VALIDATION TEST OF INTERCONNECT IO BOX							
Test	Stimulus	Measure	Action	Circuits Current Module INA219	Signals Validation	Limits 5V +/- 0.3V (ADC0 = 2.5V +/- 0.2V)	Comments Verify SV and ADCO. Check if led ON on Board to
Digital PORTS Test 0-0x55 Digital PORTS Test 0-0xAA Digital PORTS Test 1-0x55	SV_PWR PORTO Output PORTO Output PORTO Output	PORT1 Input PORT1 Input PORT0 Input	Open all relay (Default)	Buffer	SV PWR,ADCO PORTO, PORT1 PORTO, PORT1 PORTO, PORT1	Set Port0 = 0x55, Read Port 1 = 0x55 Set Port0 = 0xAA, Read Port 1 = 0xAA Set Port1 = 0x55, Read Port 0 = 0x55	Validate Port 0 and Port1 Validate Port 0 and Port1 Validate Port 0 and Port1
Digital PORTS Test 1-0xAA Digital Handshake Test 1 Digital Handshake Test 0 Digital Signals Test 8-0xS	PORT1 Output CTRL output CTRL output S1 IOS S1 IOS M1 IOS M1 IOS Output	PORTO Input FLAG Input FLAG Input Pico	Open all relay (Default) Open all relay (Default) Open all relay (Default) Open all relay (Default)		PORTO, PORT1 CTRL,FLAG CTRL,FLAG S1 108.S1 109.M1 108.M1 109	Set Port1 = 0xAA, Read Port 0 = 0xAA Set FLAG = 1, Read CTRL = 1 Set FLAG = 0, Read CTRL = 0 Set Signal to 0xS, Read Pico = 0xS	Validate Port 0 and Port1 Validate state of the signals Validate state of the signals Validate independent signal
Digital Signals Test 8-0x8  Digital Signals Test 8-0x8  Open Collector OC1 Close Test  Open Collector OC1 Open Test	\$1_108,\$1_109,M1_108,M1_109 Output \$1_108,\$1_109,M1_108,M1_109 Output \$CPI command \$CPI command	Pico ADC0 ADC0	Open all relay (Default)  Close K16 (VM2), Drive OC1 = High  Close K16 (VM2), Drive OC1 = Low		\$1_108,\$1_109,M1_109 \$1_108,\$1_109,M1_108,M1_109 OC1_OUT OC1_OUT	Set Signal to 0xA, Read Pico = 0xA Read 0.2V + /- 0.2V Read 5V +1.0/-0.4V	Open collector transistor activated Open collector transistor not activated
Open Collector OC2 Close Test Open Collector OC2 Open Test Open Collector OC3 Close Test	SCPI command SCPI command SCPI command	ADC0 ADC0 ADC0	Close K15 (VM3), Drive OC2 = High Close K15 (VM3), Drive OC2 = Low Close K15,K9 (VM4), Drive OC2 = High		0C2_OUT 0C2_OUT 0C3_OUT	Read 0.2V + /- 0.2V Read 5V +1.0/-0.4V Read 0.2V + /- 0.2V	Open collector transistor activated Open collector transistor not activated Open collector transistor activated
Open Collector OC3 Open Test ADC1 DAC Ouput Hi Voltage DAC Ouput Low Voltage	SCPL command	ADC1 ADC1 ADC1 ADC1	Close K15,K9 (VM4), Drive OC2 = Low Close K13 Close K2,K13 Close K2,K13	Current Module INA219 DAC, Module Current Module INA2	OC3_OUT SV_PWR_ADC1 210AC_VOUT,ADC0 DAC_VOUT,ADC0	Read 5V +1.0/-0.4 V 5V +/- 0.3V (ADC1 = 2.5V +0.3/-0.4V) ADC1 = 3V +0.2/-0.4V ADC1 = 0.25V +0.08/-0.02V	Open collector transistor not activated  Verify ADC1 input  Validate DAC output with high voltage  Validate DAC output with low voltage
Power measurement test. Bus Voltage Power measurement test. Shunt Voltage Power measurement test. Current	SV_PWR - SV_PWR SV_PWR	NA219 current NA219 current NA219 current	Open all relay (Default) Close K4 Close K4			Read 5V +0.3/-0.4V Read 50mV + / - 7 mV Read 500mA + / - 50 mA	Validate 10 ohm current limit resistor Validate 10 ohm current limit resistor Validate 10 ohm current limit resistor
Power measurement test: Current after 0 10 Ohms resistance test Low Power Relay: NC1 Test Low Power Relay: NO1 Test	CSV_PWR SV_PWR SV_PWR SV_PWR	INA219 current ADC0 INA219 current INA219 current	Close K4 Close K4 (10 ohm), K7,K11(PS6),K15,K16(VM5) Close K10 (PS2), Open LPR1, Close LPR2 Close K10 (PS2), Open LPR2, Close LPR1	Current Module INA219	PWR_RES_H, PWR_RES_L K1_LP_C1, K1_LP_NC1,K2_LP_NO1,K2_LP_C1	Read 500mA + / - 5 mA Read 2.5V +0.2/-0.4V Read 50mA +20/-5mA Read 50mA +20/-5mA	Validate 10 ohm current limit resistor Validate FTS 10 ohm resistor Validate resistance contact of the two LPR in ser Validate resistance contact
Low Power Relay Open1 Test Low Power Relay NC2 Test Low Power Relay NO2 Test	SV_PWR SV_PWR SV_PWR	INA219 current INA219 current INA219 current	Close K10 (PS2), Open LPR2, Open LPR1 Close K8 (PS3), Open LPR1, Close LPR2 Close K8 (PS3), Open LPR2, Close LPR1		K1 LP C1,K1 LP NO1,K2 LP NC1,K2 LP C1 K1 LP C1,K1 LP NO1,K2 LP NC1,K2 LP C1 K1 LP C2,K1 LP NC2,K2 LP NO2,K2 LP C2 K1 LP C2,K1 LP NO2,K2 LP NC2,K2 LP C2	Read 0mA + /2mA Read 50mA +20/-5mA Read 50mA +20/-5mA	Validate resistance contact Validate resistance contact Validate resistance contact
Low Power Relay Open2 Test HPR Close Test HPR Open Test	SV_PWR SV_PWR SV_PWR	INA219 current INA219 current INA219 current	Close K8 (PS3), Open LPR2, Open LPR1 Close K4 (10 ohm), K7 (PSS), Close HPR Close K4 (10 ohm), K7 (PSS), Open HPR	Current Module INA219 Current Module INA219	K1_LP_C1,K1_LP_NO1,K2_LP_NC1,K2_LP_C1 K3_HP_NO1, K3_HP_NO2, K3_HP_C1, K3_HP_C2 K3_HP_NO1, K3_HP_NO2, K3_HP_C1, K3_HP_C2	Read 0mA + /2mA Read 250mA +50 / - 15mA Read 0mA + /- 0.2mA	Validate resistance contact Validate close relay resistance contact Validate open relay resistance contact
SSR Close Test SSR Open Test Relay BK1-Bk2 CH0-H Close Test	SV_PWR SV_PWR	INA219 current INA219 current	Close K4 (10 ohm), K8,K10 (PS4),Close SSR Close K4 (10 ohm), K8,K10 (PS4), Open SSR K7,K8(PS7), Close Relay BK1-CH0, BK2-CH0.	Current Module INA219 Current Module INA219 Current Module INA219	SSR1_POS, SSR1_NEG SSR1_POS, SSR1_NEG BK1_COM_H_BK2_COM_H_BK1_CH0_H_BK2_CH0	Read 250mA +50 / - 15mA Read 0mA + /- 0.2mA Read 50mA +20 / - 5mA	Validate close relay resistance contact Validate open relay resistance contact  Validate relay contact close
Relay BK1-Bk2 BK2_CH0_H Open Test Relay BK1-Bk2_BK2_CH0_H Close Test Relay BK1-Bk2_BK1_CH0_H Open Test	SV_PWR SV_PWR SV_PWR	INA219 current INA219 current INA219 current	K7,K8[PS7], Close Relay BK1-CH0, Open BK2-CH0. K7,K8[PS7], Close Relay BK1-CH0, Close BK2-CH0. K7,K8[PS7], Close Relay BK2-CH0, Open BK1-CH0.	Current Module INA219 Current Module INA219 Current Module INA219	BK1 COM H, BK2 COM H, BK1 CH0 H, BK2 CH0 BK1 COM H, BK2 COM H, BK1 CH0 H, BK2 CH0 BK1 COM H, BK2 COM H, BK1 CH0 H, BK2 CH0	Read 0mA +0 / - 0.2mA Read 50mA +20 / - 5mA Read 0mA +0 / - 0.2mA	Validate relay contact close Validate relay contact close Validate relay contact close
Relay BK1-Bk2 CH0-L Close Test Relay BK1-Bk2 BK2_CH0_L Open Test Relay BK1-Bk2 BK2_CH0-L Close Test Relay BK1-Bk2 BK2_CH0-L Close Test Relay BK1-Bk2 BK1_CH0_L Open Test	SV_PWR SV_PWR SV_PWR	INA219 current INA219 current INA219 current	K7 ,K8, K12 (PS8),K14, Close Relay BK1-CH0, BK2-CH0. K7 ,K8, K12 (PS8),K14, Close Relay BK1-CH0, Open BK2-CH0. K7 ,K8, K12 (PS8),K14, Close Relay BK1-CH0, BK2-CH0.	Current Module INA219 Current Module INA219 Current Module INA219	BK1_COM_L, BK2_COM_L, BK1_CH0_L, BK2_CH0_L	Read 0mA +0 / - 0.2mA Read 50mA +20 / - 5mA	Validate relay contact close Validate relay contact close Validate relay contact close
Repeat for other Channel CH1-CH7  BK1-Bk2 COM relay BK1-BK2 COM H Clo	SV_PWR	INA219 current	K7 ,K8, K12 (PS8),K14, Close Relay BK2-CH0, Open BK1-CH0.  K7 .K8/PS71.K14. Close Relay BK1-CH0. BK2-CH0. BK1-COM. BK2-CH0.	Current Module INA219	BK1_COM_L, BK2_COM_L,BK1_CH0_L,BK2_CH0_L  BK1_COM_H, BK2_COM_H,BK1_CH0_H,BK2_CH0	Read 0mA +0 / - 0.2mA Read S0mA +20 / - SmA	Validate relay contact close  Validate relay contact close
BK1-Bk2 COM relay BK2-COM_H Open BK1-Bk2 COM relay BK1-Bk2 COM_H Clo BK1-Bk2 COM relay BK1-COM_H Open	SV_PWR sSV_PWR SV_PWR	INA219 current INA219 current INA219 current	K7,K8[PS7], K14,Close Relay BK1-CH0, BK2-CH0.BK1-COM, K7,K8[PS7],K14, Close Relay BK1-CH0, BK2-CH0,BK1-COM,BK2-CO K7,K8[PS7], K14 Close Relay BK1-CH0, BK2-CH0,BK1-COM	Current Module INA219 Current Module INA219 Current Module INA219	BK1 COM H, BK2 COM H, BK1 CH0 H, BK2 CH0 BK1 COM H, BK2 COM H, BK1 CH0 H, BK2 CH0 BK1 COM H, BK2 COM H, BK1 CH0 H, BK2 CH0	Read 0mA +0 / - 0.2mA Read 50mA +20 / - 5mA Read 0mA +0 / - 0.2mA	Validate relay contact close Validate relay contact close Validate relay contact close
BK1-Bk2 COM relay BK1-BK2 COM_L Clos BK1-Bk2 COM relay BK2-COM_L Open BK1-Bk2 COM relay BK1-BK2 COM_L Clos BK1-Bk2 COM relay BK1-COM_L Open	5V_PWR	NA219 current NA219 current NA219 current NA219 current	K7, K8, K12 (PS8), Close Relay BK1-CH0, BK2-CH0,BK1-COM,BK2-C K7, K8, K12 (PS8), Close Relay BK1-CH0, BK2-CH0,BK1-COM, K7, K8, K12 (PS8), Close Relay BK1-CH0, BK2-CH0,BK1-COM,BK2- K7, K8, K12 (PS8), Close Relay BK1-CH0, BK2-CH0,BK1-COM	Current Module INA219	BK1_COM_H, BK2_COM_H, BK1_CH0_H, BK2_CH0_ BK1_COM_H, BK2_COM_H, BK1_CH0_H, BK2_CH0_ BK1_COM_H, BK2_COM_H, BK1_CH0_H, BK2_CH0_ BK1_COM_H, BK2_COM_H, BK1_CH0_H, BK2_CH0_	Read 0mA +0 / - 0.2mA Read 50mA +20 / - 5mA	Validate relay contact close Validate relay contact close Validate relay contact close Validate relay contact close
Repeat for BK3-BK4  I2C Bus GPIO #6 Master	Send command to check lines using IO modes	Digital State	GPIO:IN:DEV0:GP6?	Current wiodule INAZ19	IZC_DATA Master Pico	read 1	valuate relay contact: close
I2C Bus GPIO #7 Master Get Selftest device status Get Selftest Major version	Send command to check lines using IO modes Check I2C communication with selftest Check I2C communication with selftest	Read I2C byte Read I2C byte	GPIO:IN:DEVO:GP7? COM:I2C:READ:LENI? 100 COM:I2C:READ:LENI? 01		2C_CLOCK Master Pico 2C Communication 2C Communication	read 1 read 0 read 1	
I2C Bus GPIO #6 Selftest I2C Bus GPIO #7 Selftest	Send command to read GPIO function of line Send command to read GPIO function of line Set Selftest GPIO2 =0	Read I2C byte Read I2C byte Digital State	COM:12C:READ:LEN1? 75,6 COM:12C:READ:LEN1? 75,7 Read master Pico level on GPIO2 (GPIO:IN:DEV0:GP2?)		2C_DATA Selftest Pico   2C_CLOCK Selftest Pico   SPI_CLK	read 3 read 3	
SPI Bus GPIO #2 in digital mode SPI Bus GPIO #2 in digital mode SPI Bus GPIO #3 in digital mode SPI Bus GPIO #3 in digital mode	Set Selftest GPIO2 = 1 Set Selftest GPIO3 = 0 Set Selftest GPIO3 = 1	Digital State Digital State	Read master Pico level on GPIO2 (GPIO:IN:DEV0:GP2?)  Read master Pico level on GPIO3 (GPIO:IN:DEV0:GP3?)  Read master Pico level on GPIO3 (GPIO:IN:DEV0:GP3?)		SPI_CLK SPI_TX SPI_TX	read 1 read 0 read 1	
SPI Bus GPIO #4 in digital mode SPI Bus GPIO #4 in digital mode SPI Bus GPIO #5 in digital mode	Set Selftest GPIO4 = 0 Set Selftest GPIO4 = 1 Set Selftest GPIO5 = 0	Digital State Digital State Digital State Digital State Digital State	Read master Pico level on GPIO4 (GPIO:IN:DEV0:GP47) Read master Pico level on GPIO4 (GPIO:IN:DEV0:GP47) Read master Pico level on GPIO5 (GPIO:IN:DEV0:GP57) Read master Pico level on GPIO5 (GPIO:IN:DEV0:GP57)		SPI RX SPI RX SPI_CS	read 0 read 1 read 0	
SPI Bus GPIO #5 in digital mode SPI Communication 16 bits, Mode 0 SPI Communication 8 bits, Mode 0 SPI Communication 8 bits, Mode 1	Set Selftest GPIO5 = 1 Databits=16, Mode = 0, CS toogle each byte, Baudrate = 1 Databits=8, Mode = 0, CS toogle each byte, Baudrate = 1 Databits=8, Mode = 1, CS toogle each byte, Baudrate = 1	10 Read SPI bytes	Read master Pico level on GPIOS (GPIC:IR::DEVC:GPS?)  Write word 0x1234, Read Reverse value in decimal  Write byte 0xAB, Read Reverse value in decimal  Write byte 0xAS, Read Reverse value in decimal		SPI_CLK,SPI_TX,SPI_RX,SPI_CS SPI_CLK,SPI_TX,SPI_RX,SPI_CS SPI_CLK,SPI_TX,SPI_RX,SPI_CS	read 1 Read 60875 (0xEDCB) Read 84 (0x54) Read 90 (0x5A)	
SPI Communication 8 bits, Mode 2 SPI Communication 8 bits, Mode 3	Databits=8, Mode =2, CS toogle each byte, Baudrate =1 Databits=8, Mode =3, CS toogle each byte, Baudrate =1	00Read SPI bytes	Write byte 0x5A, Read Reverse value in decimal Write byte 0x78, Read Reverse value in decimal		SPI_CLK,SPI_TX,SPI_RX,SPI_CS SPI_CLK,SPI_TX,SPI_RX,SPI_CS	Read 165 (0x85) Read 135 (0x87)	
Serial GPIO #13 in digital mode Serial GPIO #13 in digital mode Serial GPIO #12 in digital mode	Set Selftest GPI12 =0 (Serial Rx) Set Selftest GPI12 =1 (Serial Rx) Set Selftest GPI13 =0 (Serial Tx)	Digital State Digital State Digital State	Read Digital value Read Digital value Read Digital value		SERIAL_TX SERIAL_TX SERIAL_RX	Read 0 Read 1 Read 0	
Serial GPIO #12 in digital mode Serial GPIO #15 in digital mode Serial GPIO #15 in digital mode Serial GPIO #14 in digital mode	Set Selftest GPI33 = 1 (Serial Tx) Set Selftest GPI34 = 0 (Serial Rts) Set Selftest GPI34 = 1 (Serial Rts) Set Selftest GPI35 = 0 (Serial Rts) Set Selftest GPI35 = 0 (Serial Cts)	Digital State Digital State Digital State Digital State	Read Digital value Read Digital value Read Digital value Read Digital value		SERIAL_RX SERIAL_CTS SERIAL_CTS SERIAL_RTS	Read 1 Read 0 Read 1 Read 0	
Serial GPIO #14 in digital mode Serial Status Serial communication 115.2K	Set Selftest GPI15 =1 (Serial Cts) Enable Master Serial and readback status Baudrate 115200, Protocol 072	Digital State Digital State Read Serial	Read Digital value COM::INIT:STAT? SERIAL Send Serial string COM:SERIAL:Read? TEST 072,115200 Send serial string COM:SERIAL:Read? TEST 073,138400		SERIAL_RTS SERIAL_RX, SERIAL_TX SERIAL_RX, SERIAL_TX	Read 1 Read 1 read string: TEST 072,115200	
Serial communication 38.4K Serial communication 19.2K Serial communication Handshake	Baudrate 38400, Protocol N81 Baudrate 19200, Protocol E61 Baudrate 57600, Protocol N82, RTS-CTS handshake	Read Serial Read Serial Read Serial	Send serial string COM:SERIAL:Read? "TEST N81,38400 Send serial string COM:SERIAL:Read? "1234567890,19200 Send serial string"COM:SERIAL:Read? "TEST HANDSHAKE,57600		SERIAL_RX, SERIAL_TX SERIAL_RX, SERIAL_TX SERIAL_RX, SERIAL_TX, SERIAL_RTS, SERIAL_CTS	read string: TEST N81,38400 read string: 1234567890,19200 read string: TEST HANDSHAKE,57600	
-wire Test J1, J2 -wire Test J1, J2	Send command to check 1-wire Send command to read 1-wire	Read String Read String			1W_J1,1W_J2 1W_J1,1W_J2	String contains VALID_OWID: 2D String contains 500-1010	Check 1-wire address Check 1-wire contains
RROR Led Test ON RROR Led Test OFF	Send command to turn ON error led Send command to turn OFF error led	Digital State Digital State	read GP1 driver value		ERR_LED ERR_LED	Read Pico GPI011 = 1 Read Pico GPI011 = 0 Read 0	
23 Loopback test GP1=0 23 Loopback test GP1=0 23 Loopback test GP1=1 23 Loopback test GP1=1	GP1 out =0, GP1 read GP1 out =0, GP0 read GP1 out =1, GP1 read GP1 out =1, GP0 read	Digital State Digital State Digital State Digital State	read loopback state at GPO read loopback state at GPO read loopback state at GPO		GP0, GP1 GP0, GP1 GP0, GP1	Read 0 Read 1 Read 1	Validate output Validate loopback Validate output Validate loopback
23 Loopback test GP1= 0 23 Loopback test GP0=0 23 Loopback test GP0= 0	GP1 out =0, GP0 read GP0 out =0, GP0 read GP0 out =0, GP1 read	Digital State Digital State Digital State	read loopback state at GPO read GPO driver value read loopback state at GP1		GP0, GP1 GP1 GP0, GP1	Read 0 Read 0 Read 0	Validate loopback Validate output Validate loopback
23 Loopback test GP0=1 23 Loopback test GP0= 1 23 Loopback test GP0= 0	GPO out =1, GPO read GPO out =1, GP1 read GPO out =0, GP1 read	Digital State Digital State Digital State	read GP0 driver value read loopback state at GP1 read loopback state at GP1		GP1 GP0, GP1 GP0, GP1	Read 1 Read 1 Read 0	Validate output Validate loopback Validate loopback
26 Loopback test GP16=0 26 Loopback test GP16=0 26 Loopback test GP16=1	GP16 out =0, GP16 read GP16 out =0, GP18 read GP16 out =1, GP16 read	Digital State Digital State Digital State	read GP16 driver value read loopback state at GP18 read GP16 driver value		GP16 GP16,GP18 GP16	Read 0 Read 0 Read 1	Validate output Validate loopback Validate output
26 Loopback test GP16=1 26 Loopback test GP21=0 26 Loopback test GP21=0	GP16 out =1, GP18 read GP21 out =0, GP21 read GP21 out =0, GP17 read	Digital State Digital State Digital State	read loopback state at GP18 read GP21 driver value read loopback state at GP17		GP16,GP18 GP21 GP16,GP17	Read 1 Read 0 Read 0	Validate loopback Validate output Validate loopback
26 Loopback test GP21=0 26 Loopback test GP21=1 26 Loopback test GP21=1 26 Loopback test GP21=1	GP21 out =0, GP19 read GP21 out =1, GP21 read GP21 out =1, GP17 read GP21 out =1, GP19 read	Digital State Digital State Digital State Digital State	read loopback state at GP19 read GP21 driver value read loopback state at GP17 read loopback state at GP19		GP16,GP19 GP21 GP16,GP17 GP16,GP19	Read 0 Read 1 Read 1 Read 1	Validate loopback Validate output Validate loopback Validate loopback
Sense pin resistor Check DMM resistor path Check	Resistor R6 on Selftest Board Resistor R5,R6 and R7 on Selftest Board	Analog Meas Analog Meas	Measure value with ohmeter Measure value with ohmeter	10 Ohms 4.7 Ohms + 10 Ohms + 4.7 Ohms	DVM_SENSE_H, DVM_SENSE_L DVM_H. DVM_L	Ohmeter Value between 10 and 16 Ohm Ohmeter Value between 20 and 23 Ohm	Validate R6 Validate R5,R6 and R7
DMM ground path Check DMM SV Check DMM Low Current Check	Path resistance value SV Voltage Check SV PWR to R1 (100 Ohm)	Analog Meas Analog Meas Analog Meas	K14(VM1), K4(ground), K10 (Ps1) K14(VM1) KS(DVM_I)	PWR_SV 100 ohms resistor	DVM_H. DVM_L DVM_H. DVM_L,PWR_SV DVM_I. DVM_L,PWR_SV	Ohmeter Value between 0 and 5 Ohm Voltage Value between 4.75V and 5.25V Current Value between 48mA and 52mA	Validate relay contact resistance Validate Voltage measurement Validate Current measurement
OMM High Current Check OMM Trig Check Low OMM Trig Check High	SV_PWR to R2 (10 Ohm) Trigger Output Check Trigger Output Check	Analog Meas Analog Meas Analog Meas	KS[DVM_I) Digital Test of voltage on DVM_TRIG Digital Test of voltage on DVM_TRIG	10 ohms resistor	DVM_I.DVM_LPWR_5V PCTRLPFLAG,DVM_TRIG,DVM_H,DVM_L PCTRLPFLAG,DVM_TRIG,DVM_H,DVM_L	Current Value between 300mA and 400m Voltage Value between 0V and 0.1V Voltage Value between 2V and 3.3V	Validate Current measurement DVM_TRIG = 0 DVM_TRIG = 1
S1_OUT1 Output 12V Open Check S1_OUT1 Output 12V Close Check S1_OUT2 Output 10V Open Check	Set Voltage = 12V Set Voltage = 12V Set Voltage = 10V	Analog Meas Analog Meas Analog Meas	K4,K3,K8,K14,K15,K16,K9,K10 K4,K3,K8,K14,K15,K16,K9,K10, SSR1 K4,K3,K8,K14,K15,K16,K9,K10,K1	R2 (10 ohm) ,R12 (10 ohm) R2 (10 ohm) ,R12 (10 ohm) R2 (10 ohm) ,R12 (10 ohm) R2 (10 ohm) ,R12 (10 ohm)	DVM_H. DVM_L,PS1_OUT_HI1,PS1_OUT_LO1 DVM_H. DVM_L,PS1_OUT_HI1,PS1_OUT_LO1 DVM_H. DVM_L,PS1_OUT_HI2,PS1_OUT_LO2	Voltage Value between 0V and 0.1V Voltage Value between 5V and 6V Voltage Value between 0V and 0.1V	SSR1 open SSR1 close SSR1 open
S1_OUT2 Output 10V Close Check Oscilloscope CH1 Check	Set Voltage = 10V Set Selftest PWM = 1KHz	Analog Meas Signal Meas	K4,K3,K8,K14,K15,K16,K9,K10, SSR1 K7	R2 (10 ohm) ,R12 (10 ohm)	DVM_H. DVM_L,PS1_OUT_HI1,PS1_OUT_LO2 SCOPE_CH1+,SCOPE_CH1-,PICODRV	Voltage Value between 4V and 5V Scope signal is 3.3V@1KHz	SSR1 close Scope CH1 path
Oscilloscope CH2 Check AWG Check External INST Check JSB path Test	Set Selftest PWM = 100KHz Set AWG to Sinus at SVpp@10KHz Set AWG to Triangle at SVpp@10KHz USB flash drive	Signal Meas Signal Meas Signal Meas Data Check	K3,K7 K2 LUSB cable to PC		SCOPE_CH2+,SCOPE_CH2-,PICODRV SCOPE_CH1+,SCOPE_CH1-,AWG+,AWG- SCOPE_CH1+,SCOPE_CH1-,INST+,INST-,	Scope signal is 3.3V@100KHz Scope signal is sinus at 5V@10KHz Scope signal is triangle at 5V@10KHz Bead, on flash disk	Scope CH2 path AWG path INST path USB Path
Ethernet path Test	Box between internet source and PC	Com Check	Ethernet Cable TO PC		ETH_TX+,ETH_RX+,ETH_TX-,ETH_RX-	Network is ON	Ethernet Path