

Communication Test Report

Name of test engineer(s):	Jesse Saastamoinen
Date:	2014-12-09
Tested device/module/component:	V265
Firmware version:	V.10.159
Vampset version:	V2.2.158
Simple tester version:	V1.0.4.110
IEC 61850 Simple tester version:	04.06.2012

TEST ARRANGEMENT:

PC to V6CP10 using the front serial port (VAMPSET v.2.2.154).
 PC to V6CP10 serial interface using the RS-232 serial cable.
 PC to V6CP10 ethernet interface using the standard Ethernet network.

V6CP10	PC (USB to RS-232 converter)
Pin 2	Pin 2
Pin 3	Pin 3
Pin 7	Pin 5

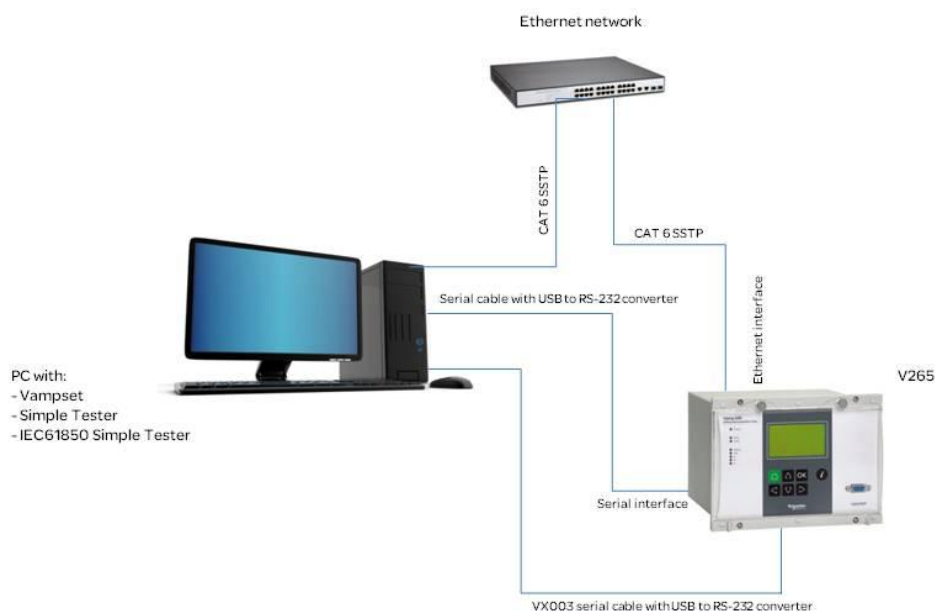


Figure 1. Test arrangement

RESULTS:

Test no.	Test description	Expected result	Pass / Fail	Remarks
1	-Select SpaBus protocol and set VI1=0 in the relay -Start Simple Tester -Write SpaBus data 69I1=1 -Events when data is written ? -Read SpaBus data 69I1	-Simple Tester status shows OK -VI1 = 1 -Event 69E1 -Value = 1	Not tested	
2	-Select ModBusSlv protocol and set VI1=0 in the relay -Start Simple Tester -Write modbus reg 3427=1 -Events when data is written ? -Read Modbus reg 3427	-Simple Tester status shows OK -VI1 = 1 -Event 4417 -Value = 1	Not tested	
3	-Select IEC 103 protocol and set VI1=0 in the relay -Set IEC 103 conf. as Note 3. -Start Simple Tester -Write FUN 55 INF 161 = 1 -Events when data is written ? -Read	-Simple Tester status shows OK -VI1 = 1 -Event FUN 55 INF 161 -Value = 2 (this is equal to ON)	Not tested	
4	-Select DNP3 protocol and set VI1=0 in the relay -Set IEC DNP conf. as Note 4. -Start Simple Tester -Write BO index 0 (direct) = 1 -Events when data is written ? -Read BI index 0	-Simple Tester status shows OK -VI1 = 1 -Event "BI 0 CHANGE Value 1:" -Value = 1	Not tested	
5	-Select IEC 101 protocol and set VI1=0 in the relay -Set IEC 101 conf. as Note 5. -Start Simple Tester -Write Point index 32769 (single, direct) = 1 -Events when data is written ? -Read Point index 2	-Simple Tester status shows OK -VI1 = 1 -Event "IOA 00002....SPI 1" -Value = 1	Not tested	

Test no.	Test description	Expected result	Pass / Fail	Remarks
6	-Select ModBusTCP protocol for the Ethernet port and set VI1=0 in the relay -Start Simple Tester -Write modbus reg 3427=1 -Events when data is written ? -Read Modbus reg 3427	-Simple Tester status shows OK -VI1 = 1 -Event 4417 -Value = 1	Pass	
7	-Select DNP3 protocol for the Ethernet port and set VI1=0 in the relay -Set IEC DNP conf. as Note 4. -Start Simple Tester -Write BO index 0 (direct) = 1 -Events when data is written ? -Read BI index 0	-Simple Tester status shows OK -VI1 = 1 -Event "BI 0 CHANGE Value 1:" -Value = 1	Pass	
8	-Select IEC 61850 protocol for the Ethernet port and set VI1=0 in the relay -Set IEC 61850 conf as Note 8. -Start 61850 Simple Tester -Enable events by "VI1GGIO137/SPCSO/StVal – Enable RCB" see Note 8. - Write VI1GGIO137/SPCSO/Oper=True - Events when data is written ? - Read VI1GGIO137/SPCSO/StVal	-61850 Simple Tester Status "Connected" -VI1 = 1 -Report Value = True -Value = True	Pass	
9	-Select EthernetIP protocol for the Ethernet port and set VI1=0 in the relay -Set EthernetIP conf as Note 9. -Start Simple Tester - Write Class/Instanceld/Attributeld (100/1/107) = 1 - Events when data is written ? - Read Class/Instanceld/Attributeld (100/1/107)	-Simple Tester status shows OK -VI1 = 1 -Event 69E01 -Value = 1	Pass	
10	-Select IEC 101 protocol and set VI1=0 in the relay -Set IEC 101 conf. as Note 5. -Start Simple Tester -Write Point index 32769 (single, direct) = 1 -Events when data is written ? -Read Point index 2	-Simple Tester status shows OK -VI1 = 1 -Event "IOA 00002....SPI 1" -Value = 1	Pass	

Test no.	Test description	Expected result	Pass / Fail	Remarks
11	-Select ProfibusDP protocol for the Remote port and set VI1=0 in the relay -Make conf. as in Note 10. -Start HMS ProfibusDP master simulator -Write Ouput Data byte 2 =1 -Read Input Data byte 1	-Master simulator status = Connected -VI1 = 1 -Value = 00000001	Not tested	

Note 3: IEC 103 Configuration:

Digital						
Index	FUI	IIF	GI	EVENT	CONTROL	Item
[000]	55	161	X	X	X	Virtual input 1

Note 4: DNP 3 Configuration:

DNP3: DATA POINTS - BO	
Binary 0	
Index	Item
0	VI1

DNP3: DATA POINTS - BI			
Binary Inputs			
Index	Class	UR	Item
0	1	Off	VI1

Note 5: IEC 101 Configuration:

IEC 60870-5-101 MAIN CONFIG

Bit rate	9600 bps
Parity	Even

IEC 60870-5-101: SPI

Single Point Information

Index	GI	Event	Item
2	On	On	VI1

IEC 60870-5-101: CMD

DO Table

Index	Item
32769	VI1

Note 8: IEC 61850 Configuration:

IEC 61850 data map(7)

207	VI1GGIO137	Virtual input 1	Yes	No	No	Yes
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61850 Simple tester, enable events from VI1

Report

LN Obj Attr Value

Enable RCB

Disable RCB

61850 Simple tester, control of VI1:

Control

LN Obj Attr Value

Execute

Note 9: EthernetIP Configuration:

CIP I/O configuration			
Producing Assembly (Tx, T->O)			
Name	Length	Scaling	Offset
Control Supervisor#010 / Faulted	1	1 = 1	000
Digital#169 / DevStatus	1	1 = 1	001
Digital#107 / Virtual input 1	1	0,1	002

Consuming Assembly (Rx, O->T)			
Name	Length	Scaling	Offset
Control Supervisor#012 / FaultRst	1	1 = 1	000
Digital#107 / Virtual input 1	1	0,1	001

Writing to Virtual input 1:

Class 100 InstanceId 1 AttributeId 107 Value 0 Size 1 Status Success Write

Reding virtual input 1:

Class 100 InstanceId 1 AttributeId 107 Result 0 Read

Final conclusion:

The following protocols have been found to work with writing/reading of Virtual Input 1 and event generation from change of Virtual input 1.

- ModbusTCP
- DNP3 (TCP)
- IEC 101 (TCP)
- IEC 61850
- EthernetIP

Based on communication tests firmware version 10.159 can be released.