

VC Node Mux

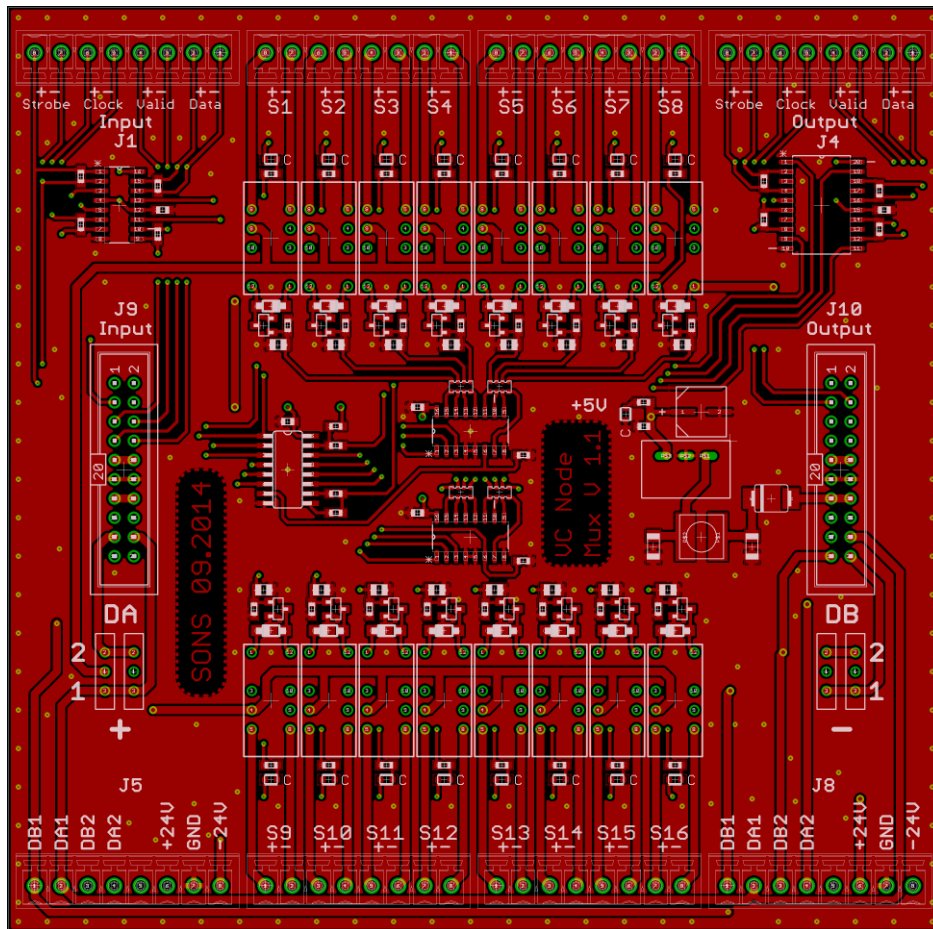
User's Guide

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1 Brief Description

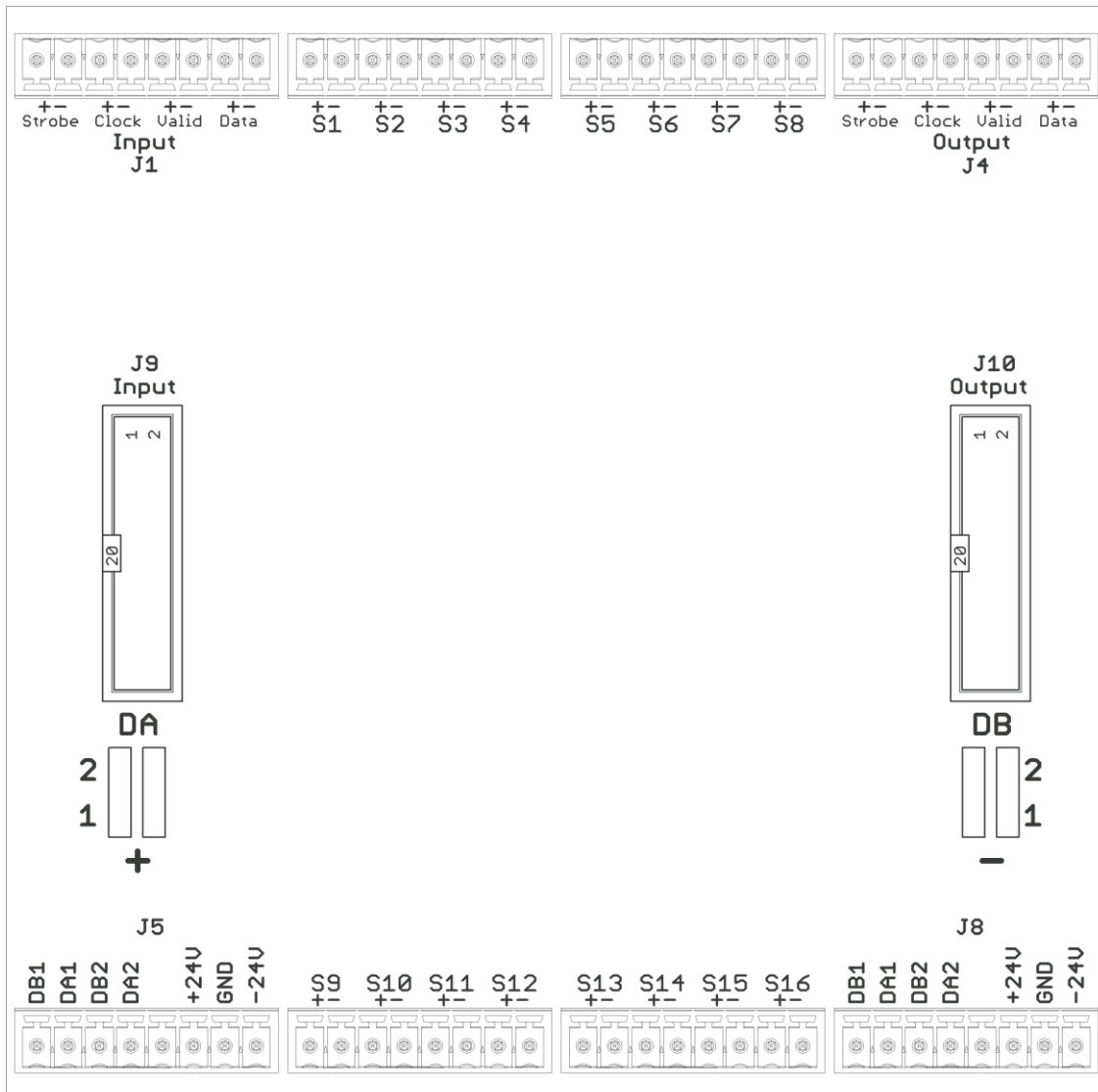
The VC Node Mux is an electrically isolated 16:1 multiplexer. The 16 inputs can be assigned to one of the two outputs through jumpers. Use of EIA-422 interfaces allows distances of up to 1,000 metres to be linked. The system is controlled through a data vector that limits the maximum number to eight VC Node Mux devices in a chain (eight VC Node Mux devices → 128 channels). Chaining can be made through a short flat ribbon cable (lateral connectors).



2 Technical Data

Multiplexer	
Inputs	16
Outputs	2
Control	
Electrical interface	EIA-422
Signals	Data Vector, Clock, Strobe
Baud rate	1,000 Bd
Transmission length	1,000 metres
Power supply	
Supply voltage	24V
Amps drawn	50mA
Connectors	
IO Control	8 off - Connector, 1x8 pole, 3.5mm
Chaining	2 off - Connector, 2x10 pole, 2.54mm
Housing	
Size	(127 x 140 x 50) mm
Weight	200g
Enclosure protection	IP20

3 Connectors



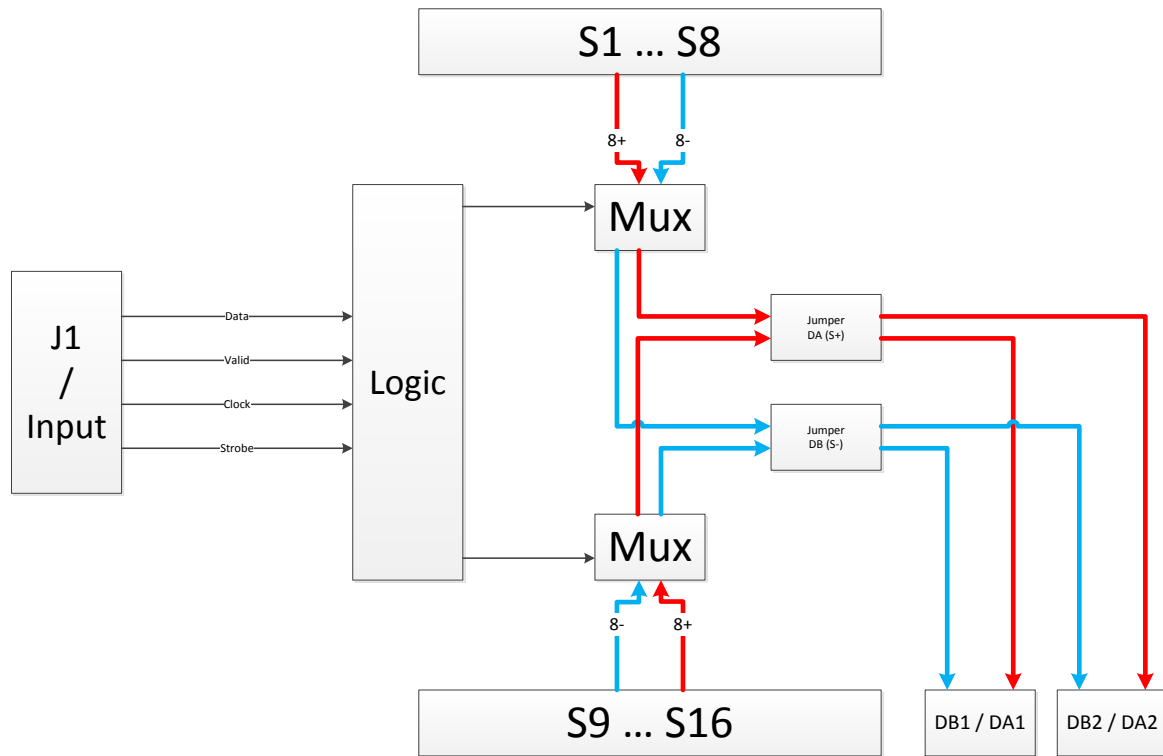
Use is made of two types of connectors. Eight 8-pole male connectors are used on the top and the bottom edges. Twenty-pole trough connectors (J9, J10) are available for single chaining of several multiplexers.

Numbering of the 8-pole male connectors starts with J1 at the top left and ends with J8 at the bottom right.

Male Connector No.	Signal Name	Description
J1	Strobe±	Control signal inputs
	Clock±	
	Valid±	
	Data±	
J2 , J3 , J6 , J7	S1± ... S16±	Sensor inputs
J4	Strobe±	Control signal outputs
	Clock±	
	Valid±	
	Data±	
J5 ; J6	DB1	Sensor output 1
	DA1	
	DB2	Sensor output 2
	DA2	
	Unassigned	Supply voltage
	+24V	
	GND	
	-24V	
J9 ; J10		Chaining

4 Multiplex Schematic

A VC Node Mux consists of two 8-to-1 multiplexers. Jumpers (DA; DB) are provided to allow the outputs of the multiplexers to be assigned to the outputs on the male connectors (J5; J8; J9, and J10).



4.1 Jumpers

For the purpose of chaining, all outputs are interconnected. This requires correct positions of the jumpers. The jumpers of all VC Node Mux devices of a chain must be identical.

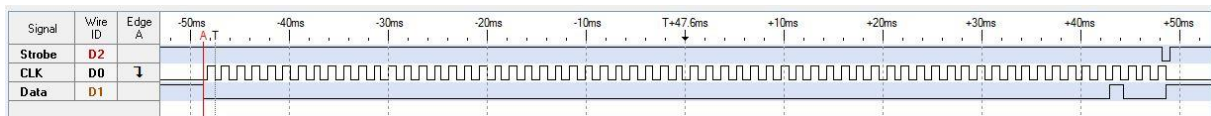


5 Control

The system is controlled by three signals: Data, Strobe, and Clock. The signals are transmitted through an EIA-422 interface. A VC Node MuxIF in conjunction with a VC Node CU can be used as a control unit. This requires equal-name signal lines to be interconnected.

Control with a different device requires the pin assignment (+/-) to be coordinated.

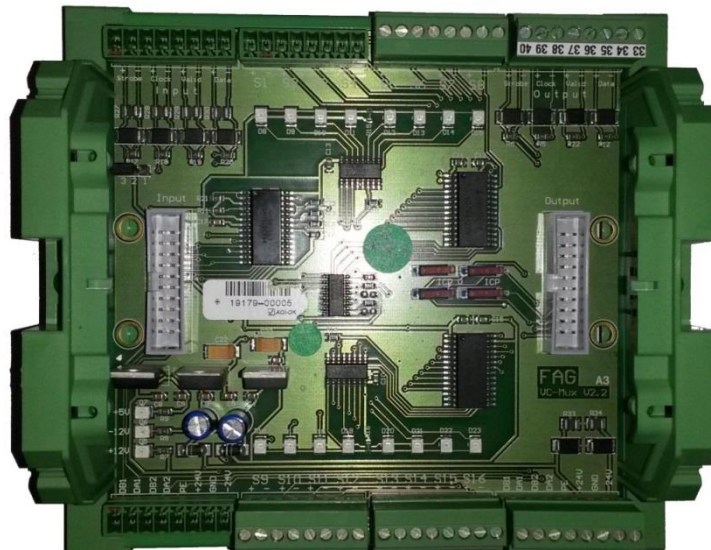
The signal run can be seen from the following recording made by means of a logic analyzer:



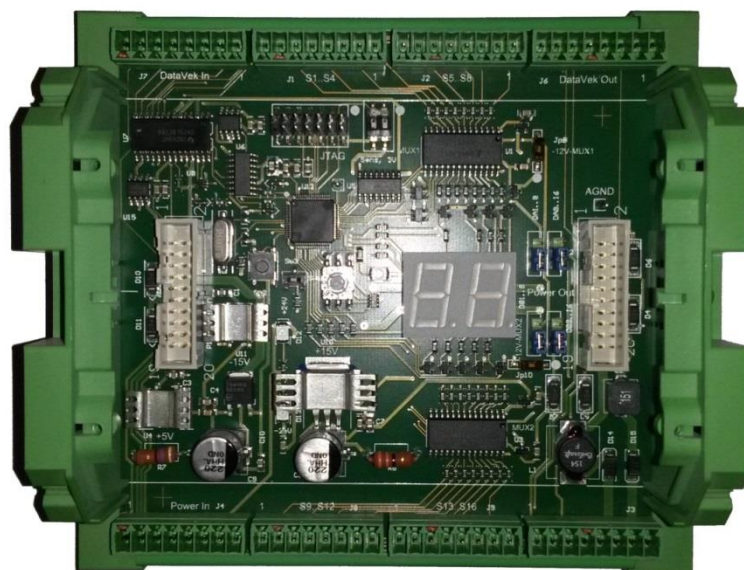
6 Mixed Operation with Existing Multiplexer Types

There are two variants

1. The older variant (V2.x)



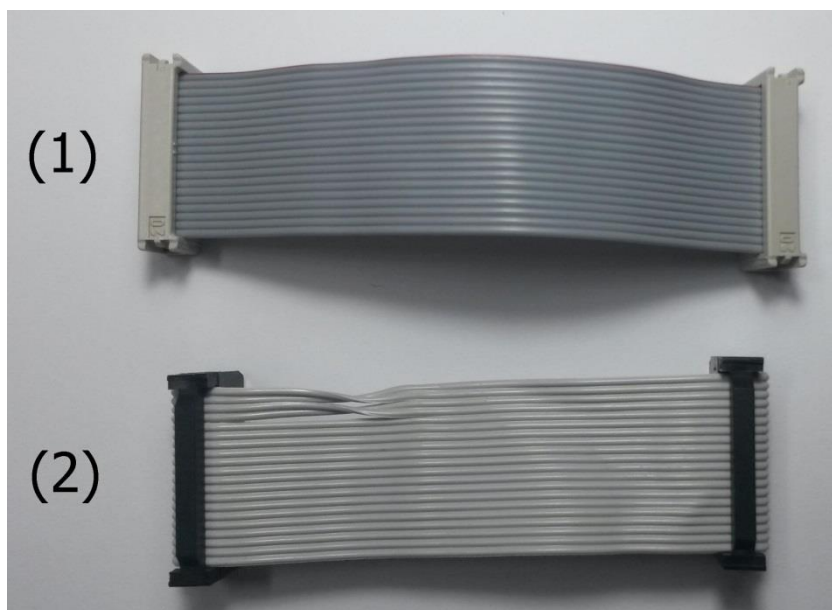
2. The more recent variants with 7 segment display (Version 6.x)



These two variants cannot be readily used in mixed operation as the older variant requires the two lines for ClockIn to be turned.

A chain consists of several multiplexers which are interconnected by a flat ribbon cable through the trough connectors. The first multiplexer is connected to the VC Node MuxIF through the male connector J1.

In applications where a VC Node Mux is to be combined with one of the two variants (Type 1 or Type 2) a special flat ribbon cable (2) with two turned pairs of lines need to be used.



If the first multiplexer is Type 1 no Type 2 multiplexer may be used in the chain. However, all other combinations are possible (with the special cable for mixed operation with VC Node Mux).

6.1 Tested combinations

