

AXESS ELECTRONICS

User Manual and Firmware Ver. 3 Rev. 2

RX1 Router/Switcher

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Warranty

This product is warranted against failures due to defective parts or faulty workmanship for a period of one year after delivery to the original owner. During this one year period, Axess Electronics will make any necessary repairs without charge for parts and labor. However, shipping charges to and from the repair location must be paid by the owner.

This warranty applies only to the original owner and is not transferable.

This warranty does not cover damage to the product as a result from accident or misuse.

This warranty will be canceled at the sole discretion of Axess Electronics if the product has:

- Any signs of tampering, unauthorized service, or modifications.
- Any damage resulting from physical abuse or failure to follow the operating instructions.

Axess Electronics' liability to the owner and under this warranty is limited only to the repair or replacement of the defective product. Call or write to Axess Electronics prior to shipping the product for repair.

Axess Electronics reserves the right to make any changes and/or improvements to the design of this product without any obligation to include those changes in any previously manufactured units.

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Precautions

It is VERY important to read this section carefully to ensure years of reliable operation from this device. Failure to follow these precautions WILL void the warranty and may result in Axess Electronics' refusal to service/support the device in the future.

Do NOT tamper with and/or add any electronic components inside the device at any time.

Do NOT allow any liquids to spill and/or objects to fall into the device through the ventilation openings.

Do NOT attempt to service this device and/or have anyone else attempt to service this device other than Axess Electronics.

Do NOT connect the output of a power amplifier to any of the jacks on this device. Doing so WILL damage this device AND the power amplifier, as this device is designed only for instrument and line level signals, not speaker level signals.

Do NOT mount this device in a rack without it's cover in place as it play's a vital role in the overall structural integrity of the device.

Do NOT expose this device to excessive heat. It has been designed and tested to operate between 0°C and 45 °C (32 °F and 113 °F). This device may shut down under extreme temperature conditions. In poorly ventilated racks and/or racks with high temperature producing tube gear, it may be necessary to add an exhaust fan for the well being of all your rack gear !!!

Introduction

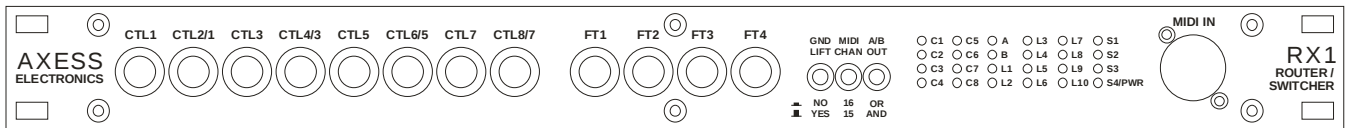
Congratulations and thank you for selecting the Axess Electronics RX1 Router/Switcher.

The RX1 is a 1U rack space device jam-packed with 24 functions and it's been designed unlike any other relay based router/switcher. Most companies decide on a price and a set number of functions (eight seems to be very common, and limiting) even before it has been designed, then they see what they can fit/manufacture into their predetermined parameters, which usually requires cutting corners. Not the RX1, it was designed with reliability, flexibility, low noise, sonic transparency and real solutions to common grounding problems, as required by professional touring guitarists and their tech's, then priced reasonably like all Axess Electronics' products. The only cut corners on the RX1 are on it's cover so you don't hurt yourself or somebody else.

Construction Features & Benefits:

- Relays with gold-plated contacts are used to route all (except the A/B switching amplifier outputs) audio signals with no tone coloration and/or degradation.
- The first relay based router/switcher to provide quasi click-free audio switching without all the tone coloration of series inter-connected optical switches that are found in some other audio controllers.
- Laser cut, punched & engraved 0.104" thick stainless steel front panel provides a unique look and improved grounding/shielding capabilities.
- 0.064" thick aluminum with a clear alodine plated finish provides for a strong, lightweight chassis (and cover) with superior shielding than other aluminum finishes.
- Constructed using three double-sided circuit boards with plated through holes, ground & power planes, PCB mounted Neutrik 1/4" jacks and 27 machine screws (for securing the circuit boards to the chassis) ensures years of reliable use & peak performance while on countless world tours.

Front Panel



CTL Control Function Jacks – eight standard ¼” stereo TRS jacks, isolated using relays to prevent Ground Loop Hum/Noise from occurring.

CTL1, CTL3, CTL5 & CTL7 are capable of Normally Open (TIP – SLEEVE) or Normally Closed (RING – SLEEVE) Latched or Momentary type switching to control amplifiers and/or other devices that have footswitchable functions.

CTL2/1, CTL4/3, CTL6/5 & CTL8/7 are capable of dual (TIP – SLEEVE & RING – SLEEVE) Normally Open Latched or Momentary type switching to control amplifiers and/or other devices that have two footswitchable functions using a single ¼” stereo TRS jack (such as the Bogner Shiva...). The primary (TIP – SLEEVE) switching function is provided by the control function identified before the slash and the secondary (RING – SLEEVE) switching function is provided by the control function after the slash. To enable the secondary (RING – SLEEVE) switching function, the CTL jack identified after the slash must NOT have a ¼” cable/plug inserted.

FT Feed Through Jacks – four standard ¼” stereo TRS jacks, isolated to prevent Ground Loop Hum/Noise and shielded to prevent EMI/RFI from occurring. These jacks allow for audio and/or control signals to be patched from the front and back on the RX1.

Please note that even though we have done our best to ensure these Feed Through Jacks will work for all applications, there may still be some (common and/or not) that cannot make use of them... ..so always have a Plan B...

A common mistake a LOT of people make when ordering a rack is to get the front rack rails positioned right at the front of the rack opening. This is a BIG mistake, if you can help it, make sure to order your rack's with the front rack rails positioned 1.0" or 2.0" inches in from the front of the rack so that rack device knobs and other things don't get damaged, sheared off or interfere with the cover. This would also allow you to make permanent connections between the RX1's front panel Control Function Jacks and the Feed Through Jacks using right-angle ¼" plugs/cables should you want/need to...

GND LIFT Switch – latching pushbutton switch to enable or disable connecting the chassis and internal circuit board(s) signal ground together.

In... The chassis and internal circuit board(s) signal ground are connected.

Out... The chassis and internal circuit board(s) signal ground are NOT connected.

MIDI CHAN Switch – latching pushbutton switch to select the MIDI Channel that the RX1 will receive MIDI Control Change numbers on.

In... The RX1 will respond to MIDI Control Change numbers on MIDI Channel 16.

Out... The RX1 will respond to MIDI Control Change numbers on MIDI Channel 15.

A/B OUT Switch – latching pushbutton switch to select how the A/B amplifier outputs will respond to the two MIDI Control Change numbers that dictate their operation.

In... Selects the “OR” mode. One MIDI Control Change message toggles between Output A or Output B on, never both, the second MIDI Control Change message mutes whichever output (A or B) is on.

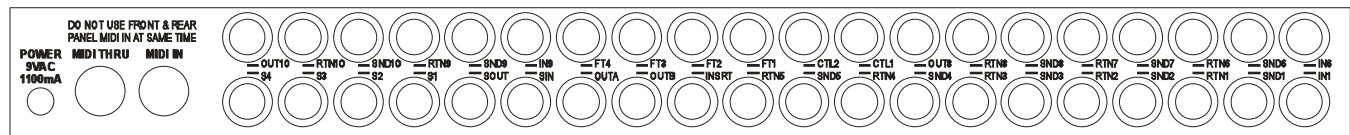
Out... Selects the “AND” mode. One MIDI Control Change message turns Output A on/off and the second MIDI Control Change message turns Output B on/off. So when in this mode it’s possible to have any combination of the two amplifier outputs on/off.

Please note that the three front panel switches have been recessed to prevent accidental change of the selected functionality...

LEDs – provide a clear status of all 24 RX1 functions. When on, an LED indicates that the function is active/on. The LED for S4 flashes to provide intelligent (tells you that the MCU is working) power indication, unlike standard power LED's that really don't tell you much...

MIDI IN Jack – Male XLR (5-pin Neutrik) jack for connecting to a MIDI footcontroller and supplying it with 9Vac phantom power. The pinout is as follows (1) 9Vac (2) Not Used (3) 9Vac (4) MIDI In Pin#4 (5) MIDI In Pin#5.

Rear Panel



Power Jack – standard 5.5mm/2.1mm barrel jack. The RX1’s power requirements are 9Vac @ 1.1A (1100mA). The supplied adapter is capable of supplying 1500mA which should be more than enough for the RX1 and a MIDI footcontroller. In multi-footcontroller systems, a higher current power source will be necessary...

MIDI IN Jack – standard 7-pin DIN jack that is compatible with 5-pin MIDI jacks/cables. This jack receives MIDI information/commands from an external source (such as a MIDI footcontroller or the MIDI THRU jack of another MIDI device) that controls the on/off status of the RX1’s functions. Pins 1 & 3 provide 9Vac phantom power to a MIDI footcontroller if connected, otherwise make sure that the MIDI THRU/OUT jack of the device connected to the RX1 MIDI IN jack does NOT utilize pins 1 & 3, otherwise you may damage the RX1 and/or the connected device.

Do NOT use the front and rear panel MIDI IN jacks at the same time, otherwise you may damage the RX1 and/or the connected devices.

MIDI THRU Jack – standard 7-pin DIN jack that is compatible with 5-pin MIDI jacks/cables. This jack passes on the MIDI information that is received at the RX1’s MIDI IN jack (front or back) to other MIDI devices.

CTL1 Control Function Jack – standard ¼” stereo TRS jack, isolated using a relay to prevent Ground Loop Hum/Noise from occurring. This CTL jack/function responds to the same MIDI Control Change message as the CTL1 jack/function on the front panel, but they are totally isolated from one another and the rest of the RX1. It is capable of Normally Open (TIP – SLEEVE) or Normally Closed (RING – SLEEVE) Latched or Momentary type switching to control amplifiers and/or other devices that have a footswitchable function. It can also be used as a switchable audio mute when used with a cable that has a ¼” stereo TRS plug on one end and two ¼” mono TS plugs on the other end... TIP = Input RING = Output SLEEVE = Ground (see diagrams page for details...)

CTL2 Control Function Jack – standard ¼” stereo TRS jack, isolated using a relay to prevent Ground Loop Hum/Noise from occurring. This CTL jack/function responds to the same MIDI Control Change message as the CTL2 jack/function on the front panel, but they are totally isolated from one another and the rest of the RX1. It is capable of Normally Open (TIP – SLEEVE) or Normally Closed (RING – SLEEVE) Latched or Momentary type switching to control amplifiers and/or other devices that have a footswitchable function. It can also be used as a switchable audio mute when used with a cable that has a ¼” stereo TRS plug on one end and two ¼” mono TS plugs on the other end... TIP = Input RING = Output SLEEVE = Ground (see diagrams page for details...)

IN1 Jack – standard ¼" mono TS jack that provides an audio signal to Loops 1, 2, 3, 4 and 5. This input feeds a low noise, sonically transparent, instrument and line level buffer (factory set for unity gain). Please refer to the Internal Adjustments section of this User Manual for information on how to deactivate the buffer or adjust it's gain level.

SND1 & RTN1 Jacks – standard ¼" mono TS jacks. If using this loop (and/or 2, 3, 4 and 5) as series bypass loops, connect the SND to the effect input and the RTN to the effect output. If using this loop (and/or 2, 3, 4 and 5) as a switchable splitter, connect the SND to the effect input and leave the RTN unconnected – this will allow the signal feeding IN1 to pass through to the remaining loops in the chain as well as the TIP of the INSRT jack.

SND2 / 3 / 4 / 5 & RTN2 / 3 / 4 / 5 Jacks – same as SND1 & RTN1.

INSRT Jack – standard ¼" stereo TRS jack that provides an audio signal from the chain of Loops 1, 2, 3, 4 and 5 on the TIP and an input to feed the circuitry responsible for the switchable amplifier outputs (OUTA & OUTB) on the RING, thus it's an INSeRT jack... ..which can be used to patch in more loops, a volume pedal or anything else that needs to be before the switchable amplifier outputs...

When there is no cable/plug is inserted into the INSRT jack, the audio signal from the chain of 5 series loops is automatically routed to the switchable amplifier outputs circuitry...

IN6 Jack – standard ¼" mono TS jack that provides an audio signal to Loops 6, 7 and 8. This input feeds a low noise, sonically transparent, instrument and line level buffer (factory set for unity gain). Please refer to the Internal Adjustments section of this User Manual for information on how to deactivate the buffer or adjust it's gain level.

SND6 & RTN6 Jacks – standard ¼" mono TS jacks. If using this loop (and/or 7 and 8) as series bypass loops, connect the SND to the effect input and the RTN to the effect output. If using this loop (and/or 7 and 8) as a switchable splitter, connect the SND to the effect input and leave the RTN unconnected – this will allow the signal feeding IN6 to pass through to the remaining loops in the chain as well as the chain output jack (OUT8).

SND7 / 8 & RTN7 / 8 Jacks – same as SND6 & RTN6.

OUT8 Jack – standard ¼" mono TS jack that provides an audio signal from the chain of Loops 6, 7 and 8.

Loops 6, 7 and 8 can also be used as a guitar/wireless (4-to-1) signal selector. Connect four guitars to IN6, RTN6, RTN7 and RTN8 (leave the SND's unconnected). When Loops 6, 7 and 8 are off the guitar signal feeding IN6 will pass through to the OUT8 jack. Turning Loop 6, Loop 7 or Loop 8 on, will deselect the guitar connected to IN6 and allow the guitar signal feeding RTN6 (when Loop 6 is on) or RTN7 (when Loop 7 is on) or RTN8 (when Loop 8 is on) to pass through to the OUT8 jack...

IN9 Jack – standard ¼" mono TS jack that provides an audio signal to Loops 9 and 10, which are totally passive.

SND9 & RTN9 Jacks – standard ¼" mono TS jacks. If using Loop 9 (and 10) as series bypass loops, connect the SND to the effect input and the RTN to the effect output. If using Loop 9 (and 10) as a switchable splitter, connect the SND to the effect input and leave the RTN unconnected – this will allow the signal feeding IN9 to pass through to Loop 10 and the chain output jack (OUT10).

SND10 & RTN10 Jacks – same as SND9 & RTN9.

OUT10 Jack – standard ¼" mono TS jack that provides an audio signal from the chain of Loops 9 and 10.

Loops 9 and 10 can also be used as a guitar/wireless (3-to-1) signal selector. Connect three guitars to IN9, RTN9 and RTN10 (leave the SND's unconnected). When Loops 9 and 10 are off the guitar signal feeding IN9 will pass through to the OUT10 jack. Turning Loop 9 or Loop 10 on, will deselect the guitar connected to IN9 and allow the guitar signal feeding RTN9 (when Loop 9 is on) or RTN10 (when Loop 10 is on) to pass through to the OUT10 jack...

FT Feed Through Jacks – four standard ¼” stereo TRS jacks, isolated to prevent Ground Loop Hum/Noise and shielded to prevent EMI/RFI from occurring. These jacks allow for audio and/or control signals to be patched from the front and back on the RX1.

Please note that even though we have done our best to ensure these feed through jacks will work for all applications, there may still be some that cannot make use of them... ..so always have a Plan B...

SIN Jack – standard ¼” mono TS jack that provides an audio signal to the switchable splitter outputs (for use with a line mixer...) S1, S2, S3, S4 and the non-switchable (it's always on) splitter output SOUT. This input feeds a low noise, sonically transparent, instrument and line level buffer (factory set for unity gain). Please refer to the Internal Adjustments section of this User Manual for information on how to adjust the gain level, if necessary.

SOUT Jack – standard ¼” mono TS jack that always outputs a buffered version of the signal at the SIN jack. This jack can be used to supply a “dry line” signal (that is always on) to a line mixer or it can be connected to either CTL1 or CTL2 on the rear panel to provide the line mixer with a switchable “dry line” that can be muted.

S1, S2, S3 & S4 Jacks – standard ¼” mono TS jacks that provide switchable audio outputs for feeding the input of rack processors (with their outputs connected to a line mixer...). When these switchable outputs are on (LED on), they provide the input of the processors with a buffered version of the signal at the SIN jack. When these outputs are switched off (LED off), they mute the input of the processors they are connected to, allowing for effects such as reverbs and delays to trail-off...

OUTA Jack – standard ¼” mono TS jack. This switchable amplifier output provides a low impedance buffered version of the signal at the INSRT jack. This output is capable of being transformer isolated to prevent ground loop hum/noise via an internal switch. Please refer to the Internal Adjustments section of this User Manual for information on how to adjust the buffer gain level or to enable the isolation transformer, if necessary.

OUTB Jack – standard ¼” mono TS jack. This switchable amplifier output provides a low impedance buffered and transformer isolated (to prevent ground loop hum/noise when connecting multiple amplifiers) version of the signal at the INSRT jack. Please refer to the Internal Adjustments section of this User Manual for information on how to adjust the gain level, if necessary.

All audio isolation transformers are susceptible to picking up hum from nearby sources such as power transformers and adapters... The isolation transformers used in the RX1 are no exception, but we have done all that is possible to minimize the chance of this happening. If you get a loud hum when using the OUTB jack (and/or the OUTA jack, if it's transformer is enabled) you will have to find the source of the hum by moving things (either the RX1 or other rack devices or power supplies/adapters) around. After you have found the hum source, you can determine the best location to put it within the rack so that it's hum-field doesn't affect the RX1 isolation transformer(s), or anything else in the rack.

When running two amplifier's there is a possibility that one amp may be out of phase from the other. To test this, just use one amplifier, then add the second one, the volume should increase slightly and the overall sound should be "more full". If the volume is reduced or there's a loss of bass frequencies when the second amp is added, then one amp is out of phase. The easiest way to fix this is to reverse the speaker cabinet wiring for the amp connected to the OUTB jack (this should only be done by a qualified technician...).

Internal Adjustments

IN1 Buffer – this buffer can be bypassed (or not) via an internal pushbutton switch, which is located just behind the IN1 jack. When the switch is in the OUT position the buffer is off/bypassed and when the switch is in the IN position the buffer is on/active. There is also an internal trimpot that allows the gain for this buffered to be increased. The trimpot is located next to the buffer bypass/active switch. For unity gain rotate the trimpot completely counter-clockwise then clockwise by one notch, rotating it clock-wise even further will increase the buffer's gain...

IN6 Buffer – this buffer can be bypassed (or not) via an internal pushbutton switch, which is located just behind the IN6 jack. When the switch is in the OUT position the buffer is off/bypassed and when the switch is in the IN position the buffer is on/active. There is also an internal trimpot that allows the gain for this buffered to be increased. The trimpot is located next to the buffer bypass/active switch. For unity gain rotate the trimpot completely counter-clockwise then clockwise by one notch, rotating it clock-wise even further will increase the buffer's gain...

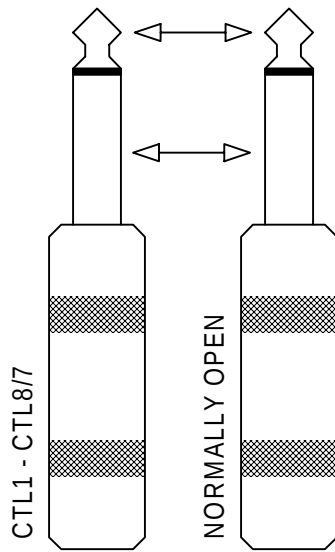
SIN Buffer – there is an internal trimpot that allows the gain of this buffer to be increased. The trimpot is located (hidden) on the printed circuit board labeled “RX1 Rack Switcher PCB2...” just to the right of the mounting post labeled MH5 (which is directly below MH5 on the printed circuit board labeled “RX1 Rack Switcher PCB3...”). For unity gain rotate the trimpot completely counter-clockwise then clockwise by one notch, rotating it clock-wise even further will increase the buffer's gain...

A/B Out Buffer – there is an internal trimpot that allows the gain of this buffer to be increased. The trimpot is located (hidden) on the printed circuit board labeled “RX1 Rack Switcher PCB2...” about an inch above the first “E” in “Electronics” that is printed above the “RX1 Rack Switcher PCB2...” text. For unity gain rotate the trimpot completely counter-clockwise then clockwise by one notch, rotating it clock-wise even further will increase the buffer's gain...

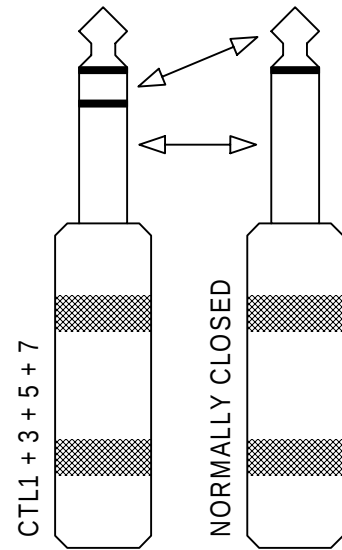
Inside GND Lift – this ground lift switch makes it possible to isolate (or not) the ground of Loops 1 to 5, OUTA and OUTB from the signal ground inside the RX1. The switch is located on the printed circuit board labeled “RX1 Rack Switcher PCB2...” just to the left of the mounting post labeled MH3 (which is directly below MH3 on the printed circuit board labeled “RX1 Rack Switcher PCB3...”). When the switch is in the OUT position ground is not lifted and when the switch is in the IN position the ground is lifted.

OUTA Isolation Transformer – this isolation transformer can be enabled (or not) via an internal pushbutton switch. The switch is located (hidden) on the printed circuit board labeled “RX1 Rack Switcher PCB2...” just to the left of the mounting post labeled MH5 (which is directly below MH5 on the printed circuit board labeled “RX1 Rack Switcher PCB3...”). When the switch is in the OUT position the isolation transformer is off/bypassed and when the switch is in the IN position the isolation transformer is on/inline.

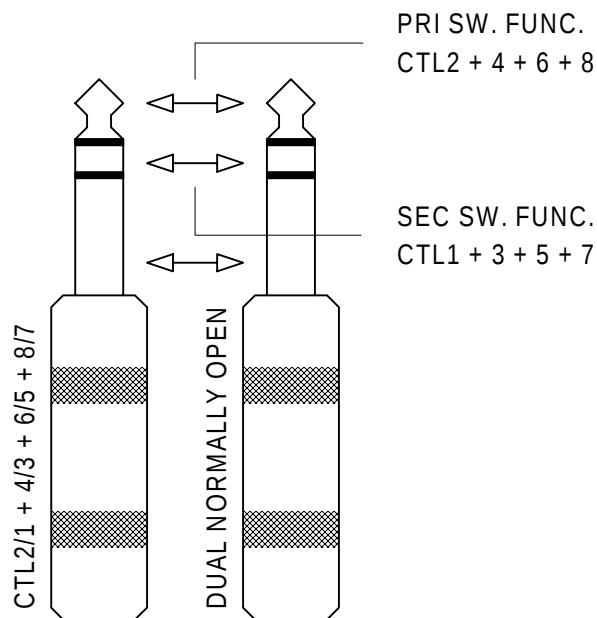
Control Function & INSRT Cable Diagrams



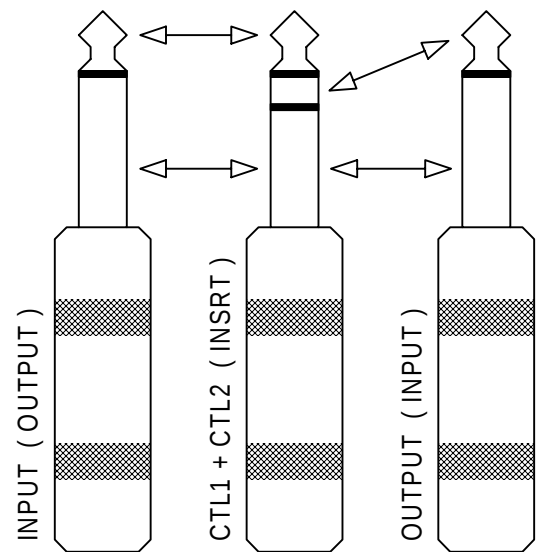
(8) FRONT PANEL NORMALLY OPEN SWITCHING FUNCTIONS



(4) FRONT PANEL NORMALLY CLOSED SWITCHING FUNCTIONS



(4) FRONT PANEL DUAL NORM. OPEN SWITCHING FUNCTIONS



(2) REAR PANEL AUDIO MUTES
(1) REAR PANEL INSRT JACK CABLE
(...SHOWN IN PARENTHESIS...)

CTL1 & CTL2 can also be used for Normally Open or Closed "switch to ground" function switching by using cables as shown above for the Front Panel CTL Jacks.

RX1 MIDI Control

The RX1 responds only to MIDI Control Change numbers on MIDI Channel 15 or 16, as selected by the front panel switch labeled "MIDI CHAN".

Every function on the RX1 is assigned its own MIDI Control Change number (CTL1/CTL2 on the front and rear panel share the same number – but they are completely isolated from one another and the rest of the RX1).

The MIDI Control Change numbers (and MIDI Channels) that the RX1 responds too are fixed (pre-programmed into the MCU) and can only be changed via software revision. For different MIDI Channels and/or Control Change numbers, please contact us via telephone or E-mail (preferred).

MIDI is a very slow method of serial communications... So we recommend grouping together all the instant access switches on your MIDI footcontroller that control loops 1 to 10 on the RX1. For example, assign; instant access switch 1 to 10 too loops 1 to 10, or instant access switch 2 to 11 too loops 1 to 10, or instant access switch 3 to 12 too loops 1 to 10... The loops can be arranged/assigned in any order, just make sure that all the instant access switches used for loops 1 to 10 are all grouped together, sequentially.

The RX1 functions and corresponding MIDI Control Change numbers (and on/off Control Values) are as follows:

Func.	Control Change Number	Control Value = 0 / Off	Control Value = 127 / On
CTL1	Control Change #1 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)
CTL2	Control Change #2 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)
CTL3	Control Change #3 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)
CTL4	Control Change #4 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)
CTL5	Control Change #5 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)
CTL6	Control Change #6 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)
CTL7	Control Change #7 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)
CTL8	Control Change #8 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)
OUTA	Control Change #9 (AND Mode)	OUTA is muted & LED is off	OUTA is active & LED is on
OUTB	Control Change #10 (AND Mode)	OUTB is muted & LED is off	OUTB is active & LED is on
OUTA/B	Control Change #9 (OR Mode)	OUTA is muted & LED is off OUTB is active & LED is on	OUTA is active & LED is on OUTB is muted & LED is off
OUTA/B	Control Change #10 (OR Mode)	OUTA status depends on CC#9 OUTB status depends on CC#9	OUTA is muted & LED is off OUTB is muted & LED is off
LOOP1	Control Change #11	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP2	Control Change #12	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP3	Control Change #13	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP4	Control Change #14	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP5	Control Change #15	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP6	Control Change #16	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP7	Control Change #17	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP8	Control Change #18	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP9	Control Change #19	Loop is bypassed & LED is off	Loop is inline & LED is on
LOOP10	Control Change #20	Loop is bypassed & LED is off	Loop is inline & LED is on
SPLIT1	Control Change #21	S1 Output is muted & LED is off	S1 Output is active & LED is on
SPLIT2	Control Change #22	S2 Output is muted & LED is off	S2 Output is active & LED is on
SPLIT3	Control Change #23	S3 Output is muted & LED is off	S3 Output is active & LED is on
SPLIT4	Control Change #24	S4 Output is muted & LED is off	S4 Output is active & LED is on
CTL1	Control Change #31 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)
CTL2	Control Change #32 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)
CTL3	Control Change #33 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)
CTL4	Control Change #34 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)
CTL5	Control Change #35 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)
CTL6	Control Change #36 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)
CTL7	Control Change #37 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)
CTL8	Control Change #38 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)

RX1 MIDI Control w/DMC Ground Control

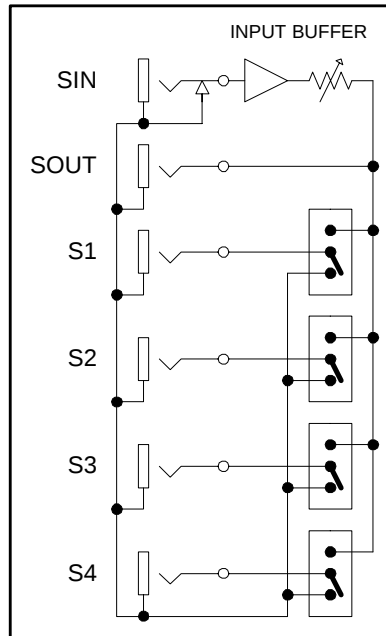
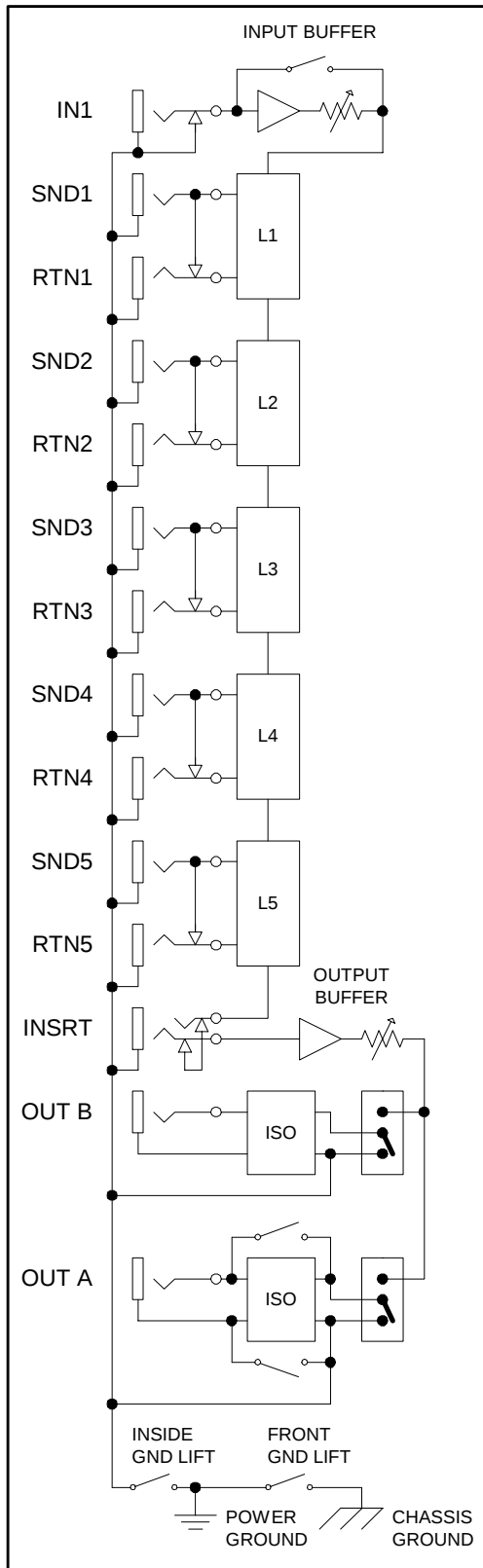
Controlling the RX1 with the old DMC Ground Control (which must have the memory upgrade enabling it to control four GCX's) or the DMC Ground Control Pro, simply requires you send the RX1 a different set of MIDI Control Change numbers (which are listed below).

Since the Ground Control and Ground Control Pro transmit MIDI Control Change numbers on MIDI Channel 16 by default, please make sure to set the RX1 front panel switch labeled "MIDI CHAN", to the 16 position.

The RX1 functions and corresponding MIDI Control Change numbers (and on/off Control Values) with respect to the Ground Control GCX Number (2 to 4) and Loop Number (1 to 8) are as follows:

Func.	Control Change Number	Control Value = 0 / Off	Control Value = 127 / On	GCX No.
CTL1	Control Change #56 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)	GCX4L1
CTL2	Control Change #57 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)	GCX4L2
CTL3	Control Change #58 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)	GCX4L3
CTL4	Control Change #59 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)	GCX4L4
CTL5	Control Change #60 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)	GCX4L5
CTL6	Control Change #61 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)	GCX4L6
CTL7	Control Change #62 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)	GCX4L7
CTL8	Control Change #63 (Latching)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is on)	GCX4L8
OUTA	Control Change #66 (AND Mode)	OUTA is muted & LED is off	OUTA is active & LED is on	GCX3L3
OUTB	Control Change #67 (AND Mode)	OUTB is muted & LED is off	OUTB is active & LED is on	GCX3L4
OUTA/B	Control Change #66 (OR Mode)	OUTA is muted & LED is off OUTB is active & LED is on	OUTA is active & LED is on OUTB is muted & LED is off	GCX3L3
OUTA/B	Control Change #67 (OR Mode)	OUTA status depends on CC#9 OUTB status depends on CC#9	OUTA is muted & LED is off OUTB is muted & LED is off	GCX3L4
LOOP1	Control Change #88	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX2L1
LOOP2	Control Change #89	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX2L2
LOOP3	Control Change #90	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX2L3
LOOP4	Control Change #91	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX2L4
LOOP5	Control Change #92	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX2L5
LOOP6	Control Change #93	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX2L6
LOOP7	Control Change #94	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX2L7
LOOP8	Control Change #95	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX2L8
LOOP9	Control Change #64	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX3L1
LOOP10	Control Change #65	Loop is bypassed & LED is off	Loop is inline & LED is on	GCX3L2
SPLIT1	Control Change #68	S1 Output is muted & LED is off	S1 Output is active & LED is on	GCX3L5
SPLIT2	Control Change #69	S2 Output is muted & LED is off	S2 Output is active & LED is on	GCX3L6
SPLIT3	Control Change #70	S3 Output is muted & LED is off	S3 Output is active & LED is on	GCX3L7
SPLIT4	Control Change #71	S4 Output is muted & LED is off	S4 Output is active & LED is on	GCX3L8
CTL1	Control Change #72 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)	GCX4L1
CTL2	Control Change #73 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)	GCX4L2
CTL3	Control Change #74 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)	GCX4L3
CTL4	Control Change #75 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)	GCX4L4
CTL5	Control Change #76 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)	GCX4L5
CTL6	Control Change #77 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)	GCX4L6
CTL7	Control Change #78 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)	GCX4L7
CTL8	Control Change #79 (Momentary)	Func. & LED are off (Relay is off)	Func. & LED are on (Relay is off)	GCX4L8

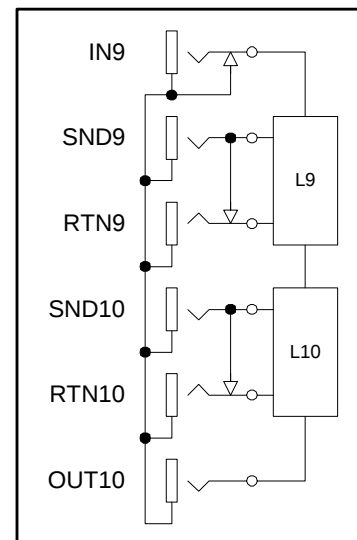
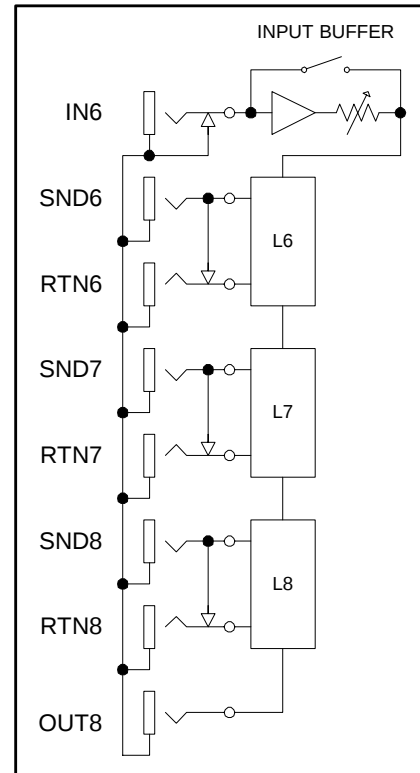
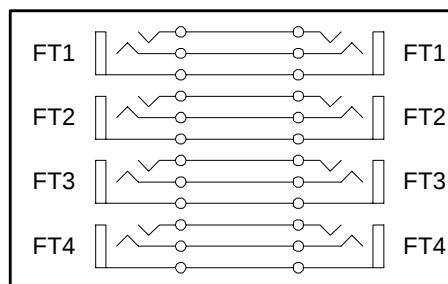
RX1 Block Diagram



Factory Defaults:

OUTA ISO = Bypassed
 INSIDE GND LIFT = No
 FRONT GND LIFT = No

SIN BUFFER = Unity Gain
 A/B OUT BUFFER = Unity Gain
 IN1 BUFFER = Active/Unity Gain
 IN6 BUFFER = Active/Unity Gain



CTL1

CTL2

Normally Open = Tip
 Common = Ring
 Normally Closed = Sleeve

CTL1

CTL3

CTL5

CTL7

CTL2/1

CTL4/3

CTL6/5

CTL8/7

Normally Open = Tip
 Common = Sleeve
 Normally Closed = Ring

Normally Open = Tip
 Common = Sleeve
 Normally Closed = Not Used