Using The TIU Terminal Range With a Matsushita NAiS VF-C Inverter.

Protocol Revisions

Version 1.00 Supports master only operation to the slave inverter comms module.

Communication to the Inverter is via the PLC Port on the TIU terminal and the BFVC 9503 Communications option module on the Invereter.
The default baud rate is 9600 baud and the character format is fixed at seven data bits, no parity and one stop bit.
The connection is RS 485 or RS232 communications. See attached drawings.

Correct Firmware

The TIU terminal will only communicate with the Drive if it has the appropriate firmware installed. This will be displayed on the front screen of the terminal during “power up”.

If new firmware needs installing the appropriate file for the terminal type is required i.e.

Tiu050 = Matsu_ansi328_R?.0xx
Tiu1xx = Matsu_ansi328 _R?.1xx
Tiu2xx = Matsu_ansi328 _R?.2xx
? = The TIU firmware revision.

To install the correct firmware into the TIU terminal carries out the following procedure: -
Select “Configure” / “Terminal type” to select the TIU type and initialise all relevant parameters.
Select “Configure” / “Communication Settings” and then select the “Manufacturer” and “Model” being used and also check that Communication Mode, Baud Rates and Network details are all correct.

After all settings are confirmed as correct, select File / Update protocol. If the above has been completed the computer should have selected the correct file to download. Accepting this option will automatically initiate the protocol download to the TIU.

Node Addresses

Global Remote Node ID default address is 1.
The address can be changed in parameter C0009 within a range 1 to 99. This can be changed from the TIU but obviously, once changed, communication will no longer be possible until the Communication node address has been changed in the configuration to be the same as the Drive.

Each Inverter must be given its own Node or unit address when several are connected to a single TIU. However do not set their addresses to 00, 10, 20 , 30, 40, 50, 60, 70, 80 or 90 as these are reserved for Group addresses.

Group Addresses

Inverters on a network are assigned to groups depending on their Node (unit) Address. This allows a write to be issued to several drives at the same time, eg to select new setpoints or enable or inhibit the inverter. They are accessed using the reserved node addresses as shown below.

Group Address	Node Addresses of the Inverters
00	All inverters
10	11 to 19
20	21 to 29
30	31 to 39
40	41 to 49
50	51 to 59
60	61 to 69
70	71 to 79
80	81 to 89
90	91 to 99

Because of the way the TIU works ie embedded data on a screen is Read Modify Write and the fact that it is not possible to read from a group address. For this reason the TIU implementation of the communications has special cases where Group addresses are used for embedded data. For example address 10 reads from node 11 but writes to 11 to 19. See the table below.

Group Address	Writes to Inverters	Reads from Inverter
00	All inverters	1
10	11 to 19	11
20	21 to 29	21
30	31 to 39	31
40	41 to 49	41
50	51 to 59	51
60	61 to 69	61
70	71 to 79	71
80	81 to 89	81
90	91 to 99	91

Parameter Range

The parameters are specified in using their Code (C) number. Parameters with a Code and Subcode cannot be accessed. Also any parameters that contain ASCII Strings cannot be read and will produce a communications error.

A detailed list of the full range of parameters available for this Inverter is not within the scope of this document and reference should be made to the appropriate VF-C manual.

Connecting The TIU to a NAiS VF-C Inverter

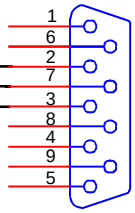
TIU 100/110

NAiS BFVC 9503
RS232 Interface

+5V	1
TX 485/422+	2
TX 485/422-	3
RX 485/422+	4
RX 485/422-	5
TX RS232	6
0V (GND)	7
RX RS232	8
TX 20mA +	9
TX 20mA-	10
RX 20mA+	11
RX 20mA-	12
EARTH	13

RS232

9 Pin Male
D type (Rear)



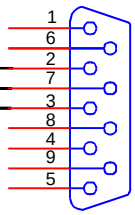
TIU 50/101/102/111/112/20X

NAiS BFVC 9503
RS232 Interface

TX 485/422+	1
TX 485/422-	2
RX 485/422+	3
RX 485/422-	4
TX RS232	5
0V (GND)	6
RX RS232	7
SHIELD	8

RS232

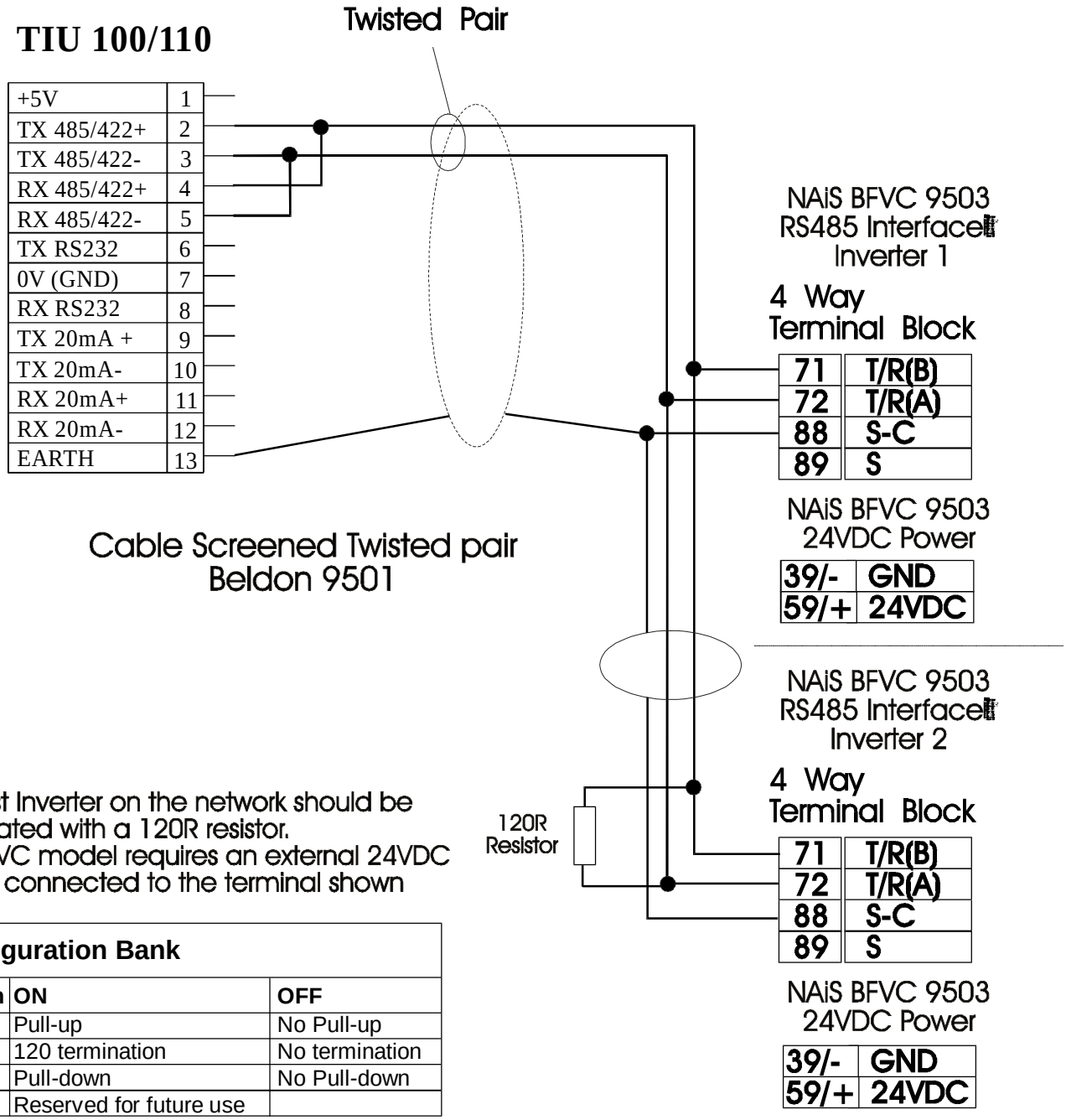
9 Pin Male
D type (Rear)



NAiS BFVC 9503
24VDC Power

39/-	GND
59/+	24VDC

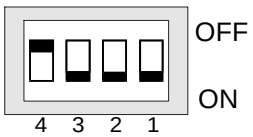
Connecting The TIU to a NAiS VF-C Inverter



Note:
The last Inverter on the network should be terminated with a 120R resistor.
The BFVC model requires an external 24VDC supply connected to the terminal shown

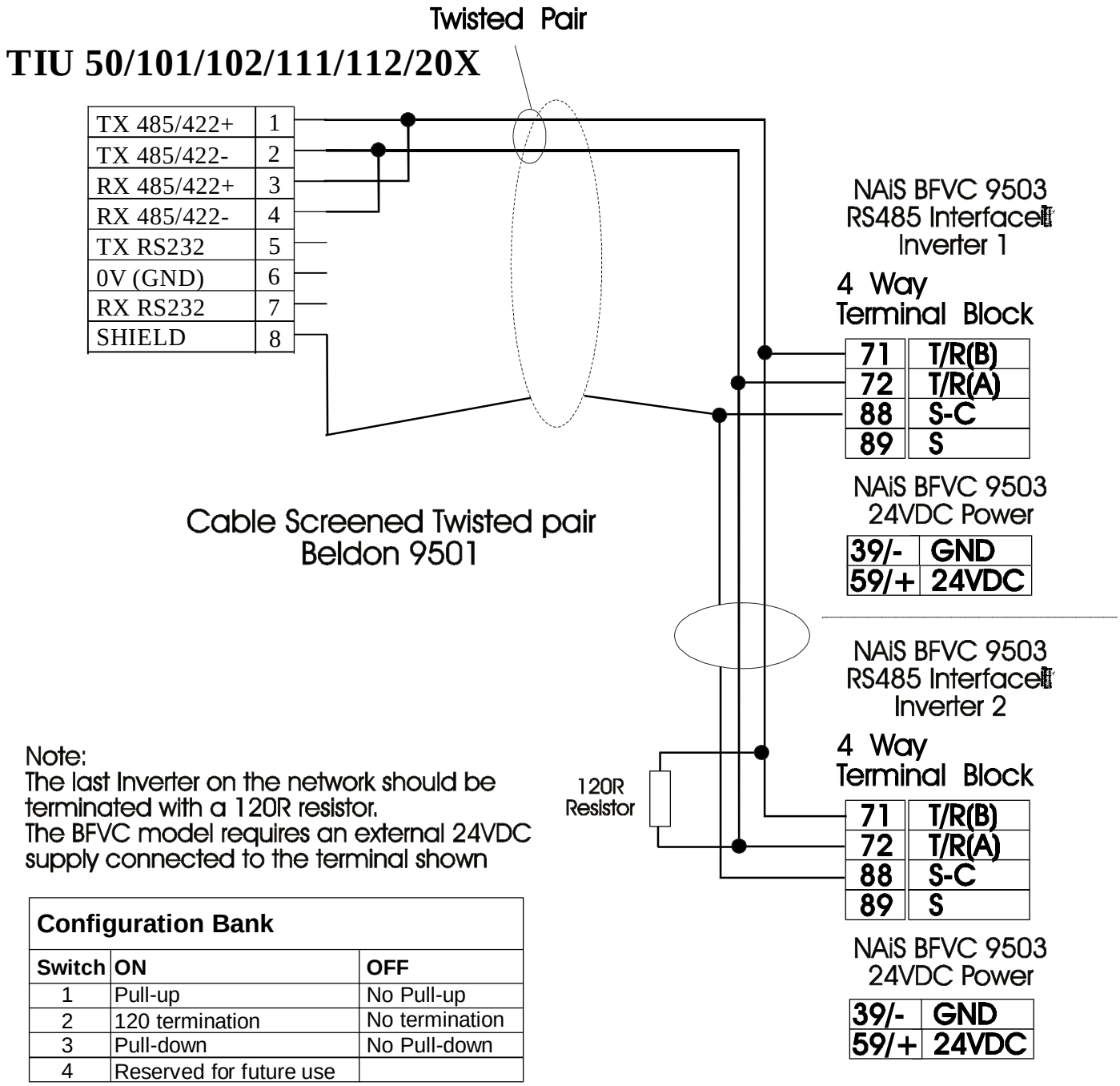
Configuration Bank		
Switch	**ON**	**OFF**
1	Pull-up	No Pull-up
2	120 termination	No termination
3	Pull-down	No Pull-down
4	Reserved for future use	

NOTE: Switch 1 and 3 must be used together.



SW1

Connecting The TIU to a NAiS VF-C Inverter



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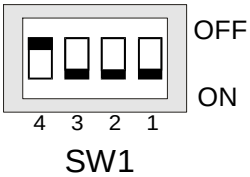
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