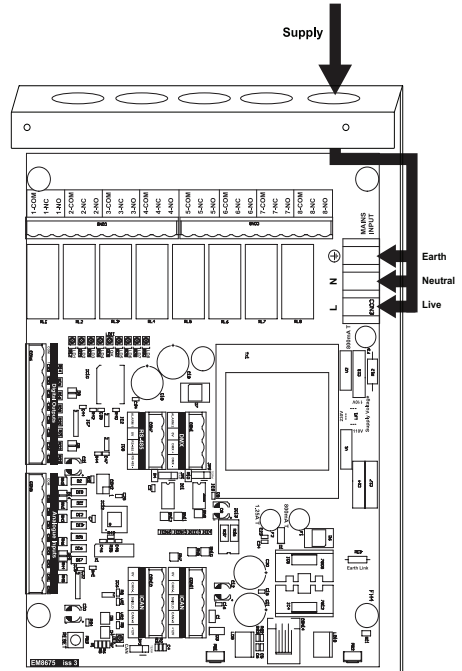
Keep the supply wiring segregated from the relay connector cabling.

Ensure all supply connections are fully tightened.

A knockout, suitable for a 3/4" (19mm) cable gland, is provided for the supply entry point.

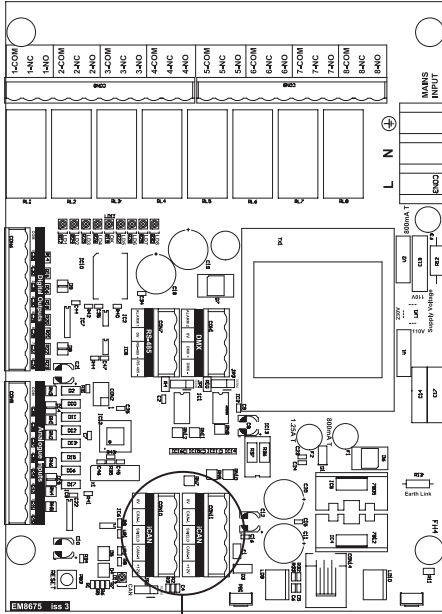
Wire Gauge for Supply Terminals

Terminals suitable for wire sizes from 22AWG.



iCAN Network Connections

Two removable 5 way connector blocks are provided for the connection of iCAN network cables. The iCAN terminals on the board are connected in parallel. An appropriate cable gland should be fitted to each knockout hole to protect the cabling from damage.

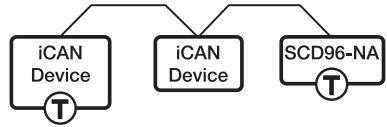


Function	Network Cable Colours
0V	Black
CAN L	White
Shield	Silver
CAN H	Blue
+12Vdc	Red

IMPORTANT NOTE: Connecting a mains potential cable to the iLight Network terminals is likely to damage the unit and others connected, and invalidate warranty.

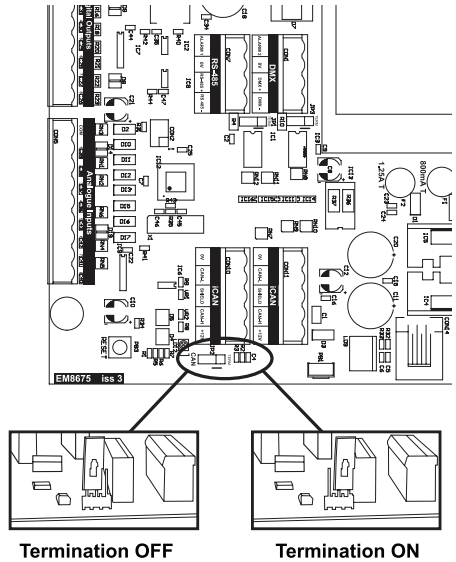
iCAN devices are 'daisy-chained' on the network. Spurs from the Network are not permitted and will result in communications problems. Devices on an iCAN network can be wired in any order. Termination is required at both ends of the network.

Network Termination



T - Indicates where a termination is required.

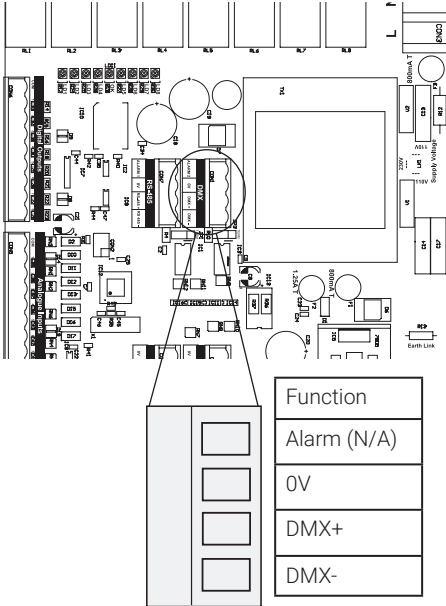
The SCD96 has built-in network termination. If the SCD96 is at the end of the network, ensure the CAN TERM jumper is fitted in the Termination On position.



DMX Connections

The SCD96 has 96 channels of DMX that can be configured via iCANTools software.

Connections are made via the 4-way 2 part terminal block. Connections are:



DMX Channel Mapping

The mapping of the iCANnet™ channels of the SCD96 to the DMX output channels is configurable from the iLight programming software.

The first eight channels control the relays as well as being able to be mapped to any available DMX channel. The next eight channels control the digital outputs as well as being able to be mapped to any available DMX channel. The next 80 channels are DMX output only and can be mapped to any available DMX channel.

Both the relay and digital output switching points are configurable (via the Min & Max values) from the iLight programming software.

Note: Only one iCANnet™ channel should be mapped to a single DMX channel. One to Many & Many to One topologies are NOT supported.

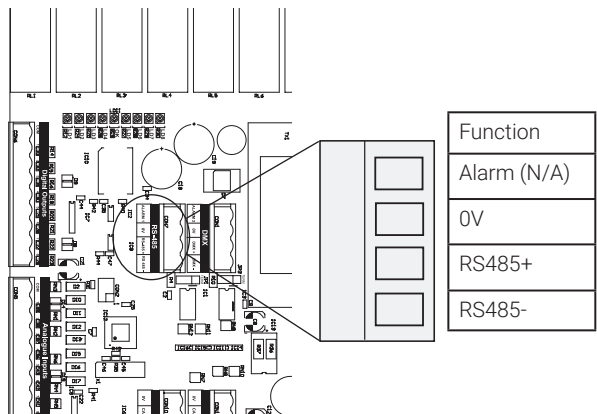
RS485 Connections

An RS485 port is provided for connection to third party device.

The settings are:

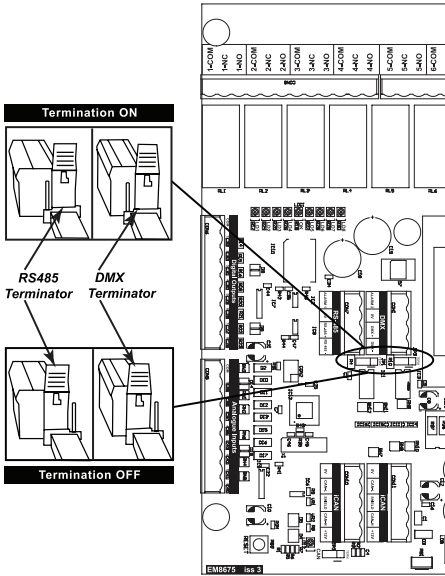
- Baud Rate: 9600 Baud
- Data Structure: No parity, 8 data bits, 1 start bit, 1 stop bit.

A removable 4 way connector block is provided for the connection of RS485.



RS485 & DMX Terminations

RS485 and DMX networks are daisy-chained. Devices at either end of the network must be terminated. If the SCD96 is at the end of the network, ensure the appropriate jumper is fitted in the termination ON position, as in the following diagram:



Programming Port

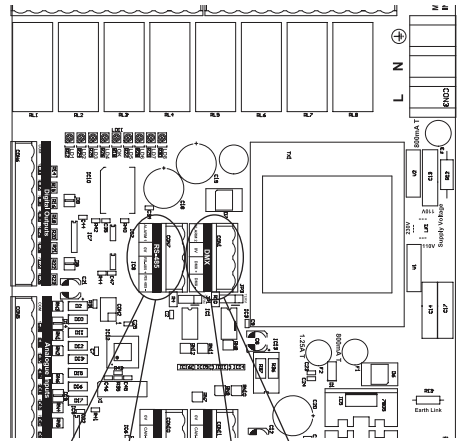
A programming port (RJ12) is also fitted, for factory & commissioning use.

Note: It is not recommended to connect to this port for normal operation.

Alarm Inputs

The default action for the alarm inputs is for all outputs to switch on. These inputs are designed for integration with emergency control devices and building management systems, using volt-free switch inputs.

The default action for the alarm inputs is for all mapped DMX channels to output 255, digital outputs drive high, and relay outputs close. They will then remain in this state, regardless of any other command received, until both alarm inputs are open again.



Function	Function
Alarm 1	Alarm 2 (N/A)
0V	0V
RS485 + (N/A)	DMX+
RS485 - (N/A)	DMX-

Note: Alarm 1 to be used when DMX port is in use

Relay Outputs

There are 8 Relay Outputs that can be wired to provide low voltage or line voltage outputs.

- Normally open and Normally closed terminals available for each relay
- Low voltage volt free outputs
- Line voltage rated at 3 Amps AC for general use, resistive, incandescent lamps (tungsten), electric discharge (ballast) loads and ¼ HP AC motor loads for use at 120 and 240 VAC.
- Do not mix low voltage and line voltage on relay output terminals
- Controlled as channels 1-8

Connections are made via two 12-way 2 part connectors with screw terminals.

Wire Gauge for Relay Outputs:

Terminals suitable for wire sizes from 24AWG (0.25mm²) to 12AWG (4mm²).

The unit is supplied with knockouts, suitable for 3/4" (19mm) cable glands, for relay output wiring. An appropriate cable gland should be fitted to each knockout hole to protect the cabling from damage.

Analog/Digital Inputs

The unit has eight inputs which can be configured via software for either digital or analog input signals.

- Individually programmable to be analog or switch inputs
- Analog inputs accept 0 – 10VDC signals

Note: Wire distance from the device to the SCD96 should not exceed 32 feet (10m).

Connections are made via a 9-way two part connector with screw terminals.

The unit is supplied with knockouts, suitable for 3/4" (19mm) cable glands, for analog/digital input cabling. An appropriate cable gland should be fitted to the knockout hole to protect the cabling from damage.

Wire Gauge for inputs: terminals suitable for wire sizes from 24AWG (0.25mm²) to 12AWG (4mm²).

Digital Outputs

The unit has eight digital outputs. These can be configured as:

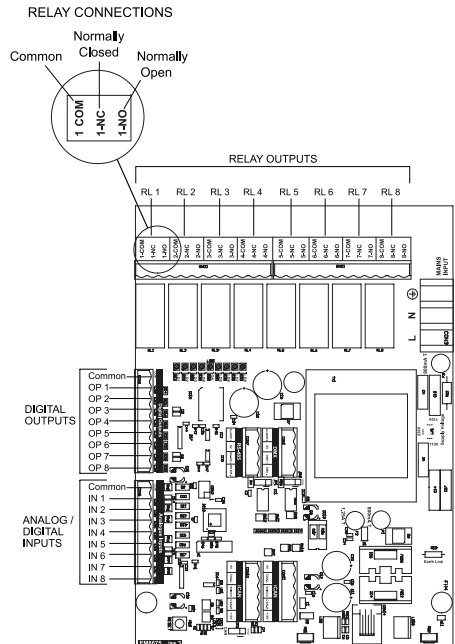
- LED drive indicators of switched output status
- Digital control channels
- Controlled as channels 9-16

Connections are made via the 9-way two part connector with screw terminals.

Wire Gauge for Digital outputs:

terminals suitable for wire sizes from 24 AWG (0.25mm²) to 12 AWG (4mm²).

The unit is supplied with knockouts, suitable for 3/4" (19mm) cable glands, for digital output wiring. An appropriate cable gland should be fitted to the knockout hole to protect the cabling from damage.



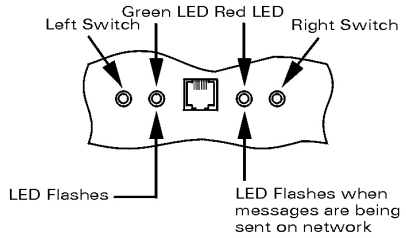
Service Switches and LEDs

These switches and LEDs are located at the base of the unit.

The two service switches on the source controllers are used for the following:

- Entering Diagnostic Mode.
- Putting the Source Controller in override mode.
- Sending a message to identify the device on the network.
- Sending a message to identify the device on the network.

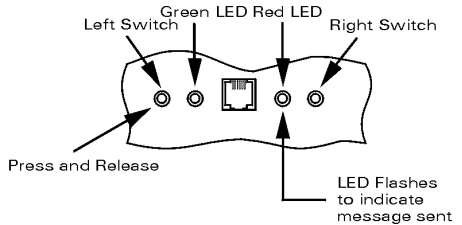
NORMAL RUNNING MODE



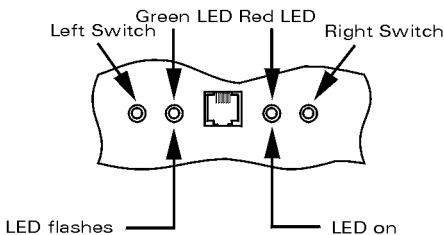
The LEDs indicate the following:

- Normal operation:
Steady green LED blinking 1 x per second.
Red LED off.
- Message transmission and receipt indicated by red LED flashing for duration of data transmission.
- Override status: Both LEDs flashing together or just red flashing and green off.

DEVICE IDENTIFICATION

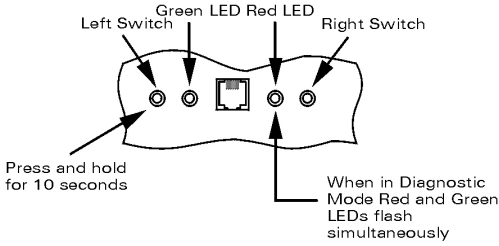


iCAN Network Comms Error

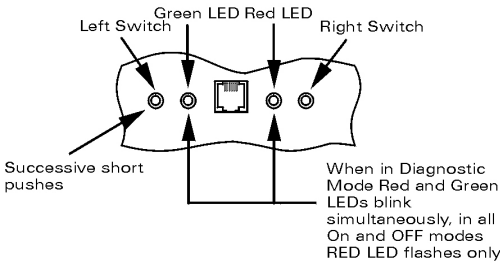


iCANnet error status will occur when a Source Controller is not connected to an iCAN network for any reason. Once either connected to a network of one or more other devices which are powered the error status will be removed. It is still possible to enter Diagnostic mode if a Source Controller is in iCANnet error status.

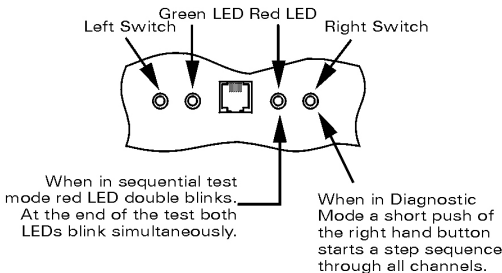
ENTERING DIAGNOSTIC MODE



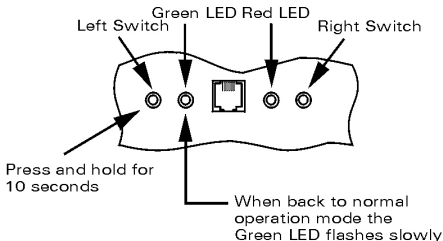
OVERRIDE MODES



SEQUENTIAL TEST MODE



EXITING DIAGNOSTIC MODE



Override Mode

Placing the unit into override mode allows for testing of the Source Controller outputs regardless of how the unit is currently programmed. This is useful for testing power to circuits prior to the system being commissioned or for fault finding where it can be used to test if there is an issue with the Source Controller output(s) should this be suspected.

When the Source Controller is placed into override mode it will no longer respond to commands sent over the iCAN network.

Override mode can also be used to restore power to outputs if control is lost or temporarily removed to allow lighting to remain on until control is restored.

NOTE: Override mode only affects the outputs on the Source Controller on which it is activated.

To exit diagnostic / override status follow the steps shown. If power is cycled to the Source Controller then this will also take the unit out of override mode and it will start up in the default running status.

iLight Technical Support

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Email: ctechsupport@cooperlighting.com

Web: www.iLight.co.uk

All products manufactured by Cooper Lighting Solutions and identified with the iLight product series mark are warranted to be free from defects in material and workmanship and shall conform to and perform in accordance with Seller's written specifications. For detailed warranty information, contact Cooper Lighting Solutions.

This warranty will be limited to the repair or replacement, at Seller's discretion, of any such goods found to be defective, upon their authorized return to Seller. This limited warranty does not apply if the goods have been damaged by accident, abuse, misuse, modification or misapplication, by damage during shipment or by improper service.

There are no warranties, which extend beyond the hereinabove-limited warranty, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTY OF MERCHANTABILITY AND THE IMPLIED WARRANTY OF FITNESS.

No employee, agent, dealer, or other person is authorised to give any warranties on behalf of the Seller or to assume for the Seller any other liability in connection with any of its goods except in writing and signed by the Seller. The Seller makes no representation that the goods comply with any present or future federal, state or local regulation or ordinance. Compliance is the Buyer's responsibility.

The use of the Seller's goods should be in accordance with the provision of the National Electrical Code, UL and/or other industry or military standards that are pertinent to the particular end use. Installation or use not in accordance with these codes and standards could be hazardous.



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