DIN-TEC

by

ENTTEC
Entertainment Technology

Safety Instructions

Do not expose this device to rain and moisture, or expose it to the risk of dripping or splashing.

Do not use this device near water.

Do not block any ventilation apertures on this device.

Do not install this device near heat sources such as heaters, stoves, monitors, amplifiers, dimmers, luminaires or any other equipment that produces heat.

Do not expose the power adapter or power cables of this device to damage from being, crushed, walked on or being pinched by protective cabinets, enclosures or cases.

Use only attachments, accessories or fixings specified by ENTTEC.

Unplug this device from the mains supply and external data links during electrical storms or when the device will not be used for a long time.

Servicing this device should be undertaken only by suitably qualified service technicians.

Contacting ENTTEC

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Getting Support

If you require support for any DIN-TEC product, please visit the Support area of our website at *www.enttec.com*. There you can fill out a support request ticket for prompt assistance with your enquiry.

An alternative to this is to simply send an email to support@enttec.com and mention that you are having trouble with this product, and what version of firmware or software items you are using where relevant.

Table of Contents

Glossary of DIN-TEC Terms

DIN-NET: The name of the network interlinking DIN-TEC modules, please note that not all DIN-TEC modules have DIN-NET ports

DIN-RAIL: Standard metal rail as defined in (EN 50022, BS 5584, DIN 46277-3), used to physically support all DIN-TEC modules

Typographic conventions used in this manual

☕ This process may take a few minutes, possibly long enough to take a coffee break.

🍴 This process could take some time, quite possibly enough time to make and eat a snack.

DIN-TEC

Thank you for purchasing a DIN-TEC module. At Enttec we are proud of our products and we hope you will enjoy using them as much as we enjoy designing and building them.

DIN-TEC modules are highly flexible products that can be used to interface a number of different products and be programmed to perform simple logic operations.

Each module sits on a standard DIN Rail that can be mounted inside an electrical cabinet or other appropriate location. Some modules have a DIN-NET port that provides power and a communications network.

Although DIN-NET is based on RJ45 connectors and any standard CAT5, CAT5E or CAT6 patch lead can be used. It is not to be confused with Ethernet and Ethernet equipment such as Switches or Routers cannot be used.

Some modules do not have a DIN-NET port and must be powered using the screw terminal power connector. Please make sure you use the appropriate power supply (voltage, and current rating).

DIN-NET

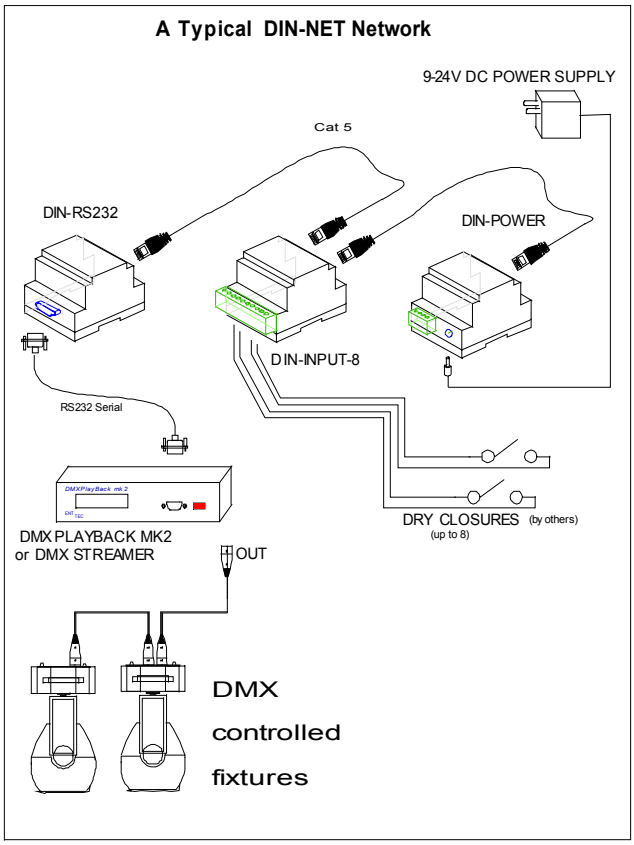
DIN-NET is a communications network that interlinks most DIN-TEC modules. It offers reliable communication with inbuilt error checking and retries between nodes. DIN-NET also transmits power over separate pairs of the RS45 cable. This power is used to power the internal circuitry of the nodes. It cannot be used to power external devices such as LEDs in the case of the LED driver.

DIN-NET does not rely on a single smart node but instead works on the principle of distributed intelligence. This means that there is no single point of failure.

Each DIN-NET network must include at least 1 DIN-POWER module. This modules injects DC power onto the DIN-NET and is used to power the other connected modules.

When setting up or “commissioning” a module with a DIN-NET port, you will also need the DIN-USB PC interface and the free DIN-TOOL software. This hardware/software combination allows discovery and configuration of nodes on your network.

Once the system is commissioned, DIN-USB and DIN-TOOL are not needed and can be disconnected.



DIN-NET Actions

All DIN-NET modules can either act on or give out DIN-NET “Actions” and some modules can even do both.

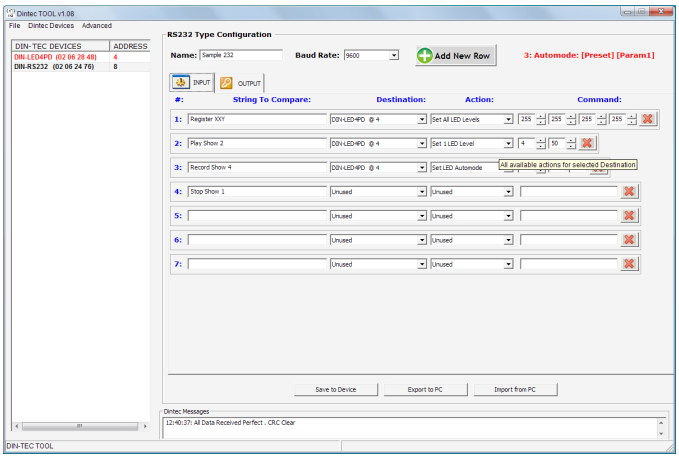
An Action describes what that particular module can do. For example a RELAY module can only CLOSE its relay; that is the only action it understands. Some more complex modules can perform multiple actions.

Other modules are not intended to perform actions but rather to trigger them on a different module or modules. For example the INPUT-8 module can only trigger an action since it takes input but has no output (aside from the DIN-NET which it uses to tranmit that trigger to some other module. It gives out Actions to modules that can act on them, in other words.

If you were to link up the input module to the relay module, activating the input would close the relay on the relay module.

MODULES REFERENCE GUIDE

DIN-TOOL & DIN-USB



What is it ?

DIN-TOOL is the PC-based application that is used to commission and manage DIN-NET modules.

Please make sure your version of DIN-TOOL is the most recent, as new modules may have come out since your copy of DIN-TOOL was released. DIN-TOOL needs to be aware of all modules to be able to configure them.

When to use it?

DIN-TOOL is used initially when you first connect all your DIN-NET modules together. You will use it to link up actions between 2 nodes or change parameters specific to those nodes.

How to connect it up ?

DIN-TOOL requires the DIN-USB interface to talk to the DIN-NET. Make sure the interface is connected to your computer before starting the DIN-TOOL software.

DIN-POWER

What is it ?

DIN-POWER is a module that injects power onto the DIN-NET. Each network must have at least one. This module does not include a power supply; you must connect your own power supply 9 to 24V DC.

When to use it?

At least one DIN-POWER must be used on every DIN-NET. If you have a large network or a network with many modules you can connect more than one.

When connecting more than one DIN-POWER onto a network, make sure you are using the same power supply on each module.

How to connect it up ?

DIN-POWER offers 2 different power inputs, center positive 2.1mm DC Jack or Screw Terminal. You can use either one of these depending on the type of power supply you use.

DIN-POWER has 2 DIN-NET ports, simply chain your network through them and to inject power onto your DIN-NET

How much power do I need ?

Each module on the DIN-NET uses a small amount of power for its own use. Here is a table of power requirements for each module.

Module Name	*Power Usage (Watts)*
DIN-INPUT8	2 W
DIN-RS232	1 W

Calculating the power rating needed:

Add up the power consumptions of each module, for example if you have 3 inputs and 1 RS232 module:

```
3 x 2W + 1 x 1W = 7Watts
```

Add a safety margin of 20%: `7 +20% = 8.4W`

You would need a 9W power supply, so a 9V 1A would be sufficient.

A larger example system would be one with 6 inputs and 4 RS232 modules.

```
6 x 2W + 4 x 1W = 16Watts
```

Add a safety margin of 20%: `16 +20% = 19.2W`

Here, a 20W power supply is called for, so either a 12v 2A source, or a 24V 1A one can be selected.

Modules not powered by DIN-NET have their power rating written on their labels

DIN-INPUT8

What is it ?

DIN-INPUT8 is an eight dry contact switch input module to DIN-NET. Each input is isolated from the others. The DIN-INPUT8 can store up to forty (40) actions. Each of these actions can be linked to one or more of the eight inputs. For example you could have one input triggering forty actions, or eight inputs each controlling five actions.

Each input can be set to trigger on close, open or change of state.

When to use it?

Employ the INPUT8 if you need to interface a switch, such as a wall plate or a sensor, with relay output, or have it trigger any action which is meaningful to any other DIN-NET module.

How to connect it up ?

There are ten contacts on the input connector. The first and last are power sources. To “close” or “energize” one if the inputs, make a contact between the power source and that input.

Other Information

There is an LED that will blink slowly (every second) when the device is configure and operating normally. If the LED flashed quickly, it means the device is operating normally but is not configured.

If the LED Flashes in a “flash on”, “long off” sequence, it is in BOOT mode and is waiting for a firmware update.

DIN-RS232

What is it ?

DIN-RS232 is an RS232 Interface for DIN-NET. It can be configured to send a preprogrammed RS232 string when it receives a particular DIN-NET action, or send a DIN-NET action when it receives and matches a preprogrammed RS232 string.

The DIN-RS232 can store of to 100 preprogrammed, strings or 4000bytes (which ever is greater)

The communication speed can be set between 1200 baud and 115200 baud.

When to use it?

The DIN-RS232 is designed to interface a device that has an RS232 port. Examples are:

- Enttec DMX show recorders
  - DMXPlayback Mk2
  - DMXStreamer
  - E-Streamer
- a computer
- Video Projectors
- Professional CD players

How to connect it up ?

There is a female DB9 connector wired as a DCE **(Device**) to connect the DIN-RS232. If you are connecting it to another Device you may need a crossover cable.

Other Information

There is an LED that will blink slowly (every second) when the device is configure and operating normally. If the LED flashed quickly, it means the device is operating normally but is not configured.

If the LED Flashes in a “flash on”, “long off” sequence, it is in BOOT mode and is waiting for a firmware update.

DIN-LED4PX

What is it ?

The DIN-LED4PX is a DIN-RAIL mount DMX/RDM 4 channel constant voltage led driver/dimmer. It can operate from 9 to 24V.

The DIN-**LED4PX** has 2 auto modes that can be set using RDM. The auto modes will cycle through the first 3 channels. This is particularly useful if you have an RGB led strip connected to the first 3 channels.

Each Channel has a 1Amp auto resettable protection fuse. If the current draw is over 1 amp for that channel the fuse will open. The fuse will auto reset after 30 seconds.

When to use it?

This module is for dimming an LED strip that has a 9 to 24V input and uses less than 1 Amp. It can be used for custom shaping of LED cove lighting for instance.

How to connect it up ?

There are two power supply inputs on pins 1 and 10 of the connector, Please make sure voltage is between 9 and 24V and is matched correctly with the voltage required by the LEDs you wish to use..

If you are using an RGB LED strip, it is quite common to have a common anode. In this case you can connect the common anode to the V+ supply pin or any of the LED+ terminals, and connect the cathodes to each LED- terminals.

If your strips are common cathode (which is not very common) then they will have to be rewired before they can work with this driver.

Other Information

There is an LED that will blink when DMX is received

AutoModes

Auto modes are activated using the manufacturer PID 86FF

The field is a 3 byte field, where the first number is the program type

second, is speed, and third is delay.

Type	*Program number*	*Speed*	*Delay*	*Example RDM Set*
1 Colour Chase 4channels	6	0 to 9	0 to 9	060101
2 Colour Chase 4 channels	7	0 to 9	0 to 9	070205
1 Colour Chase 3 channels (firmware 1.2 and above)	8	0 to 9	0 to 9	080701

Going and RDM GET on that PID will retrieve the current operating mode. If no auto mode is active this will return 0.

To disable auto mode set the PID to 000000