ARCHAEA

Table of Contents

Credits

Designed and made in Bristol, UK by Archaea.

www.archaea.co.uk
info@archaea.co.uk

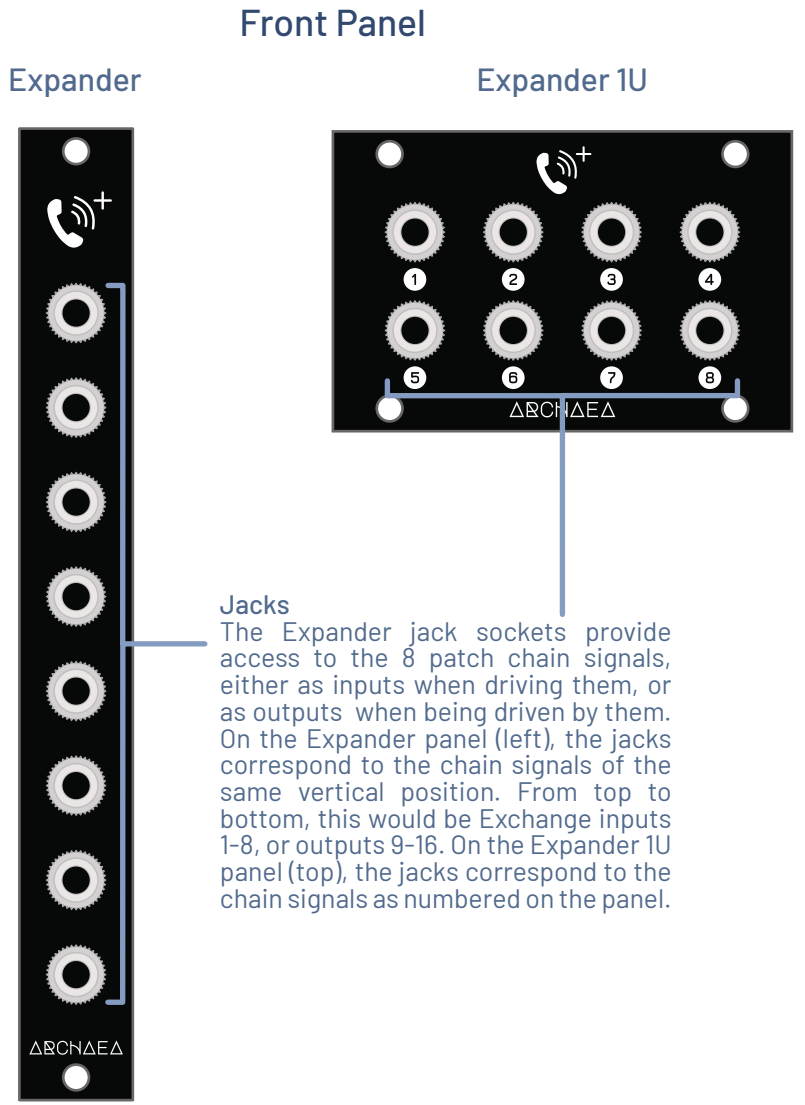
First of all, thank you for purchasing this module from Archaea! We hope this provides you with a useful way of extending the patching possibility of your Exchange based patching system.

Overview

The Exchange Expander and Expander 1U are add-on modules to the Exchange module for bringing patch chain signals out to jacks on the front panel. This increases the patching options for an Exchange module, including providing 8 additional inputs or outputs. Expander modules allows access to the chain signals between Exchange modules, where they can be connected at the beginning, middle or end of a chain. Or they can simply be used standalone, connected together to pass 8 signals around the back of your modules. This allows you to create 'subway' connections, to avoid long patch cables criss-crossing your modular rig.

Front Panel

The front panel of the Expander, and Expander 1U, are shown in the diagram to the right, **Front Panel**. The two module types have the same functionality. Each have 8 jacks, one connected to each of the 8 channels of the patch chain connections, accessed by the two connectors on the rear of the modules. Patch chains are the 8-way connections between Exchange modules (see the Exchange manual for more details). The jack sockets can be configured as either inputs or outputs depending on how the module is connected to other modules via the two patch chain connectors.



Rear Panel Connections

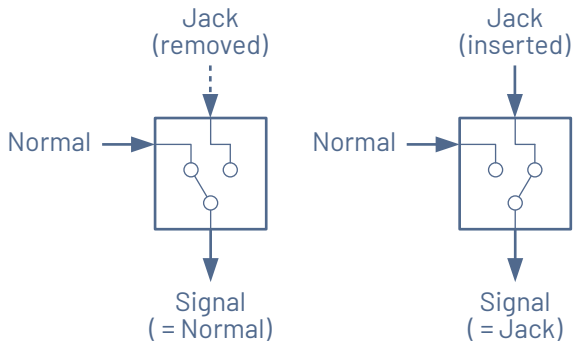
The rear panel is shown in the diagram to the right, **Rear Panel**. The two Expander module types both have two patch chain connectors: a ‘signal’ connector and a ‘normal’ connector. A patch chain is formed by connecting a series of modules together with cables attached to these connectors. Expander is a passive module and requires no power connection.

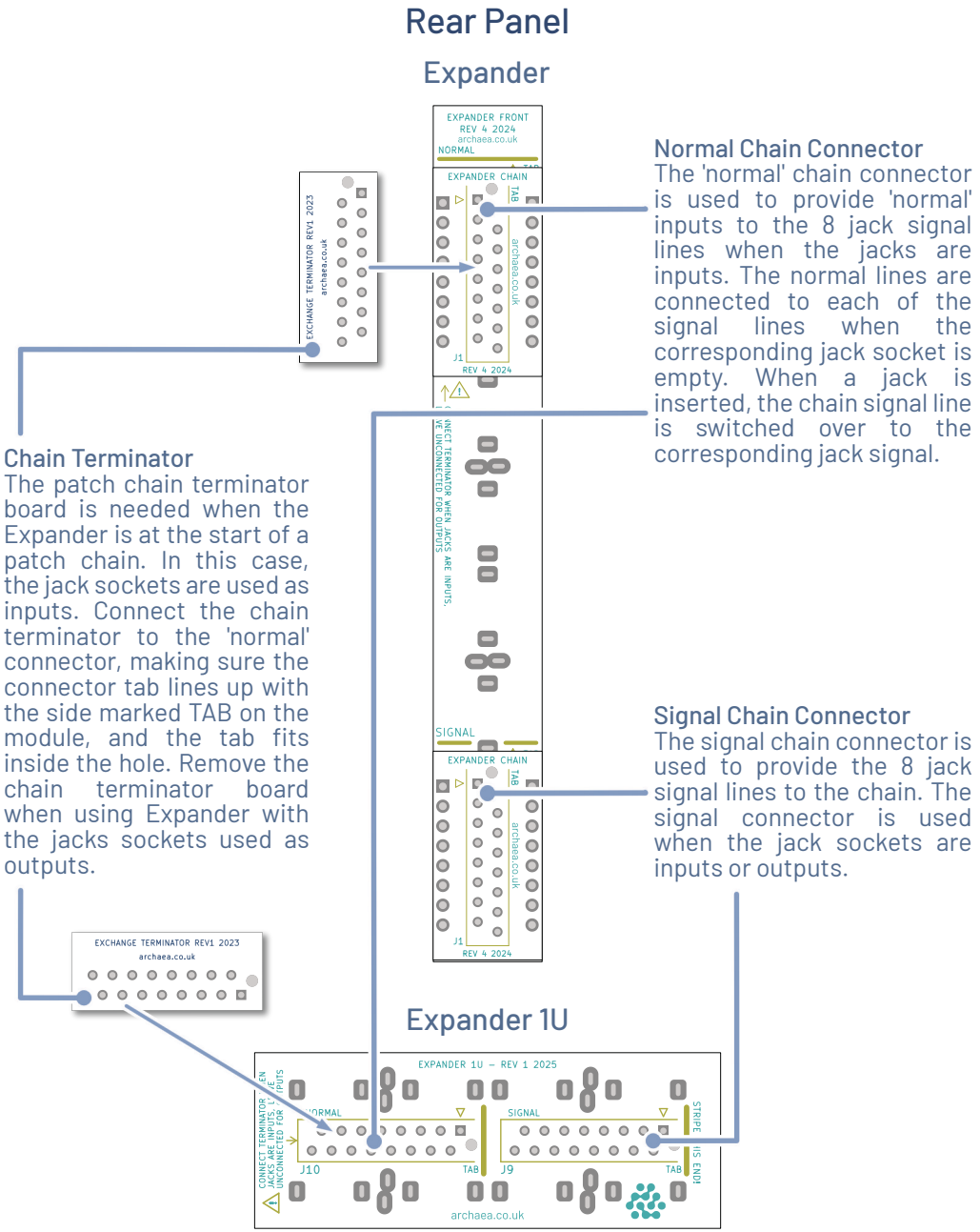
Expander ships with a 20cm chain connector cable, and a chain terminator board (additional chain connector cables of various lengths are available from archaea.co.uk). When an Expander module is used at the start of patch chain, the chain terminator should be connected to the ‘normal’ connector.

IMPORTANT: When connecting chain cables or the terminator, take care to align the tab on the cable or terminator connector with the hole in the board where the receiving connector is mounted. The stripe orientation on a chain cable is indicated by a solid line on the board.

Signal and Normal Connections

The jack sockets of Expander are set up to act as a switch. The switching occurs when a jack is inserted or removed. This applies only when the jack socket is used as an input on the Expander module. The diagram below shows how the jack is connected to the ‘signal’ and ‘normal’ connections.





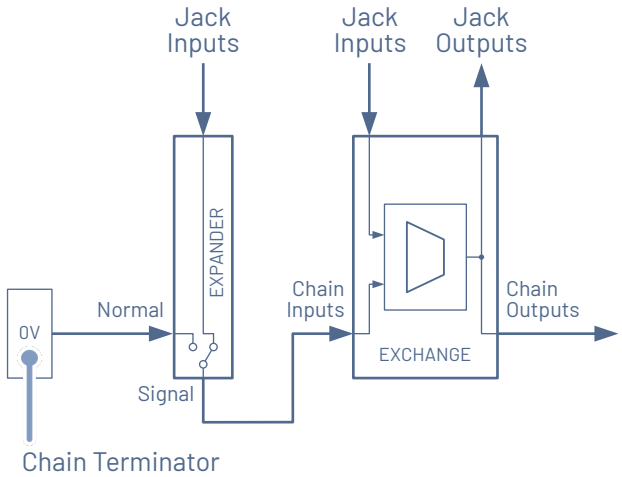
When there is no jack in a socket, the normal connection is connected to the signal connection. When a jack is inserted, the signal connection switches over to the jack. This means the chain signals pass through Expander for each empty jack socket. When a jack is inserted, the chain is broken, and the jack becomes the input source at that point in the chain.

For the case of a jack socket being used as an output, the normal connection is unused as the signal connection will always drive the jack socket whether there is a jack connected or not.

Using Expander with Exchange

Expander can be used to access the chain inputs or outputs of an Exchange module, providing a second bank of inputs or outputs. To use Expander as an additional bank of inputs to Exchange, connect the signal chain connector of Expander to the chain input connector of Exchange. The chain terminator board should be connected to the normal connector, so that 0V is sent to the chain input of Exchange when no jacks are inserted. This configuration is shown below.

Expanding Exchange Inputs



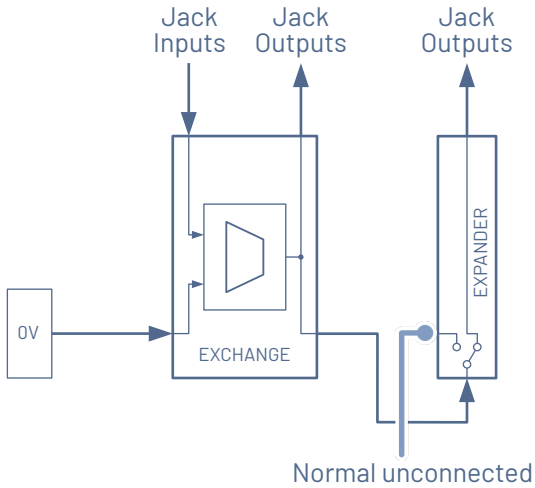
Note: the arrows in the diagram represent all 8 connections.

With this configuration, Exchange can select between either its own jack inputs or the corresponding jack inputs on Expander, and feed the selection into its switching matrix.

Note: Expander can also be used to provide inputs for the Preset and Reset input ports of Exchange, freeing up Exchange inputs 7 and 8. See the Exchange manual for more details.

To use Expander as an additional bank of outputs to Exchange, connect the signal chain connector of Expander to the chain output connector of Exchange. The chain terminator board should not be connected to the normal connector. This configuration is shown below.

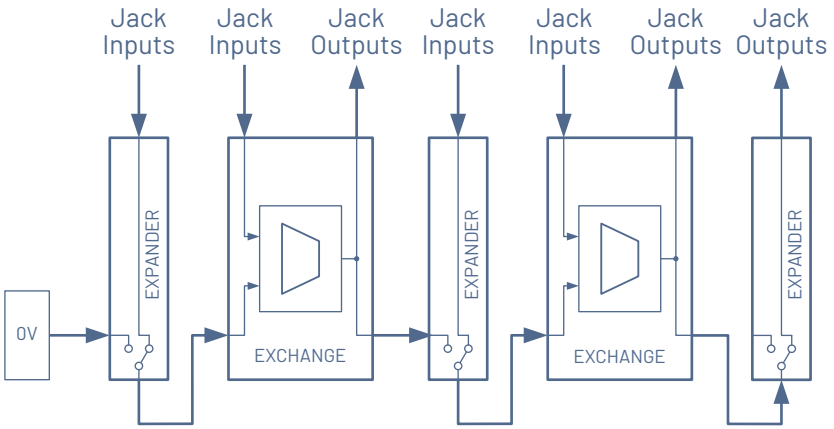
Expanding Exchange Outputs



With this configuration, the jack outputs of Exchange are duplicated to the jack outputs of Expander. The jack outputs and chain outputs of Exchange are independently buffered, so the loading on one output bank by connected modules will not affect the other.

Example Patch Chains

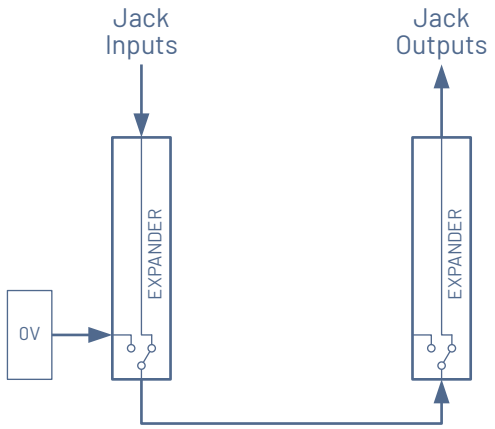
Expander is not limited to connecting to either Exchange inputs or output, it can be inserted into the 'middle' of a patch chain. This is done by connecting the chain to both the normal and signal connectors. An example of using Expander in the middle of an Exchange chain is shown below.



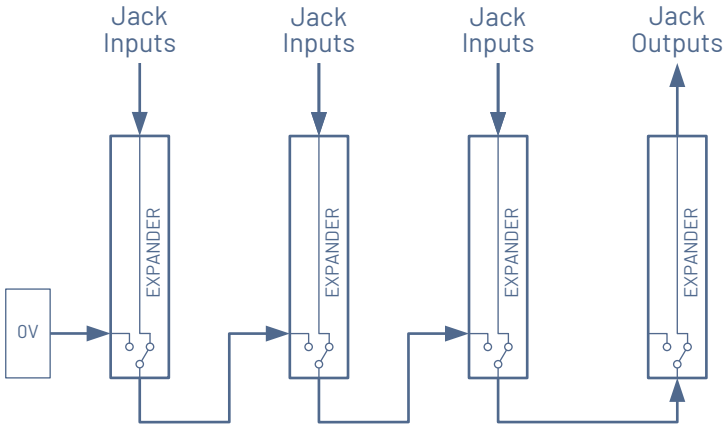
For the middle Expander, the left Exchange is normally connected to the right Exchange for each of the 8 jack sockets on the Expander where a jack is not inserted. When a jack is inserted, the chain is broken, and the right Exchange will receive the input from the middle Expander. Because the chain outputs of Exchange are buffered, any number of Exchange chain stages connected this way is possible.

The figure top right shows how two Expanders can be used together to form a patching 'subway'. This uses the patch chain cable to pass signals under the modules in a system to allow patching across a case without the cables trailing across the front panels.

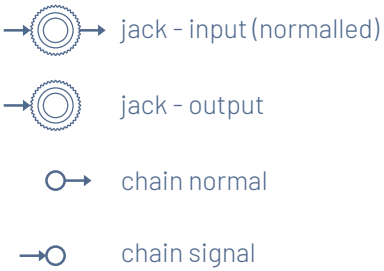
Note: When two Expanders are connected together, the use of a chain terminator imposes a directionality on the connections. Note this is only necessary if the external module connected to the output Expander jacks cannot have 'dangling' leads connected to its inputs, i.e. only one end of a jack lead inserted. If this is not required, then the terminator can be omitted, making the two connected Expanders bidirectional.



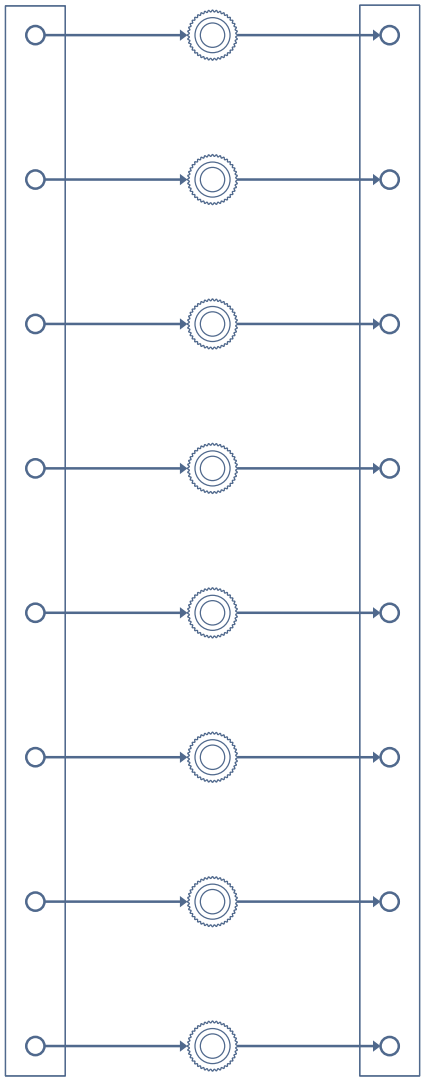
The figure below shows how the normal connections can be used to chain multiple Expanders together. The normal connected Expanders provide multiple points in the chain which can be broken by inserting a jack. The rightmost jack in the input Expanders in the chain will drive the outputs of the output Expander.



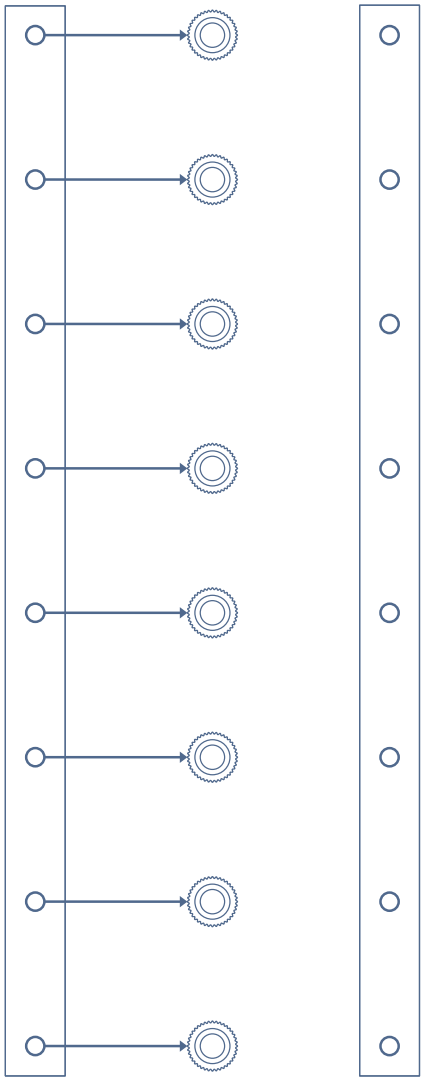
Block Diagram and Connections



INPUT JACK CONFIGURATION



OUTPUT JACK CONFIGURATION



ARCHAEA

Features

- 8 jack sockets usable as normalled inputs OR 8 outputs
- 8 chain normal and 8 chain signal connections (on module rear)

Measurements

	Expander	Expander 1U
Width	3HP (15mm)	12HP (60.7mm)
Height	3U (Eurorack, 128.5mm)	1U (Intelijel, 39.65mm)
Depth requirement for skiff/rack	27mm (including chain terminator)	21mm (including chain terminator)
Current requirement	Passive, no power consumption	Passive, no power consumption

Safety Instructions

1. Keep this equipment away from water.
2. Clean only with a dry cloth.
3. Keep away from sources of heat, such as radiators or other apparatus that produces heat.
4. Operating temperature range 5° to 45°C (41° to 113°F).

This product is not designed or intended to be used by children.

Warranty

Archaea Modular Synthesis Ltd warrants this product to be free of defects in materials or workmanship and to conform with the specifications at the time of shipment for two years from the date of purchase. During that period, any malfunctioning or damaged units will be repaired, serviced, and calibrated on a return-to-factory basis. This warranty does not cover any problems resulting from damages during shipping, incorrect installation or power supply, improper working environment, abusive treatment, or any other obvious user-inflicted fault. For more information contact support@archaea.co.uk quoting the serial number, which can be found on the reverse of the product.

Disposal

This product must NOT be disposed of with household waste. It should be taken to a recycling centre licensed for the recycling of waste electrical and electronic equipment (EEE). Please contact your local city office for more information of where you can take waste equipment.