SC4x16-2x32BC

Signal Collector with Blanking Circuit for four µPA16 or two µPA32 Preamplifiers

Use and Operation of the SC4x16-2x32BC

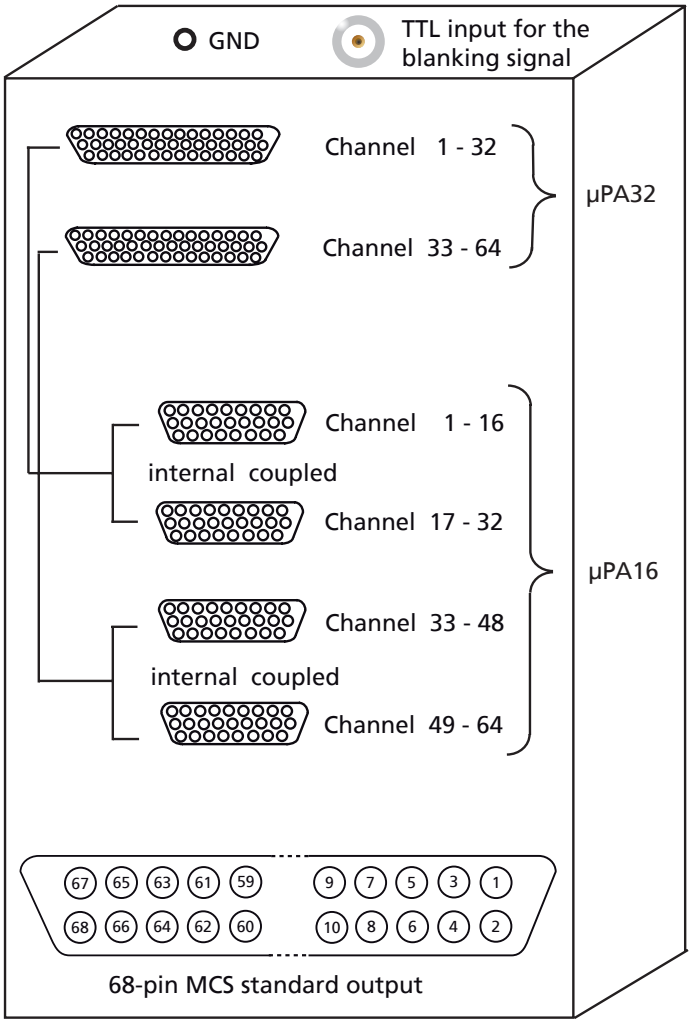
The SC4x16-2x32BC is a signal collector for up to four µPA16 or two µPA32 preamplifiers, connected via 26-pin HD-Sub or 44-pin HD-Sub connectors. The 4 x 16 or 2 x 32 input channels are collected and can be connected to the following FA or PGA amplifier via 68-pin MCS high grade cable. If only two µPA16 or one µPA32 are connected, please connect a termination plug to the unused input to prevent it from picking up noise.The SC4x16-2x32BC includes a 0.08 Hz high pass filter for removing DC offsets. The additional GND ground ensures perfect grounding. The BNC connector is a TTL input for the blanking signal.

Channel Layout

The first µPA32 connector and the first and the second µPA16 connectors are connected in parallel, the second µPA32 connector and the third and fourth µPA16 connector, respectively. When using one µPA32 only, please use the first connector Channel 1 to 32.

When using two µPA16 additionally, please connect them to both to the last µPA16 connectors, labeled with Channel 33 to 48 and Channel 49 to 64. When using one or two µPAs only, please use the termination plugs. Because of the internal coupling, you need one terminal plug only for µPA32 and one for µPA16 to prevent picking up noise.

Warning: When using one or more µPA16, close all unused µPA16 inputs with terminal plugs, but **NOT** the µPA32 inputs! Similarly, when using only one µPA32, close the other unused µPA32 input with a terminal plug, but **NOT** the µPA16 inputs.



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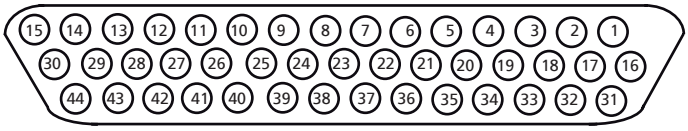
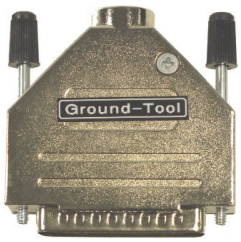
Scope of Delivery

Signal Collector and 4 x 2 mm plug connectors (for soldering your own laboratory cables)

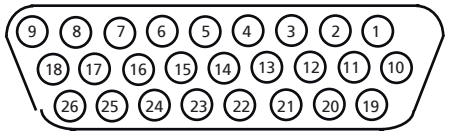


Terminal plug for the 44-Pin HD-Sub connector



Input Connector 44-Pin HD D-Sub female connector

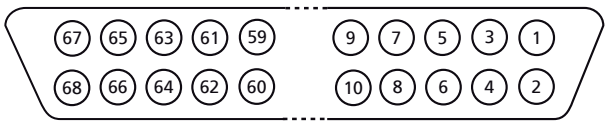
Pin	Channel	Pin	Channel	Pin	Channel	Pin	
1	1	17	2	32	3	12, 13, 16,	GND
2	4	18	5	33	6	28, 31, 42	
3	7	19	8	34	9		
4	10	20	11	35	12	14, 15, 30	positive
5	13	21	14	36	15		supply voltage
6	16	22	17	37	18		
7	19	23	20	38	21	29, 43, 44	negative
8	22	24	23	39	24		supply voltage
9	25	25	26	40	27		
10	28	26	29	41	30		
11	31	27	32				



Terminal plug for the 26-Pin HD-Sub connector

Input Connector 26-Pin HD D-Sub female connector

Pin	Channel	Pin	Channel	Pin
2	1	11	2	1, 10, 19, 23 GND (Ground)
3	3	12	4	
4	5	13	6	20, 21, 22 positive supply voltage
5	7	14	8	
6	9	15	10	24, 25, 26 negative supply voltage
7	11	16	12	
8	13	17	14	
9	15	18	16	



Output Connector 68-Pin HD D-Sub female connector

Pin 1	GND (ground)	Pin 3 - 66	Channel 1 - 64
Pin 2	GND (ground)	Pin 67	positive supply voltage
		Pin 68	negative supply voltage

Warning: The device may only be used together with ME2100- or ME-Systems from Multi Channel Systems MCS GmbH, and only for the specified purpose.Damage of the device and even fatal injuries can result from improper use.

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Use and Operation of the SC4x16-2x32BC

The SC4x16-2x32BC is a Signal Collector with blanking circuit for up to four µPA16 or two µPA32 preamplifiers. The 4x16 or 2x32 input channels are collected and then connected to the following amplifier via 68-pin MCS high grade cable.

The SC4x16-2x32BC includes a 0.08 Hz high pass filter for removing DC offsets. An internal power supply with ±5 V stabilizes the power for all connected µPAs. The additional ground on the front panel ensures perfect grounding.

The SC4x16-2x32BC features a blanking circuit. Without a SC4x16-2x32BC the amplifier gets saturated and needs to recover when you apply a stimulus input to your filter amplifier.

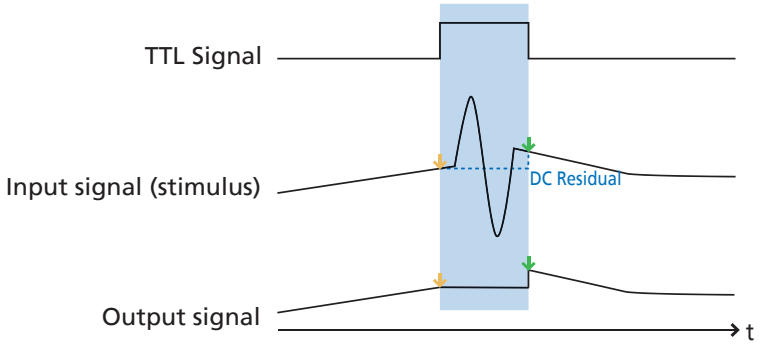
The recovering time depends on the filter amplifier type. It is roughly the time constant of the high pass filter multiplied by ten. During this time, the data output is distorted. With the blanking circuit, the voltage outputs are held constant during the time when the blanking input is active. Thus, the stimulus artefacts does not pass through the box, and the following filter amplifier does not get saturated. When the blanking signal has stopped, the channel output follows the input signal again.

Blanking is triggered by a TTL signal. If you use a stimulus generator STG for stimulation, you can set up the trigger in MC_Stimulus II program and apply it with a STG via the Sync Out connector. Make sure to start the blanking TTL signal shortly before the stimulus, and stop it shortly after the stimulus to remove the complete stimulus artefact.

After the trigger event, the output channels are reconnected to the input channels.
This event is accompanied by three minor artifact signals:

1. Small switch artifact, which is caused by the switch itself (less than 20 mV).
2. Possible DC residual (depending on the electrodes and DC balance of the stimulus signal).
3. Possible switch feedback (cross talk between TTL blanking pulse and the ground line).

The time constant of the device, that is, the time it needs to reach the current voltage level again, is 22 ms.



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