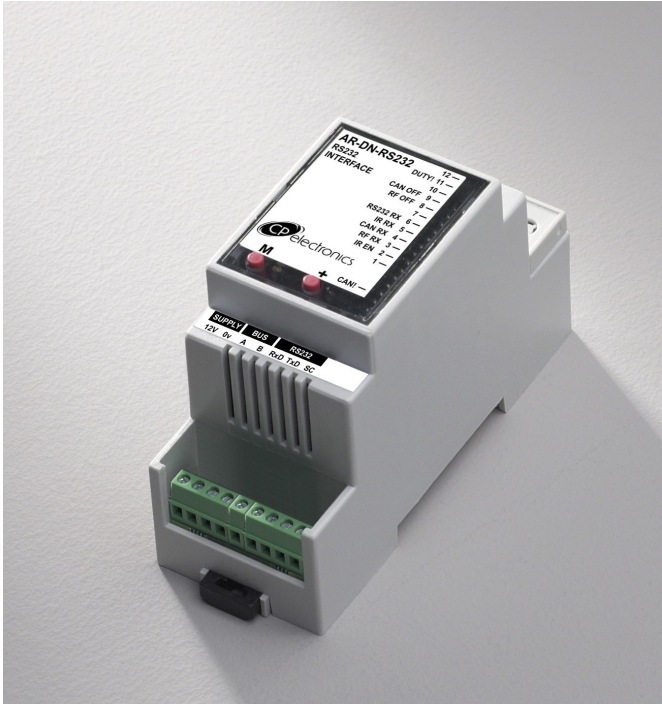


AR-DN-RS232

An-10 / Rapid RS232 Interface

Overview



The AR-DN-RS232 is a device that is used as a 2 way gateway between third party systems and the CP An-10 or Rapid lighting control systems using RS232 as the communication mechanism. It is suitable as the communication interface between an Audio Visual system.

Scenes, circuits and levels can be controlled by the third party system by sending ASCII messages, to the AR-DN-RS232, using the syntax explained from page 4 of this document.

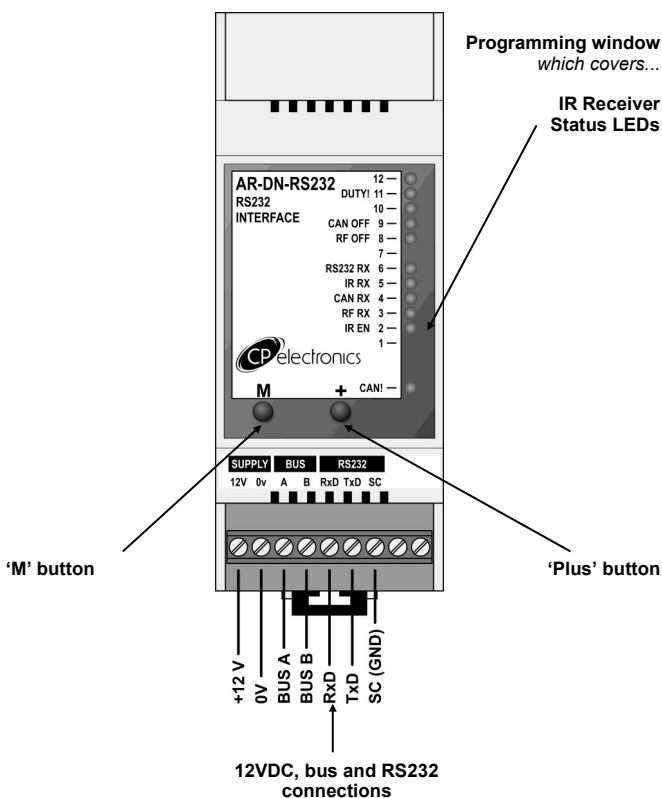
It can also send messages using the third party system's protocol (An-10 only). This could be used, for example, to change the volume or select a TV channel on an Audio Visual system.

The unit comprises a radio transceiver for two way communication with an An-10 or Rapid system and a CAN port for wired communication with other wired An-10 or Rapid devices.

The device is configured using the UNLCDHS programming handset or the ALC commissioning software in conjunction with an An-10 RF PC dongle.

Features

Front features



Connections

- +12V and 0V for 12VDC power from an EBR-DIN-PSU DIN rail power supply.
- BUS A and BUS B for an An-10 or Rapid wired network.

DUTY!	Duty cycle limit exceeded
CAN OFF	An-10 / Rapid CAN port is turned off
RF OFF	RF port is turned off
RS232 RX	RS232 messages received
IR RX	IR messages received via IR port
CAN RX	An-10 / Rapid CAN messages received
RF RX	An-10 / Rapid RF messages received
IR EN	IR port enabled
CAN!	CAN hardware fault

LEDs

'M' button

- Not used

'+' button

- Press to activate the IR receiver

RS232 wiring to 9 pin 'D' type connector

- Pin 2 RxD
- Pin 3 TxD
- Pin 5 SC (Ground)

Installation

Install the RS232 Controller in a suitable DINrail enclosure with adequate ventilation for the devices installed. The ambient temperature of the cabinet that the devices are installed in **MUST NOT** exceed 40°C.

Wire as shown in the diagram on page 1.

An-10 and Rapid Setup

Programming tools

The functionality of the RS232 Controller is controlled by a number of parameters which can be changed or programmed by any of the following devices:

- **UNLCDHS** Infrared Handset (using the 'Generic Device' menu) .
- ALC programming software (available from CP technical support) and CP PC dongle (AT-PC-USB) ..

LED Display

	Event	Yellow LED	Red LED	
Errors	IR RX Error		F	Flash x 4
	RF RX Error	P	P	
	CAN RX Error		P	
Fatal Faults	Fatal Radio fault	C	C	+ Green LED 3 (RF RX LED)
	Fatal CAN fault	C	C	+ Green LED 4 (CAN RX LED)
	Fatal NV Memory	C	C	+ Green LED 7
Reset	Hard Reset		C	+ Snake of all LEDs
	Soft Reset	C		+ Snake of all LEDs

Key

- F Flash
- P Pulse
- C Constant

These tables give a summary of all programmable parameters using an UNLCDHS handset.

Parameter Name	Default Value	Range / Options	Description
<i>Addressing—Device</i>			
Product ID	<i>Automatically assigned by the device</i>	1 to 999	A number used to uniquely identify each device within a range of devices that are set to the same Local Code.
Building Code	1	1 to 999	A number shared by all devices that belong to the same building or system.
Lock	0	Enable (1) or disable (0)	Lock the An-10 network. Prevents more devices joining the network.
<i>Addressing—Output channels</i>			
Local Code	1	1 to 999	A number corresponding to the Local Code of all devices to be controlled by an associated input channel.
Sub Local Code(s)	<i>Not set</i>	1 to 99 0 to clear	A number corresponding to the Sub Local Code of all devices to be controlled by an associated input channel. Up to 20 Sub Local Codes can be set for Channel 1 and 2, e.g. 15 on Ch.1 and 5 on Ch.2, etc.
Area Code(s)	999	1 to 999 0 to clear	A number corresponding to the Area Code of all devices to be controlled by an associated input channel. Up to 32 Area Codes can be set for Channel 1 and 2, e.g. up to 16 per channel, or 20 on Ch.1 and 12 on Ch.2, etc.
Is Hub	No	Yes or No	Manually set whether the device is hub or not. Normally a device is set as a hub or not automatically. <i>Note: the RS232 Controller is a hub by default since RF and CAN are both enabled.</i>

Parameter Name	Default Value	Range / Options	Description
<i>Device configuration</i>			
RF Enabled	+Rx+Tx	+Rx+Tx +Rx-Tx -Rx+Tx +Rx-Tx	Enable radio communication between units.
CAN Enabled	On	On or Off	Enable wired communication between units.
IR enabled	Yes	Yes or No	This command prevents the device from responding to IR. Once IR reception is disabled, the only IR command that will work is this one to allow re-enabling. <i>Note: the 'Plus' key will only activate the IR port if IR is enabled. Using this command.</i>
RF Channel	2	0 to 2	868mHz (915mHz) band radio channels 1G1, 1G2 and 1G3 with different duty cycle restrictions.
RF Tx Power	3	1 to 7	Transmit radio power levels. 0=-20dBm, 1=-10dBm, 2=-5dBm, 3=0dBm, 4=+3dBm, 5=+5dBm, 6=+8dBm and 7=+10dBm.
Lock	0	Enable—lock (1) or disable—unlock (0)	Lock the An-10 network. Prevents more devices joining the network.
Discovery Declare	N/A	N/A	Sends a Declare Presence message immediately to a PC with an An-10 Dongle.
Soft Reset	N/A	N/A	Start the processing from scratch, clearing the temporary variables, but no loss of configuration.
Factory Reset	4	1 to 99.	Restores factory default settings (also called hard reset). <i>Note: An-10 products require the device code. The RS232 Controller uses 9.</i>

An-10 ASCII messages

Use the ASCII messages as the means of communication between a third party system and the An-10 system via this RS232 interface.

Rules

- Start character #
- Use a - between the command and the parameters
- Scene number always 3 digits, eg 023
- Area number always 3 digits, eg 023
- End character
 - .
 - ascii <cr> (13 dec)
 - ascii <lf> (10 dec)
 - **EOT** (4 dec)
- Use 000 to mean "any" as in any local code, or any area
- Parameter identifiers
 - **S** Scene number
 - **A** Area
 - **C** Circuit number
 - **L** Local code
 - **V** Level %
 - **Q** Sequence number
 - **F** Fade time 0-59 seconds (1 sec intervals) S, 1-59.5 minutes (30 sec intervals) M, 1-20 hours (15 min intervals) H
 - **T** Step within a sequence
- Use 101 in 'set circuit level' to mean Ignore (useful in scene set).
- (The other per scene flag, Modifiable, would be retained from what that scene already had set).
- Numbers above 200 in circuit level response will be used to indicate fault feedback messages eg from DALI such as Lamp Fail.

Basic Scene Recall and Adjustment, not including saving

Select Scene

- Syntax – Select Local Scene
 - #SS-L000-S000-F0000S.
- Syntax – Select Area Scene
 - #SS-A000-S000-F0000S.

Raise scene

- Operation
 - Raises scene by X% of the active output range (from min to max output settings)
- Syntax – Raise Local Scene
 - #SR-L000-S000-V000.
- Syntax – Raise Area Scene
 - #SR-A000-S000-V000.

Lower scene

- Operation
 - Lowers scene by X% of the active output range (from min to max output settings)
- Syntax – Lower Local Scene
 - #SL-L000-S000-V000.
- Syntax – Lower Area Scene
 - #SL-A000-S000-V000.

Set Circuit Level

- Syntax
 - #SC-L000-C000-V000-F0000S.

Raise circuit

- Operation
 - Raises circuit by X% of the active output range (from min to max output settings)
- Syntax
 - #CR-L000-C000-V000.

Lower circuit

- Operation
 - Lowers circuit by X% of the active output range (from min to max output settings)
- Syntax
 - #CL- L000-C000-V000.

Stop Fade (where applicable)

- Syntax – Stop Local Fade
 - #SF- L000-C000.
 - #SF- L000-S000.
- Syntax – Stop Area Fade
 - #SF- A000-C000.
 - #SF- A000-S000.

An-10 ASCII messages

Scene Setting including saving

Save Scene

- Operation
 - Saves current levels within area or local code to a scene
- Syntax – Save Local Scene
 - #SA-L000-S000.
- Syntax – Save Area Scene
 - #SA-A000-S000.

Override On

- Syntax – Local override
 - #ON-L000.
- Syntax – Area override
 - #ON-A000.

Override On - release

- Syntax – Local release
 - #ONR-L000-S000.
- Syntax – Area release
 - #ONR-A000 -S000.

Override Off

- Syntax – Local override
 - #OF-L000-S000.
- Syntax – Area override
 - #OF-A000 -S000.

Override Off - release

- Syntax – Local release
 - #OFR-L000-S000.
- Syntax – Area release
 - #OFR-A000 -S000.

Rapid ASCII messages

Use the ASCII messages as the means of communication between a third party system and the Rapid system via this RS232 interface.

Rules

In addition to translating customised commands and messages between the CAN network and an RS232 device, the interface converts control messages between the network and the connected device.

- Start character +
- Use a - between the command and the parameters
- Scene number always 3 digits, eg 023
- Area number always 3 digits, eg 023
- End character
 - . (46 dec)
 - ASCII <cr> (13 dec)
 - ASCII <lf> (10 dec)
 - EOT (4 dec)
- Parameter identifiers
 - **S** Scene number
 - **C** Circuit number
 - **P** Program, this is the Rapid interface ID for the scene panel.
 - **V** Level %

Rapid ASCII messages

Basic Scene Recall and Adjustment, not including saving

Select Scene

- Operation
- Syntax – Select Program Scene
 - +SS-P000-S000-F000S.

Raise scene

- Operation
 - Raises scene by X%
- Syntax – Raise Program Scene
 - +SR-P000-S000-V000.

Lower scene

- Operation
 - Lowers scene by X%
- Syntax – Lower Program Scene
 - +SL-P000-S000-V000.

Request current scene

- Syntax – Request Local Scene
 - +RS-P000.
- Response - Report Current Scene
 - Syntax – Report Program Scene
 - +RRS-P000-S000.
- Be aware that the response from the scene plate causes the scene to be recalled.

Set Circuit Level

- Operation
- Syntax
 - +SC-P000-C000-V000.

Raise circuit

- Operation
 - Raises circuit by X%
- Syntax
 - +CR-P000-C000-V000.

Lower circuit

- Operation
 - Lowers circuit by X%
- Syntax
 - +CL- P000-C000-V000.

Request circuit level

- Syntax
 - +RC- P000-C000.
- Response - Report Circuit Level
- Syntax
 - +RRC- P000-C000-V000.

Scene setting including saving

Save Scene

- Saves current levels to a scene
- Syntax – Save Program Scene
 - +SA-P000-S000.

Save Circuit

- Saves a circuit level in the background, without affecting the current level
- Syntax – Save Circuit
 - +ST-P000-S000-C000-V000.

Rapid parameter identifiers

- 0 – clock command
- 4 – override on level
- 5 – override off
- 6 – ELT
- 10 – room divide

Override - set

- Syntax – Override
 - +SW-P000-T04-V100 (override on at 100%)
 - +SW-P000-T04-V050 (override on at 50%)
 - +SW-P000-T05-V001 (override off)
 - +SW-P000-T06-V001 (start keyswitch emergency test)

Override - release

- Syntax – Release
 - +SW-P000-T05-V000 (cancel override off)
 - +SW-P000-T04-V000 (cancel override on)
 - +SW-P000-T06-V000 (stop keyswitch emergency test)

Advanced Commands

Feedback / status

- Verbose mode
 - Scene calls and interface commands continually reported as they happen.
- Feedback
 - The interface should acknowledge the commands that it receives from the 3rd party control system.

Technical data

Dimensions	See diagrams opposite
Weight	0.08kg
Supply Voltage	12VDC
Terminal Capacity	1.0 mm ²
Baud rate	9600 default
Power consumption	1590mW



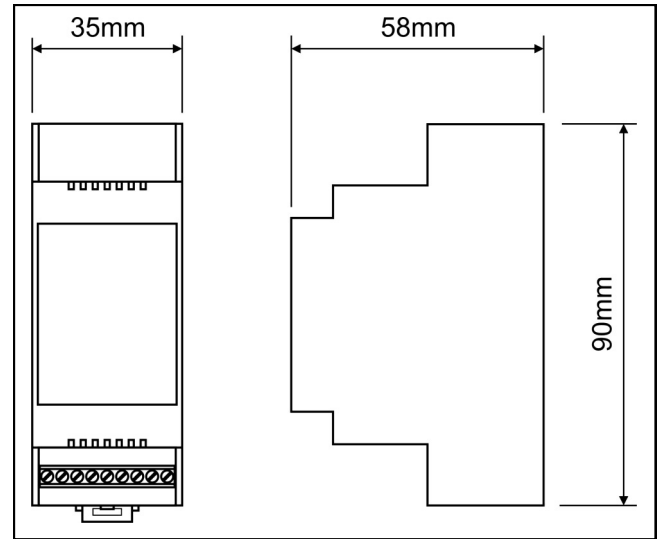
Order code	Region	Radio frequency	Compliance
blank	European Union	868MHz	RED-2014/53/EU
-A2	Australia & New Zealand	915MHz	AS/NZS 4268:2008

For further compliance information visit
www.cpelectronics.co.uk/compliance

Receiver Class	2
Transmitter Duty Cycle	<10% on g3 band (default band) <0.1% on g2 band <1% on g1 band

Range
 The maximum RF range between An-10 devices is 100m in free air and up to 30m indoors. However the materials used within a building will vary and this will impact upon the RF range. In reality the nature of how the An-10's hybrid-mesh works means that in most scenarios the individual range of an An-10 product will not be important.

Ambient temperature	-10°C to 40°C
Humidity	5 to 95% non-condensing
Material (casing)	Flame retardant ABS and PC/ABS
Type	Class 2



Part numbers

	Part number	Description
Controller	AR-DN-RS232	RS232 Interface
Accessories	EBR-DIN-PSU	DIN rail power supply
	UNLCDHS	Universal LCD IR handset

IMPORTANT NOTICE!

This device should be installed by a qualified electrician in accordance with the latest edition of the IEE Wiring Regulations and any applicable Building Regulations.



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