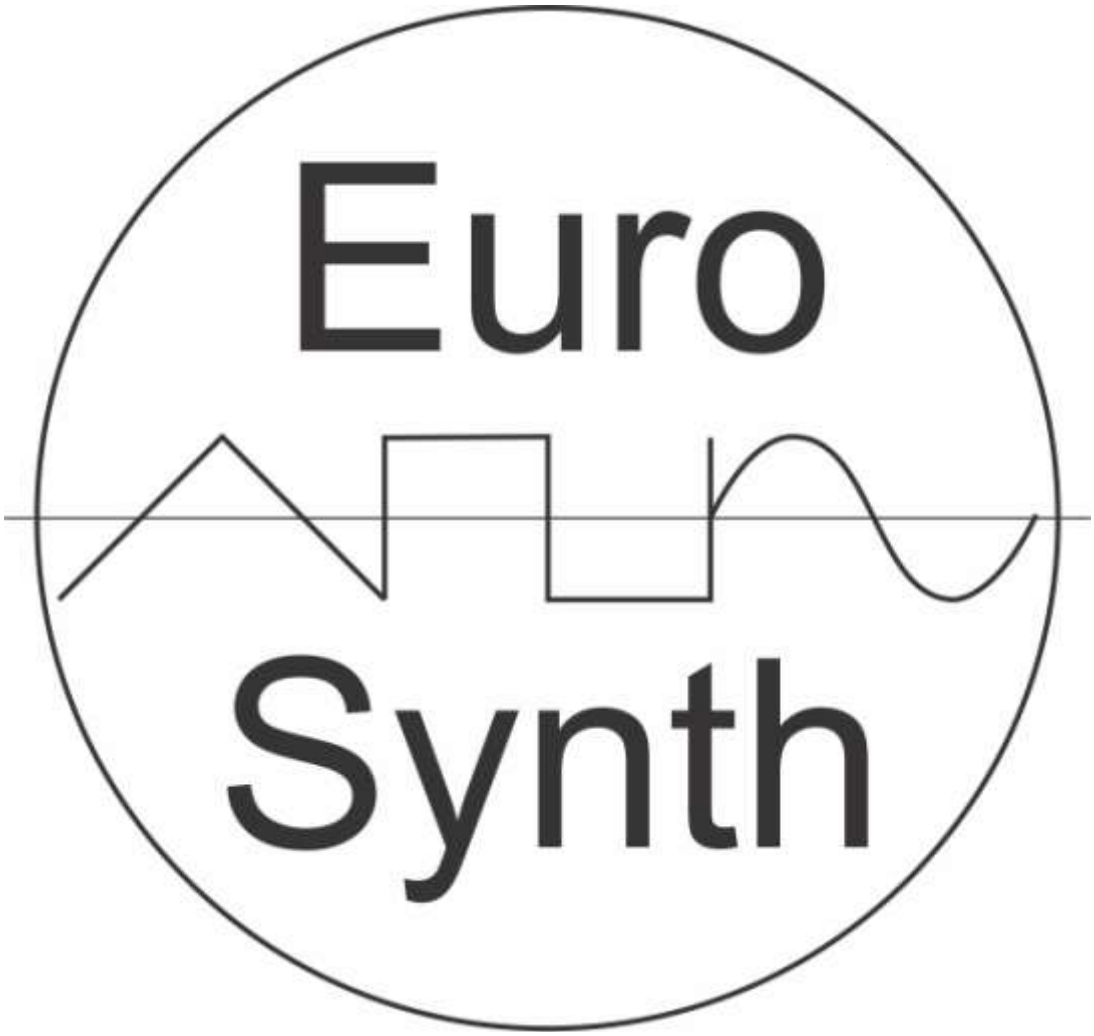

EuroSynth

Raising The Bar - A Specification For A Professional Grade 3U Modular System

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Preface

There is, currently, no official specification for the EuroRack system covering basic things like signal levels, power connections or mechanical details, as well topics like electrical safety, leaving it open to inconsistencies, incompatability issues, abuse and even the potential for personal damage.

This document sets out to define some of the more important criteria for a EuroRack system. It is further hoped that this document will act as springboard to establish an official set of specifications covering all major aspects of EuroRack and, hopefully, some form of governing body.

To try and maintain some level of compatibility with existing EuroRack systems, the EuroSynth specifications have been designed using the Doepfer A-100 system and in general, a EuroRack components and EuroSynth components can be interchanged with minimal or no changes.

Introduction

The EuroRack came in to existence in the 1990's when Doepfer released their A-100 Analog Modular System. The mechanical specifications for the A-100 drew heavily from the industry standard Eurocard 19" racking system.

Since then, the EuroRack market has exploded with numerous companies releasing products including cases and power solutions. Many of these companies followed the A-100 specification ensuring an expanding range of fully compatible products that any EuroRack user could use.

Unfortunately, however, some companies decided to deviate from this 'norm' and so we now have a platform that has differing panel widths, differing panel mount details and differing power connections to name just a few. These inconsistencies mean that the EuroRack user can no longer just 'add a product to their system' without first investigating whether that product will fit in to their housing or can be connected to their power system without first requiring special adaptors or even a separate enclosure.

EuroRack has also developed a strong arm of Do-It-Yourself solutions, which although promoting the development of new ideas and opening EuroRack to an even wider market, has also seen some of the resultant 'products' filter in to the mainstream EuroRack market further contaminating EuroRack with non-compliant or even incompatible solutions.

A classic example of this is the recent introduction to EuroRack of the 1U format. Within months of the first release we were presented with two different 1U format solutions both incompatible with each other, using different mounting methods and different power connections.

EuroSynth sets about to define a set of specifications that define a Professional 3U Modular System ensuring that musicians, audio engineers, in fact anyone looking for a 'professional system, has access to a guaranteed, high-quality line of products ensuring conformity across the whole spectrum of the modular system.

The EuroSynth Specification, defines optimum signal levels that allow signals to be used anywhere within the system without the need for extensive up/down attenuation. It rationalizes the power system to help maintain a clean, consistent and reliable power platform. It specifies mechanical details such as panel dimensions and mounting point locations that ensure that all modules will fit in to a system without requiring padding or modification.

At the same time, EuroSynth respects the presence of the A-100 EuroRack and attempts to maintain a high level of compatability that allows EuroSynth products to be used in EuroRack systems and EuroRack products in EuroSynth systems (*).

(*) The use of non-EuroSynth products in a EuroSynth system may compromise the level of conformance with the specification but should not impact on the general operation of the system.

Power Distribution

The Doepfer A-100 system uses a 16-pin IDC connector with the following pin assignment

1, 2 : -12V
3, 4 : 0V
5, 6 : 0V
7, 8 : 0V
9, 10 : +12V
11, 12 : +5V
13, 14 : CV
15, 16 : GATE

The main issues with these assignments are:-

1. Only 2 pins assigned to +12V which, in addition to 0V, is the most heavily loaded power rail
2. Having +12V on pins 9, 10 mean there is no room at all to expand tracking to these pins so compromising current capacity and track impedances

The specification changes are as follows and simply involve removing the +5V and CV/GATE lines from the Power Bus and enhancing the definition of the main power rails:-

1, 2 : -12V (BLUE)
3, 4 : -0V (BLACK) (*-12V return*)
5, 6 : GND (BLACK) (*chassis ground*)
7, 8 : +0V (BLACK) (*+12V return*)
9, 10 : +12V (RED)

The two 0V lines (+0V and -0V) will be connected together on the module.

The GND pins are assigned to be a CHASSIS GROUND connection and in a fully compliant system would be the only rail connected to any metalwork in the system. When non-EuroSynth modules are connected to the Power Bus, they will simply short the GND to the +0V and -0V rails resulting in the current EuroRack arrangement

Busboard designs should aim to achieve an absolute maximum impedance for all power rails of 10milliOhm. This measurement is for any power terminal on a module to its source at the main power supply connection and so includes modules power cables and any busboard-busboard and busboard-power supply connections.

IDC has a relatively high contact impedance (typically 30mΩ) compared to, say, 0.156" MTA (typically 10mΩ). To retain backward compatibility with EuroRack, It is proposed that the EuroSynth system retain the IDC header but utilise crimp terminals as shown here.

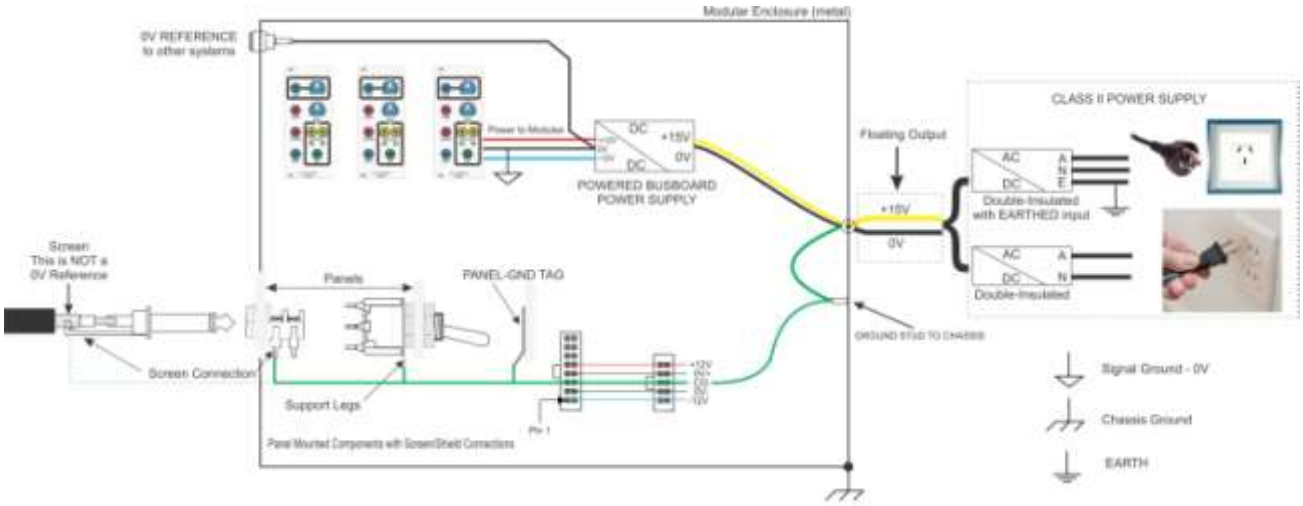
The basic arrangement of the power pins remains the same as the EuroRack so any EuroRack module can be connected to these connectors although it will require a 10-pin to 10-pin power cable. IDC ribbon cables can also be used if desired.

Note that the use of a non-EuroSynth product when connected to the distribution system will nullify the benefits of the GND connection as they will all become shorted to the 0V rails when that products cable is inserted.

Chassis Ground

Chassis Ground is to be used solely for providing a 'ground' connection for the metalwork in a system and for screen connections and should not be connected to 0V accept at the designated point.

Panel mounted components that have a leg (or legs) that will be connected to the chassis when installed, must not have a pcb connection to the modules 0V rail but should be connected to a dedicated Chassis Ground terminal which is then connected to the CG points on the modules power connector.



Example of EuroSynth Grounding Practise

The Chassis Ground connection is terminated on the chassis at a point nearest to where the external DC supply enters the system.

5V Deletion

The EuroSynth specification does not recognise 5V as a standard power rail and so has removed it from the power system.

Any EuroRack module that requires an external 5V rail will need to use an inline 12V-to-5V adaptor such as the EURO-5V. It is also possible to use a -12V-to-5V adaptor given that the adaptor pays due attention to emissions and does not pollute the -12V rail with switching noise.

CV/GATE Bus

Few modules, currently, utilise the CV/GATE pins. Also, the single CV/GATE pairing is only really beneficial in a single-voice/monophonic system.

As such, EuroSynth is dropping these pins from the power bus. A separate 'DATA BUS' will be defined later.

Power Rail Specification

Both the +12V and -12V should meet the following criteria:-

- Voltage Tolerance - better than +/-10mV
- Load Regulation - better than +/-10mV
- RMS Output Noise - better than +/-10mV between 10Hz and 10kHz

All module cables must assign pin 1 of the IDC socket to electrical pin 1 (i.e. -12V) to ensure correct orientation of module power cables.

All modules and busboards should use 10-pin boxed headers to ensure correct orientation of module power cables.

To promote a more integrated system permitting easier mixing of products from different manufacturers the proposal recommends that all power-to-busboard and busboard-to-busboard connections be made via 1/4" quick-connect terminals.

NOTE:

Removal of the +5V rail and CV/GATE still allows existing busboards to continue to be used. EuroSynth modules use a 10-pin header so just need to use a 10-/16-pin IDC cable (which is already a common part in EuroRack) or a 10-/1-pin IDC cable.

Signal Specification

Signals can be generally broken in to 3 main categories:-

1. **CV Signals:** These signals only operate in the positive region
2. **Logic Signals:** These signals only have 2 stable states: [OFF] and [ON]
3. **AC/Audio Signals:** These signals swing either side of the 0V rail

The correct way to specify signals is:-

- Audio is specified in decibels (dB's).
- Voltage Control (VC) is specified in V/Oct or dB/volts.
- Triggers are specified in slew rate/time and threshold voltage.
- Gates are in threshold and voltage levels.

The specification will further split each signal category in to an INPUT and an OUTPUT specification.

Colour Coding

EuroSynth proposes defining a input/output colour coding scheme to assist with easier/faster identification of an input/output jacks function. This will be, of course, a purely optional specification but products using the colour scheme will promote a more user-friendly interface.

The scheme is divided in to the 3 signal categories AC/Audio, CV, Logic (GATE and TRIGGER). Each category is further sub-divided in to IN, OUT and SPECIAL

	INPUT	OUTPUT	SPECIAL
AC/Audio			
CV			
Logic			

Patch Points

The EuroSynth specification advocates the use of 4mm banana jacks as the preferred patching connection. These offer a larger contact surface between the plug and socket and provide a more robust connection.

CV Signals

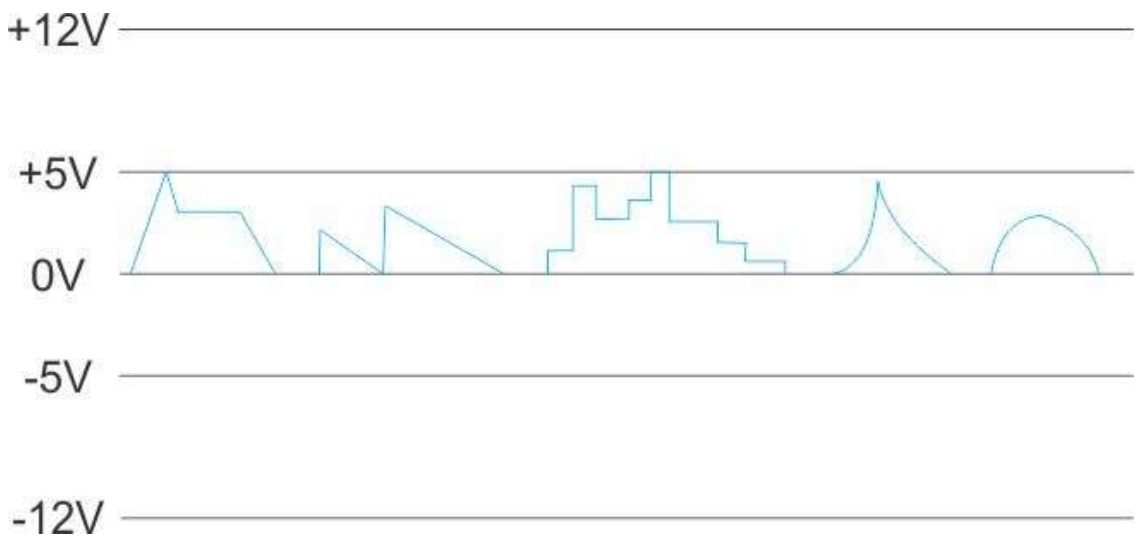
These are DC Control Voltages and in this specification they are defined as being primarily positive polarity signals.

DC CV IN (BLUE)

- The voltage range for **DC CV IN** signals is, typically, from 0VDC to +5VDC +/-10%.
- **DC CV IN** signals can be level shifted below 0V
- **DC CV IN** signals can extend in frequency from 0Hz to greater than 15kHz

DC CV OUT (GREEN)

- The voltage range for **DC CV OUT** signals is from 0V to +5VDC +/-1%.
- **DC CV OUT** signals can extend in frequency from 0Hz to greater than 15kHz



LOGIC Signals

GATE Signals

GATE signals have only 2 recognised states being:-

1. OFF or logic 'lo', and
2. ON or logic 'hi'

These states are defined by the 'resting' level of the GATE and not by its edge-transition.

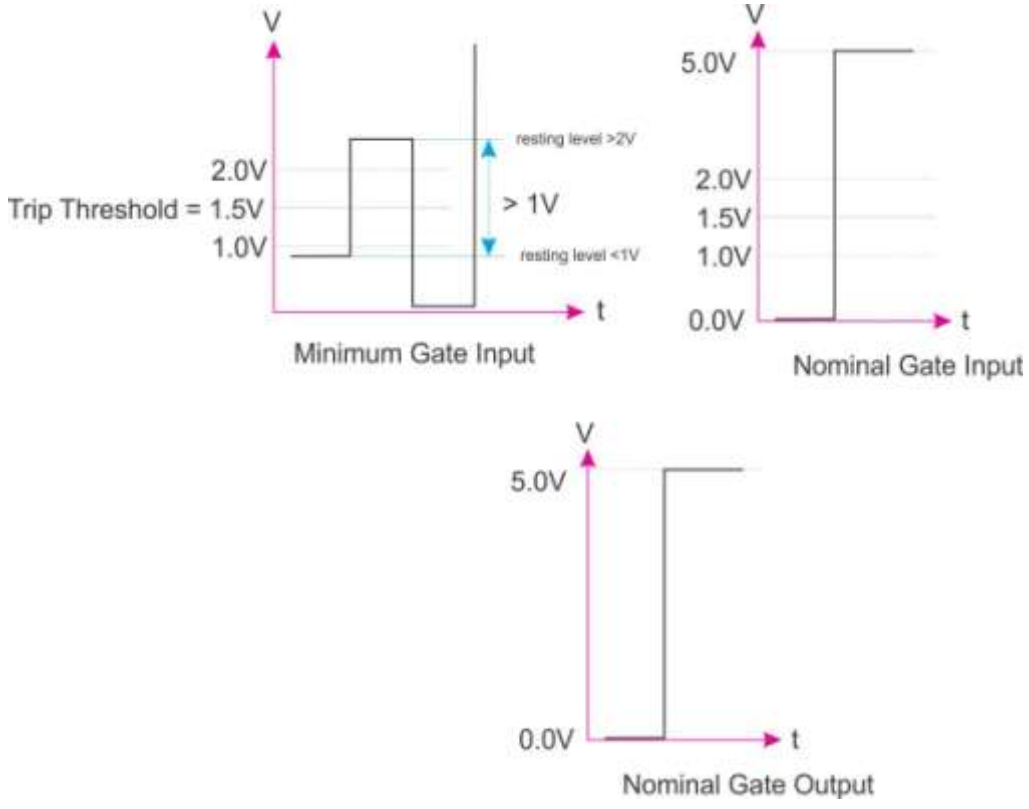
GATE IN (RED)

- Nominally, these 2 states would be 0V and +5V +/-10% respectively.
- The transition between states should, ideally, be instantaneous
- The nominal Trip Threshold should be 1.5V+/-0.1%.
- To cater for signals from the other categories, the definition of the 2 states and the Trip Threshold is expanded as follows:-
    - **OFF:** Any voltage below 1V will be recognised as logic 'lo' or OFF
    - **ON:** Any voltage above 2V will be recognised as logic 'hi' or ON

GATE OUT (YELLOW

- **GATE OUT** outputs will be 0V and +5V +/-1%

GATE signals can extend in frequency from 0Hz to greater than 15kHz



LOGIC Signals

TRIGGER Signals

TRIGGER signals are a variation of the GATE signal that depend on the edge-transition of the signal and not its 'resting' level.

TRIGGER IN (RED)

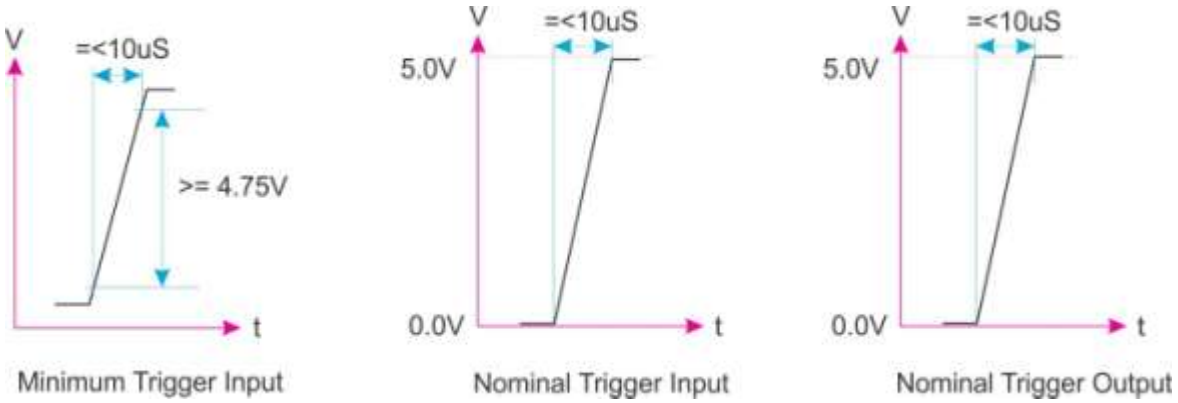
- TRIGGER IN signals should have a minimum slew of 0.3V/uSec
- TRIGGER IN should have a minimum transition time of 10uSec

TRIGGER OUT (YELLOW)

- **TRIGGER OUT** outputs will be 0V and +5V +/-1%

TRIGGER signals can extend in frequency from 0Hz to greater than 15kHz.

A EuroRack Trigger is simply a GATE with a short 'ON' period, typically 1mS to 5mS.



Audio Signals

Audio signals are bi-polar AC voltage signals that range in frequency from around 16Hz to greater than 16kHz and are specified in decibels (dB).

The voltage levels for Audio signals is based on the professional recording studio figure of +4dBu (sine wave = 3.5VAC pk-pk). This level provides for at least 16dB of headroom which is essential for the dynamics of music when mixing and gating signals. For compatibility with the other signal types, EuroSynth raises this figure to 5VAC pk-pk.

AUDIO IN

- **AUDIO IN** signals are typically 5VAC pk-pk but can extend to 10VACpk-pk
- **AUDIO IN** signals are typically in the range 16Hz to >16kHz

AUDIO OUT

- **AUDIO OUT** signals are set at 5VAC pk-pk +/-10%.
- **AUDIO OUT** signals are typically in the range 16Hz to >16kHz

MIDI Interfacing

The proposed CV specification when applied strictly to a 'MIDI controlled 1V/Octave input' would give us control over the lowest 5 octaves starting at C0 (8.662Hz) and finishing at Middle C (261.626Hz). It is proposed that devices using a 1V/Octave input should generate Middle C with a 5V input. As part of this requirement it will be necessary to define the appropriate control settings (COARSE and FINE for example) so that the control can be replicated across similar modules from different manufacturers. As an example: on a VCO, setting both COARSE and FINE to their mid-positions and with all other frequency adjusting settings set to '0', the VCO should generate Middle C.

The 1V/Octave needs to work this way to remain compliant with the CV specification which stipulates a 0V to 5V operating range.

MIDI GATE output is a Logic signal and so should generate a 0V to 5V output.

MIDI Note output is theoretically capable of going up to 10.58V but that is not readily achievable in a 12V system without more specialised components and so should be limited to a nominal 5-Octave (5V) range with the option of extending to 9V when used with modules suitably adjusted for the higher input.

MIDI CV should also be limited to a nominal 5V with the option of moving in to the Audio signal range of +/-2.5V

NB: CV Signal Rational

The following notes should be read to help explain some of the logic behind the levels specified here.

VCAs can be scaled to at least 12dB per Volt. This helps provide the best sounding envelopes, 5 Volt peak providing a meaty 60dB envelope sound ,including total shutout at 0 Volt VC.

A single-turn pot can do a good job of tuning over 5 octaves. Tuning accurately over 8 octaves or more can start to be a problem with a single-turn pot.

INPUT/OUTPUT Impedances

To maintain maximum compatibility between modules and to minimise signal drops, it is important to define recommended input and output impedances.

In general, EuroRack uses 1K for output impedance and 100K for input impedance. Although 1K is workable for many signal levels, it is desirable to have a lower figure for sensitive CV inputs like the 1V/Octave input/output.

EuroSynth recommends for sensitive CV outputs (1V/Octave for example) that the impedance be around <=50R while other outputs can be around 330R.

Input impedances should, typically, be in the region of 100K with a lower limit of 47K.

NOTES:

All of the above levels have been selected as they allow for the use of unshielded patchcords and help avoid high-frequency pollution with low-impedances outputs which are less capable of absorbing than at medium and lower frequencies.

When defining these signal levels for the EuroSynth a number of considerations where looked at including:-

1. allowance for voltage headroom for opamp outputs
2. suitability of signals with unscreened patchcords
3. existing range of products already on the market
4. the growing abundance of 5V powered designs and their ability to be interfaced with the more regular analogue designs with minimal additional circuitry

DATA BUS

To replace the CV/GATE it is proposed that a separate 'data bus' be defined. Being separated from the power buss opens up the possibility for a larger number of CV/GATE signals to be supported - essential for a multi-voice or multi-phonic system - as well as allowing a greater flexibility in where the 'data bus' goes.

There are 3 signal types that need to be considered:-

1. CV/analogue/
2. GATE/logic
3. Communication

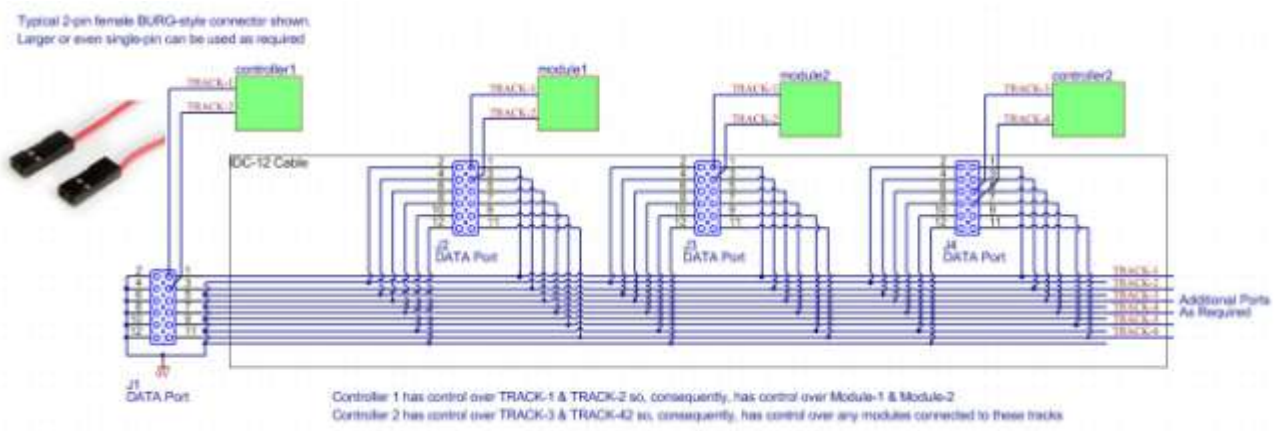
CV/analogue:
Ideally this should be a 2 pair 'track' with each track having an 'analogue path' and a 'ground path'.

GATE/logic:
Ideally this should be a 2 pair 'track' with each track having a 'control path' and a 'ground path'.

Communication:
This would be a 'high-speed' data track able to send and receive data. As communications channels can be high-speed (easily up in to the hi-100kHz to lo-Mhz), EuroSynth proposes that the communication port be treated as a separate entity. Using a multi-drop protocol would allow a single 2- or 3-core cable to communicate with every device in a system and so a dedicated communications cable would be an easy item to implement.

While CV/GATE lines can, generally, be integrated in to a single bus/connector, it is proposed that a separate dedicated communication bus be implemented.

The CV/GATE Connector:
A suitable connector must be low-cost and easy to terminate. EuroSynth proposes using a 16-pin IDC connector and cable with pin assignment as show below:



The example connector shown here provides 8x 'tracks' each with an associated 0V wire or 'ground path'.

A system can comprise multiple DATA Ports allowing systems to be divided in to zones and/or to allow a 'controller' to communicate with an almost limitless number of devices.

The IDC connector is well established in the EuroRack world and so requires no new specialist tools or knowledge.

At the module end a 2-pin 0.1" MTA-style header would be used to access a pair of Tracks which would for example, typically replace the original CV/GATE.

The connecting cable between the module and the DATA Port would be a 2-wire cable terminated with a 2-pin header at both ends. At the DATA Port end the header is fitted to the header by plugging in to a pair of 'odd pins' eg 1 & 3, 5 & 7. In noisy environments, screened leads may be terminated to the appropriate 'even pins'.

In a typical system it would be expected that at least one of the DATA Ports would come out to the front of the system on a DATA Port Access panel, such as shown at left, allowing access to the Tracks by simply patching them from relevant input/output ports on modules. For a totally flexible DATA Bus, ALL DATA Ports would be panel mounted allowing for total control over what signals are used and where. Internal connections from modules to the DATA Ports would provide a more permanent set-up and would be more applicable to the original CV/GATE application for providing a common set of 'control signals'.

The Tracks could also be made available via a DB25 connector allowing for easy connection to other systems.

To allow for maximum flexibility of the signal assignment to the Tracks, it is proposed that the DATA BUS be a purely passive and incorporate no electronics. Custom 'DATA Port Access' panels can be offered that include analogue and/or digital buffering to allow Tracks to be custom defined to a specific task. For example, by adding analogue buffering to one or more tracks would allow reliable propagation of CV signals for task such as 1V/Octave control, while digital buffering could be used to ensure quality CLOCK signals are propagated around a system.

It should go without saying that a mechanism will need to be employed to allow the user to determine what signals are what, where they are going to and where they are coming from. In a multi-DATA BUS system it will be very easy to lose 'track' of a signal.

The Communication Network:

The MIDI protocol is a well established and recognised communication protocol not only in the EuroRack market but in other fields such as lighting. As such, it is proposed that the Communication Network be a MIDI-based network.

As this network will, generally, be confined within the users system, it is feasible to utilize a 2-wire bus that will allow both reading and writing of data between devices.

The choice of for the physical media is open to conjecture but following the IDC path adopted with the power distribution, it is proposed that a 6-wire IDC arrangement be used with the following pin assignments:-

1 – DGND
2 – MIDI IN
3 – DGND
4 – DGND
5 – MIDI OUT
6 – DGND

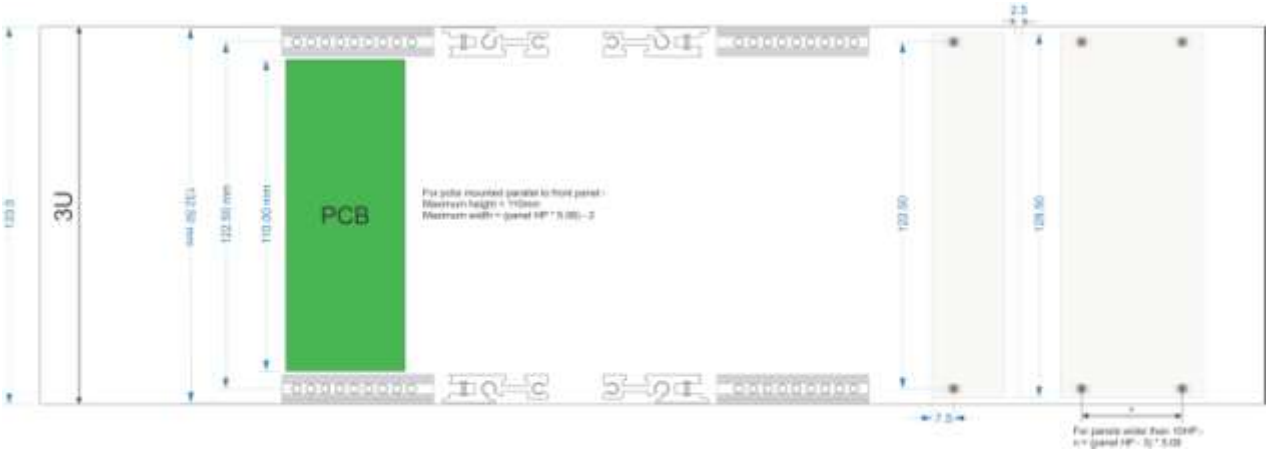
It is then a trivial matter to add more nodes to the bus should extra points be needed.

To allow the network to be connected across multiple systems, the ‘external interface, should revert to the standard MIDI current-loop medium, allowing for longer inter-system distances and improve noise immunity. This would also allow for the use of standard MIDI cables for system interconnect. The external interface connector can be either the regular 5-pin DIN connector or a 3.5mm TRS which is becoming a regular ‘mini’ alternative.

The external interface would be an ‘intelligent interface’ and would include MIDI MERGE functionality to allow ‘conventional’ MIDI equipment to also be connected. Devices within the users system such as MIDI-CV Converters or MIDI Sequencers could then connect to the network rather than require to be externally patched.

Mechanical Specification

1. Module panels should be a whole-number multiple of 1HP (5.08mm or 0.2"). HP, sometimes referred to as TE, stands for Horizontal Pitch.
2. All panels should have 2 fixing points on the left-hand side of the panel and their dimensions and location are shown in the drawings below.
3. Panels wider than 10HP should have an additional 2 fixing points on the right-hand side of the panel and their location is defined as a fixed number of HP from the left-hand fixing points.
4. Front panels should, in general, be 2.5mm in thickness. This will maintain a level of uniformity across the face of a system.



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To allow for manufacturing tolerances the table below details the 'Actual Panel Widths' for each size.

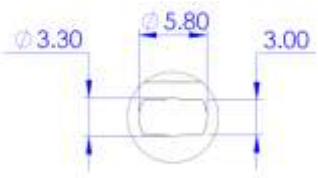
Front Panel Dimensions

Panel HP	Width	Actual Width	Centre Point	Fixing Point
1	5.08	5.00	2.50	NA
2	10.16	9.80	4.90	NA
3	15.24	14.90	7.45	NA
4	20.32	20.00	10.00	NA
5	25.40	25.10	12.55	NA
6	30.48	30.20	15.10	NA
7	35.56	35.30	17.65	NA
8	40.64	40.30	20.15	NA
9	45.72	45.40	22.70	NA
10	50.80	50.50	25.25	43.06
11	55.88	55.60	27.80	48.14
12	60.96	60.70	30.35	53.22
13	66.04	65.70	32.85	58.30
14	71.12	70.80	35.40	63.38
15	76.20	75.90	37.95	68.46
16	81.28	81.00	40.50	73.54
17	86.36	86.10	43.05	78.62
18	91.44	91.10	45.55	83.70
19	96.52	96.20	48.10	88.78
20	101.60	101.30	50.65	93.86
21	106.68	106.40	53.20	98.94
22	111.76	111.50	55.75	104.02
23	116.84	116.50	58.25	109.10
24	121.92	121.60	60.80	114.18
25	127.00	126.70	63.35	119.26
26	132.08	131.80	65.90	124.34
27	137.16	136.90	68.45	129.42
28	142.24	141.90	70.95	134.50
29	147.32	147.00	73.50	139.58
30	152.40	152.10	76.05	144.66
31	157.48	157.20	78.60	149.74
32	162.56	162.30	81.15	154.82
33	167.64	167.30	83.65	159.90
34	172.72	172.40	86.20	164.98
35	177.80	177.50	88.75	170.06
36	182.88	182.60	91.30	175.14
37	187.96	187.70	93.85	180.22
38	193.04	192.70	96.35	185.30
39	198.12	197.80	98.90	190.38
40	203.20	202.90	101.45	195.46

41	208.28	208.00	104.00	200.54
42	213.36	213.10	106.55	205.62
43	218.44	218.10	109.05	210.70
44	223.52	223.20	111.60	215.78
45	228.60	228.30	114.15	220.86
46	233.68	233.40	116.70	225.94
47	238.76	238.50	119.25	231.02
48	243.84	243.50	121.75	236.10
49	248.92	248.60	124.30	241.18
50	254.00	253.70	126.85	246.26
51	259.08	258.80	129.40	251.34
52	264.16	263.90	131.95	256.42
53	269.24	268.90	134.45	261.50
54	274.32	274.00	137.00	266.58
55	279.40	279.10	139.55	271.66
56	284.48	284.20	142.10	276.74
57	289.56	289.30	144.65	281.82
58	294.64	294.30	147.15	286.90
59	299.72	299.40	149.70	291.98
60	304.80	304.50	152.25	297.06
61	309.88	309.60	154.80	302.14
62	314.96	314.70	157.35	307.22
63	320.04	319.70	159.85	312.30
64	325.12	324.80	162.40	317.38
65	330.20	329.90	164.95	322.46
66	335.28	335.00	167.50	327.54
67	340.36	340.10	170.05	332.62
68	345.44	345.10	172.55	337.70
69	350.52	350.20	175.10	342.78
70	355.60	355.30	177.65	347.86
71	360.68	360.40	180.20	352.94
72	365.76	365.50	182.75	358.02
73	370.84	370.50	185.25	363.10
74	375.92	375.60	187.80	368.18
75	381.00	380.70	190.35	373.26
76	386.08	385.80	192.90	378.34
77	391.16	390.90	195.45	383.42
78	396.24	395.90	197.95	388.50
79	401.32	401.00	200.50	393.58
80	406.40	406.10	203.05	398.66
81	411.48	411.20	205.60	403.74
82	416.56	416.30	208.15	408.82
83	421.64	421.30	210.65	413.90

84	426.72	426.40	213.20	418.98
104	528.32	528.00	264.00	520.58
126	640.08	639.80	319.90	632.34
168	853.44	853.10	426.55	845.70

The industry standard EuroCard system (from which EuroRack was derived) uses a M2.5mm module fixing screw. EuroSynth, however, will remain with the M3 fixings found in most EuroRack systems. Ideally, the panel should have a slotted hole as shown here



Fonts

There some arguments in favour of unifying fonts across the EuroSynth platform to provide both an aesthetically pleasing 'look' to a system, as well as provide easy-to-read text for the various panel controls.

Currently, EuroSynth uses Arial Normal with the following font sizes:-

Module Code	Bold 10pt
Module Name	Bold 12pt
Manufacturer Name	Bold 8pt
Control Labels - Large	Normal 9.8pt
Control Labels - Small	Normal 8pt

Module Depths

The 19" sub-rack allows for modules up to 160mm deep. This still applies to many Tower-style EuroRack frames including our Construct-A-Rack Tower family.

There is, however, a growing trend towards shallower enclosures, often called skiffs. Although excessively shallow skiffs can create problems due to the limited internal space which can seriously impact of air-flow around the modules and any internal power supplies, as well as provide problems squeezing module cables in to the limited space, it is prudent to define an optimum module depth to assist with case manufacturers maximizing the internal layout and space for modules.

The EuroSynth specification proposes an optimum depth of 60mm when measured from the inside face of the front panel to the most extreme point on the module. It is recognised though, that some modules will just not be able to meet this depth restriction, usually as a consequence of requiring a large number of circuit components while having narrow front panel.

PCB Dimensions

For modules using PCBs mounted parallel to the front panel, the maximum PCB width should be no greater than the HP width of the front panel minus 2mm and can be determined using the following simple formula :-

PCB width = (Panel Width (HP) * 5.08mm) – 2mm.

The maximum PCB height should be no greater than 110mm. This will ensure that the module can be installed in any 3U EuroCard compliant rack.

CE, FCC, RCM and related regulatory compliance

This is a very grey area at the moment but really requires significant investigation.

ANY product that is imported for resale or is manufactured for sale and contains electrical mains circuitry, MUST be submitted for regulatory compliance and subsequently carry the authorised marking for that compliance. The actual requirements for passing certification vary in different countries and it is the responsibility of the manufacturer and/or importer to be aware of those requirements and to ensure that those products meet the requirements.

Similarly, any product utilising RF technologies such as Wi-Fi, Bluetooth and networking, or include high-speed switching technology such as microcontrollers, digital circuitry or switching technology, should also be checked to see if they require certification.

Kits or modules that contain any of the above items may NOT be exempt from regulatory compliance

CE Countries

Importers and distributors help ensure that only products compliant with EU legislation and bearing the CE marking are placed on the extended Single Market of the EEA. As they are the intermediaries between manufacturers and traders, they must have overall knowledge of the legal requirements and make sure that the products they distribute or import meet them.

Importers
When importing from non-EU countries, importers must check that products fulfil all EU safety, health and environmental protection requirements before placing them on the market. The importer has to verify that:

- the manufacturer outside the EU has taken the necessary steps to allow the product to be placed on the EU market
- the necessary documentation such as the EU Declaration of Conformity (27 KB) and the technical documentation is available upon request
- contact with the manufacturer is possible at any time

Distributors
Distributors must handle the product carefully and they mustn't affect its compliance with EU legislation. The distributor has to know which products must bear the CE marking and the accompanying documentation. They should be able to identify products that are not in compliance.

Distributors must be able to demonstrate to national authorities that they:

- have confirmation from the manufacturer or the importer that the necessary measures have been taken
- are able to assist national authorities in their efforts to receive the required documentation

If importers or distributors market the products under their own names, they take over the manufacturer's responsibilities. In this case, they must have sufficient information on the design and production of the product because they will be assuming the legal responsibility when affixing the CE marking.

Manufacturers
Manufacturers play a crucial role in ensuring that products placed on the extended Single Market of the EEA are safe. They are responsible for checking that their products meet EU safety, health, and environmental protection requirements. It is the manufacturer's responsibility to carry out the conformity assessment, set up the technical file, issue the EU declaration of conformity, and affix the CE marking to a product. Only then can this product be traded on the EEA market.

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If you are a manufacturer, you have to follow these six steps to affix a CE marking to your product:

1. Identify the applicable directive(s) and harmonised standards
2. Verify product specific requirements
3. Identify whether an independent conformity assessment (by a notified body) is necessary
4. Test the product and check its conformity
5. Draw up and keep available the required technical documentation
6. Affix the CE marking and draw up the EU Declaration of Conformity (27 KB).

These six steps may differ by product as the conformity assessment procedure varies. Manufacturers must not affix CE marking to products that don't fall under the scope of one of the directives providing for its affixing.

For further details https://ec.europa.eu/growth/single-market/ce-marking_en

Ignorantia juris non excusat or ***ignorantia legis neminem excusat***

"ignorance of law excuses no one" is a legal principle holding that a person who is unaware of a law may not escape liability for violating that law merely because one was unaware of its content.

!!! You Are Warned !!!

RoHS and WEEE

Although currently not applicable in all countries, all products should be RoHS compliant where applicable.

This means that all components and materials used in the production of products must be RoHS compliant and RoHS procedures should be used during all assembly and handling processes.

EuroSynth

We have designed a EuroSynth logo that, in the future, manufacturers can apply to their products that are compliant with this specification. This is, of course, a self-regulatory action.

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