

# Install Guide

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## Power

On the back of the module is connection for power. For versatility between modular synthesizer power distribution schemes, a Phoenix Contact base strip & screw terminal connector is used which is easily adaptable to the various power distribution schemes currently used. The module requires dual rail power ranging from +-12 Volts to +-18 Volts. Modules with a 6-pin power connector require an additional 5 Volt supply for full functionality.

### 4-way power connector

The 4-way MCV 1,5/ 4-G-3,81 base strip has connections for:

Pin-1: +V

Pin-2: 0V (Signal)\*

Pin-3: Chassis ground\*

Pin-4: -V

\*Refer to JP1.

**NB. When looking at the back of the module, the pins are numbered from Right to Left.**

A MC 1,5/ 4-ST-3,81 screw terminal connector is supplied, though other connectors are available that maybe more suitable to your system (not supplied). Please refer to Phoenix Contact for options.

### 6-way power connector

The 6-way MCV 1,5/ 6-G-3,81 power connector has connections for:

Pin-1: +V

Pin-2: 0V (Signal)\*

Pin-3: Chassis ground\*

Pin-4: -V

Pin-5: 0V (5V)

Pin-6: 5V

\*Refer to JP1.

**NB. When looking at the back of the module, the pins are numbered from Right to Left.**

The Pin-5: 0V & Pin-6: 5V is used on the module when there is functionality included in the module that is not part of the audio path. This functionality is separated for good reason as the power demand and current return path could degrade the performance of the module and system. When wiring the 0V, for best performance it should be wired to the distribution and not linked to Pin-2 at the module.

A MC 1,5/ 6-ST-3,81 screw terminal connector is supplied (with the option of a complete compatible cable for your system), though other connectors are available that maybe more suitable to your system (not supplied). Please refer to Phoenix Contact for options.

### **Wiring into the screw terminals**

Best done with the connector removed from the base strip.

The terminal will accept up to a single 16AWG wire per terminal.

There are 2 recommended options for wiring into the screw terminals: Bare wires; or the preferred bootlace ferrules (but requires extra parts and tooling).

**DO NOT TIN THE WIRES WITH SOLDER!!!** Solder cold flows under pressure, so is not recommended where pressure is method of electrical connection.

### **Bootlace Ferrules**

Preferred but not essential- the ferrules add mechanical restraint to the termination.

Tools required:

- Wire Strippers
- Small Blade Screwdriver
- Ferrule Crimper

Strip 8-10mm of insulation off your wires. Insert bare wire(s) into the ferrule and crimp, then trim off any extra wire. Insert crimped ferrule into the screw terminal and tighten firmly.

### **Bare wires**

Tools required:

- Wire Strippers
- Small Blade Screwdriver

Strip 4-5mm of insulation off your wires and insert into the screw terminals and tighten firmly.

### **JP1**

In most instances in a modular synthesizer, no differentiation is made between 0V and chassis ground, but in order to reduce ground issues between audio

equipment (as per AES48) 0V and chassis ground should be separated in the system and connected at only 1 point at the power supply. JP1 allows to disconnect the 0V and chassis ground on the module, but this is only advantageous if done with every module in your system.

On early modules, there was no JP1 link, on later modules JP1 is either a 2 pin or 3 pin link.

#### **No JP1**

When a link is installed on terminals 2&3 of the power connector, 0V & Chassis ground are common. When the link is removed, 0V and Chassis ground are separate on the module.

In most traditional modular systems, this link should be installed.

#### **JP1 2-Pin**

When a link is installed on pins 1&2, 0V and Chassis ground are common on the module. When the link is removed, 0V and Chassis ground are separate on the module.

In most traditional modular systems, this link should be installed.

#### **JP1 3-Pin**

When a link is installed on pins 1&2, 0V and Chassis ground are common on the module. Any system IO shield connections to the now common ground are disconnected to prevent ground issues.

When a link is installed on pins 2&3, 0V and chassis ground are disconnected on the module. Any system IO shield connections are to Chassis ground according to AES48.

The link should not be removed completely.

In most traditional modular systems, the default link is to be installed on pins 1&2.

## Mounting

As there is variation between mounting standards between cabinets, the mounting hardware supplied is supplied only as an option. The only standard recommended by Benalog Electrotech is cosmetic, and that a stainless 304 button head hex socket screws are used with white Nylon washers. Ultimately this choice is up to you, the thread and length should be chosen to match the specification of your cabinet and mounting rails.

### MOTM

Mounting is done via 4 mounting holes. The hole size is such that either the standard MOTM 8-32 screws will fit or standard 19" rack mount screws can be used, either 10-32x1/2" or M5x12mm depending on your mounting rails. A nylon washer is recommended for each mounting screw so as not to damage the module.

### EuroRack

Mounting is done via 4 mounting holes. The hole size and shape is such that they will fit either the AS or Doepfer spacing. Either M2.5, M3 or 4-40 screws will fit. A nylon washer is recommended for each mounting screw so as not to damage the module.

Did I say Nylon washers? Highly recommended to prevent rack-rash!

Ben.