ServoVista

Screen Definition

Servo Dynamics Corp.

Version 2.03

Table of Contents

1 Device Manager

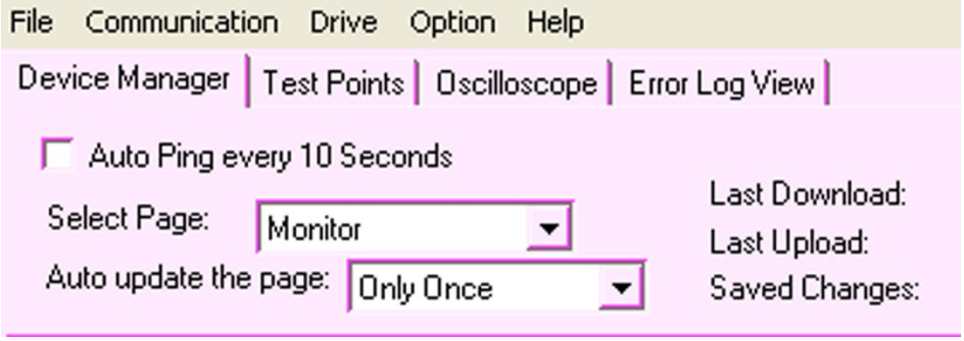


Figure 1 – Device Manager

Figure 2 – Select Page

Description:
Main control panel for viewing and controlling the drive. The “Select Page” drop down menu is used to select:

1. The “Monitor” provides the drive status, error codes, bus voltage, velocity, current and hall sensor information.
2. The “Drive Parameters” allows the user to configure the drive related parameters.
3. The “Motor Parameters” allows the user to configure the motor related parameters.
4. The “Analog Inputs” allows the user to configure the analog input signals.
5. The “Analog Outputs” allows the user to configure the analog output signals.
6. The “Digital Inputs” allows the user to configure the digital input signals.
7. The “Digital Outputs” allows the user to configure the digital output signals.
8. The “Current Controller” allows the user to configure the control parameters.
9. The “Velocity Controller” allows the user to configure the velocity parameters.
10. The “Temperature” allows the user to monitor the heatsink and motor temperature and configure the motor temperature settings.
11. The “Protected Parameters” are for factory use only.
12. The “System Status” are for factory use only.
13. The “Test Points” are for factory use only.

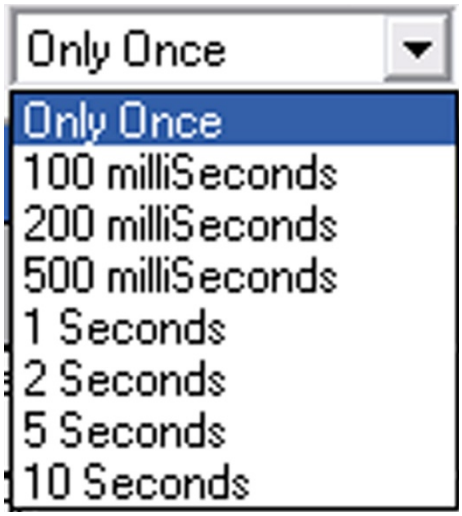


Figure 3 – Auto Update the Page

Description:
This window sets the update rate of the data shown on the screen. A slow computer may encounter difficulties updating the data at the faster rates.

1.1 Monitor Page

Figure 4 – Signal Monitor

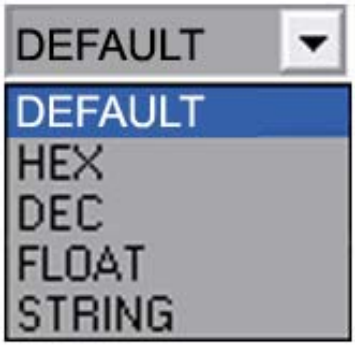


Figure 5 – Signal Monitor Value

Description:
The user can select the different format of the data shown, although it defaults at the most appropriate format.
HEX: Hexadecimal format
DEC: Decimal format
FLOAT: Float format
STRING: String format

1.1.1 Drive Status

Figure 6 – Signal Monitor Drive Status

Description:

Monitor data.
0—Drive Disabled (Orange LED)
1---Drive Enabled (Green LED)
5---Drive Fault (Red LED)

The rest of the codes are not visible to the user.

1.1.2 Error Codes

Figure 7 – Signal Monitor Error Code

Description: Monitor data

0--- No fault
1--- Power unit fault: (It can be a phase to phase shortage, phase to ground shortage or any serious over-current conditions. Contact factory if this error exists
2--- Under voltage fault: The bus voltage is lower than the low voltage rating
3--- Over voltage fault: The bus voltage is higher than the high voltage rating
4--- Drive over temperature fault: The drive is over the maximum allowed temperature
5--- Over RMS current fault: The RMS current is over the RMS current limit for a certain amount of time. The current limit and the time can be configured in the drive parameter page
6--- Regeneration hardware fault: Regen circuit fault
7--- Hall sensor fault: The hall tracks are not connected right
8--- Encoder Loss fault: The encoder connector is not connected properly. Pin 19 needs to be connected to digital ground
9--- One of these phases lost
10--- All 3-phases lost – probably due to under voltage
11—Wrong entry data: Certain data you typed in is not a valid entry. i.e. the hall code in the motor parameter page is 0
12—Over-speed fault: The motor is over the speed limit. The limit can be configured in the Drive Parameter page
13—Reserved
14—Motor over temp: The motor is over the temperature limit. The limit can be configured in the temperature page if the motor temperature sensor is installed
15—Reserved
16—Over-current fault: The current is over the peak current limit. The limit can be configured in the drive parameter page. This usually indicates bad tuning for the current loop
17—Excess position error.
18—EEPROM checksum fault
19—Reserved
20—Limit switch + fault: The positive limit switch has been reached
21—Limit switch – fault: The negative limit switch has been reached)
22—System software fault
23—Wrong Password fault: The password for the protected parameters page is wrong
24—I^2T threshold fault: The I^2T has reached the limit
25—Regen power threshold fault: The regen circuit exceeded allowed power limit
26—Tried to auto-phase while the drive was enabled.
27—Auto-phasing failed fault: The auto-phasing is failed
28—Tried to auto-tune while the drive was enabled.

Any fault codes above 200 will not allow the drive to run and the factory should be contacted.

200—Current sensor U fault: The current sensor U feedback voltage is not correct, contact factory if this code shows up.

201---Current sensor V fault: The current sensor V feedback voltage is not correct, contact factory if this code shows up.

202—Bus voltage sensor fault: The bus voltage sensor feedback voltage is not correct, contact factory if this code shows up.

203—Heatsink temperature sensor fault: The heatsink temperature sensor feedback voltage is not correct, contact factory if this code shows up.

204—Motor temperature sensor fault: The motor temperature sensor is not correct, contact factory if this code shows up.

205—Over current pin fault: The ~OVER_I voltage is not correct), contact factory if this code shows up.

1.1.3 Bus Voltage

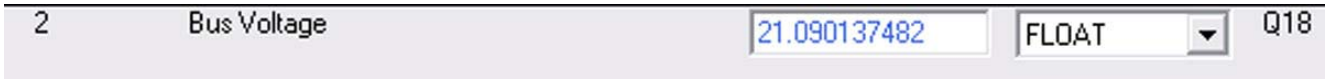


Figure 8 – Bus Voltage

Description:
Monitor data (The data cannot be changed by user). It shows the bus voltage. The unit is VDC.

1.1.4 VelCmd rpm

Figure 9 – VelCmd rpm

Description:
Monitor data. It shows the velocity command if the drive is configured in velocity mode. The unit is RPM

1.1.5 VelFbk rpm

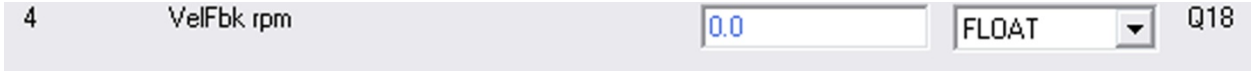


Figure 10 – VelFbk rpm

Description:
Monitor data. It shows the velocity feedback from the motor. The unit is RPM

1.1.6 Vel Err

5	Vel Err	-0.059509277	FLOAT	Q18

Figure 11 – Vel Err

Description:
Monitor data. It shows the velocity error (command – feedback). The unit is RPM

1.1.7 6 - Current Cmd

6	Current Cmd	0.000526428	FLOAT	Q18

Figure 12 – Current Cmd

Description:
Monitor data. It shows the current command. The unit is Amp.

1.1.8 7 - Current

7	Current	-0.010612488	FLOAT	Q18

Figure 13 - Current

Description:
Monitor data. It shows the current feedback from the motor. The unit is Amp.

1.1.9 8 - Current Err

8	Curnt Err	0.015102386	FLOAT	Q18

Figure 14 – Current Err

Description:
Monitor data. It shows the current error (command-feedback). The unit is Amp.

1.1.10 9 - Hall 1, 2, 3

9	HALL 1	1	DEC	U16
10	HALL 2	1	DEC	U16
11	HALL 3	1	DEC	U16

Figure 15 – Hall 1, 2, 3

Description:
Monitor data. It shows the 3 phase hall tracks of the hall sensors. “1” means the hall is on, “0” means the hall is off.

1.1.11 12 - Jog Enable

12	Jog Enable	0	DEC	U16

Figure 16 – Jog Enable

Description:
Factory reference only.

1.1.12 Jog Velocity

Figure 17 – Jog velocity

Description:
Factory reference only.

1.2 Drive Parameters

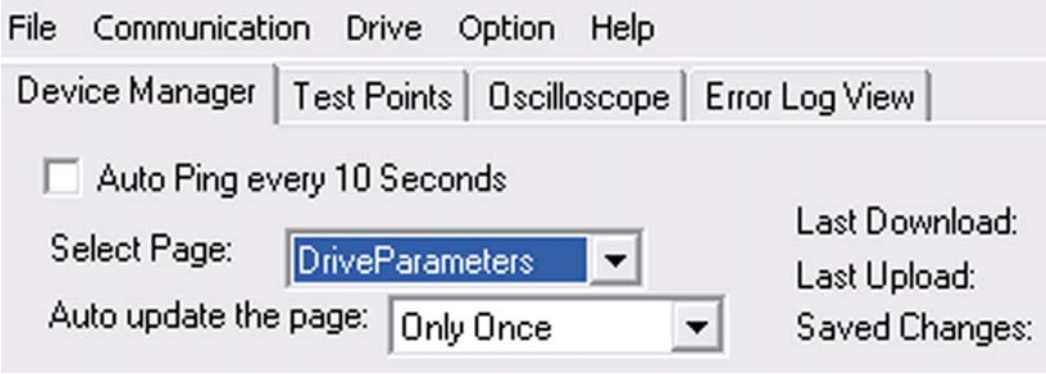


Figure 18 – Drive Parameters

1.2.1 Drive Mode

Figure 19 – Drive Mode

Description:
Input data (The data can be changed by user). The input should be:

0— Velocity mode
1— Current mode
2— Position pulse and direction mode
3— Position encoder follower mode (Master/slave mode)
4—

1.2.2 DC/1PH/3PH (0/1/2)

Figure 20 – DC/1PH/3PH [0/1/2]

Description:
Input data. The input should be:

0— DC voltage input
1— Single phase AC power input
2— 3 phase AC power input

1.2.3 Vel/Curnt Cmd Dir

16	Vel/Curnt Cmd Dir	0	DEC	U16

Figure 21 – Vel/Curnt Cmd Dir

Description:
Input data. Default is 0. Type in “1” changes the motor spinning direction under the same command.

1.2.4 Enc Out Div

17	Enc Out Div	1	DEC	U16

Figure 22 – Enc Out Div

Description:
Input data. This is the divider for the emulated encoder output. The input number should be 2^X, like 1, 2, 4... 128. i.e. the primary encoder is 2000ppr and set the divider at 4. The emulated encoder output is 500ppr.

1.2.5 M/S ratio (Master) and (Slave)

18	M/S ratio(Master)	1	DEC	U16
19	M/S ratio(Slave)	1	DEC	U16

Figure 23 – M/S ratio (Master) and (Slave)

Description:
Input data. It defines the electrical gear ratio in the encoder follower mode. The numbers have to be integer. The calculation formula is:
Slave speed =Master speed * Master encoder counts * Slave Ratio/ (Slave encoder counts * Master ratio)
Or,
Slave revolutions=Master revolutions*Master encoder counts*Slave ratio/ (Slave encoder counts*Master ratio)

1.2.6 Max Peak Current (A)

20	Max Peak Current(A)	6.0	FLOAT	Q18

Figure 24 – Max Peak Current (A)

Description:
Input data. It can be any value no bigger than the drive’s rated peak current. This value corresponds to the max current command input (10V) if the current mode is selected.

1.2.7 RMS Current Lmt(A)

21	RMS Curnt Lmt(A)	6.0	FLOAT	Q18

Figure 25 – RMS Current Lmt(A)

Description:
Input data. It can be any value no bigger than the drive's rated continuous current.

1.2.8 RMS Time (sec)

22	RMS Time(sec)	3.0	FLOAT	Q18

Figure 26 – RMS Time (sec)

Description:
Input data. This value defines the time of the over RMS current. A fault will be launched if the drive current has been over the RMS current limit for this amount of time.

1.2.9 RPM/Volt

23	RPM/Volt	100.0	FLOAT	Q18

Figure 27 – RPM/Volt

1.2.10 Max RPM

24	Max RPM	1000.0	FLOAT	Q18

Figure 28 – Max RPM

Description:
Input data. It defines the max velocity (RPM) of the motor. This value corresponds to the maximum velocity command (10V) if the velocity mode is selected.

1.2.11 Regen Rated Power (W), Regen Resistance (Ohm)

25	Regen rated power(W)	30.0	FLOAT	Q18
26	Regen resistance(Ohm)	25.0	FLOAT	Q18

Figure 29 – Regen Rated Power (W), Regen Resistance (Ohm)

Description:
Input data. It defines the rated power and the resistance of the regen resistor. The default is 30W, 25ohm which is the rating of the internal regen resistor. The max regen power allowed is 8KW and the minimum resistance allowed is 10ohm. DO NOT CHANGE THOSE UNLESS THE EXTERNAL REGEN RESISTOR IS INSTALLED.

1.2.12 27-Disable/Enable Accel/Decel(0/1)

27	Disable/Enable Accel/Decel(0/1)	0	DEC	U16

Figure 30 – Disable/Enable Accel/Decel

Description:
Input data. "0" the Acceleration and Deceleration is disabled and "1" it is Enabled.

1.2.13 28-Max Acceleration (RPM/Sec)

28	Max Acceleration(RPM/sec)	10.0	FLOAT	Q18

Figure 31 – Max Acceleration

1.2.14 29- Max Deceleration

29	Max Deceleration(RPM/sec)	10.0	FLOAT	Q18

Figure 32 – Max Deceleration

1.3 Motor Parameters

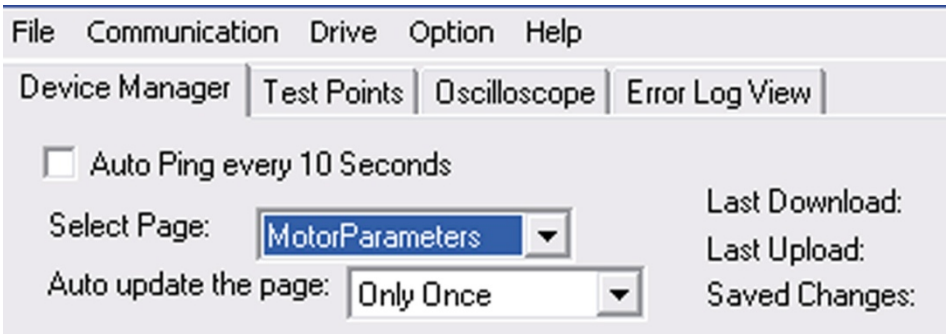


Figure 33 – Motor Parameters

Description:
The Motor Parameters page which allows the user to configure the motor related parameters.

1.3.1 30 - Veloc Sensor Type

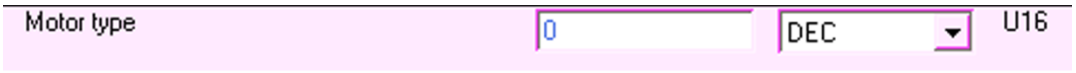
30

Figure 34 – Veloc Sensor Type

Description:
Input data. It defines the velocity feedback sensor type:

0— Incremental encoder
1— Tachometer
2— Sensorless (Brushed motor only)

1.3.2 31 - Motor Type



31

Figure 35 – Motor type

Description:
Input data. It defines the motor type:

0— Brushless DC motor
1— Brushed motor

1.3.3 32 - Encoder Resolution

32

Figure 36 – Encoder Resolution

Description:
Input data. It defines the quadratic incremental encoder resolution in ppr (Pre-quad). The maximum resolution is 16384.

1.3.4 33 - Num of Poles

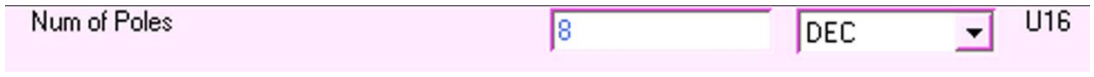


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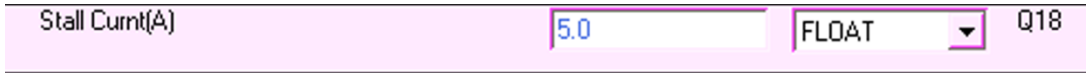
Figure 37 – Num of Poles

Description:
Input data. It defines the number of brushless motor poles. (Not pole pairs)

1.3.5 34 - Stall Current(A)



34

Figure 38 – Stall Current (A)

Description:
Input data. It defines the continuous stall current of the motor. This data is necessary for the auto-phasing.

1.3.6 35 - Autophase

Figure 39 - Autophase

Description:
Input data. It defines the phasing method of the brushless motor.

0— Manually input the hall code.

1— Auto-phasing. Insert “1” and then click the update button. The drive is in autophasing process to find the right hall code for the brushless motor. THE DRIVE SHOULD BE IN DISABLE MODE TO PROCEED THE AUTO-PHASING.

1.3.7 36 - Hall Code

Figure 40 – Hall Code

Description:
Input data. It defines the hall code of the motor.

0— If the “0” appears after the autophasing process. It means the autophasing has failed.

1~6—Valid hall codes which can be input manually.

1.3.8 37 - Hall Polarity

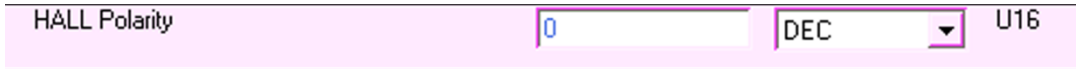


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Figure 41 – Hall Polarity

Description:

1.3.9 38 - Encoder Polarity

Figure 42 – Encoder Polarity

Description:

1.3.10 39 - Brushed R(ohm)

Figure 43 – Brushed R (ohm)

Description:
Input data. It defines the winding resistance of the brushed motor. The value is only used in the sensorless mode.

1.3.11 40 - Brushed Ke (V/krpm)

Figure 44 – Brushed Ke (V/krpm)

Description:
Input data. It defines the voltage constant Ke (V/kRPM) of the brushed motor. The value is only used in the sensorless mode.

1.3.12 41 - Tacho (V/krpm)

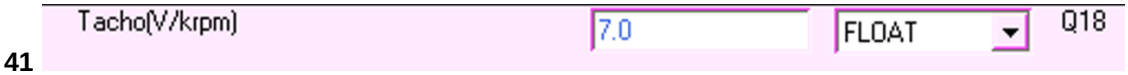

Figure 45 – Tacho (V/krpm)

Description:
Input data. It defines the tachometer voltage constant (V/kRPM). It can be a positive or a negative number to determine the correct rotation.

1.3.13 42 - Brushed ROC Lmt (V/sec)

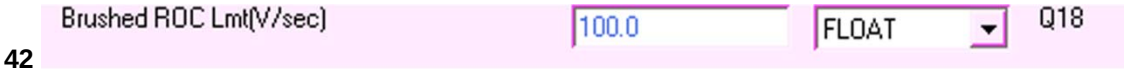

Figure 46 – Brushed ROC Lmt (V/sec)

Description:
Input data. It defines the maximum change rate of voltage dV/dt. The value is only used in the sensorless mode.

1.4 Analog Inputs Page

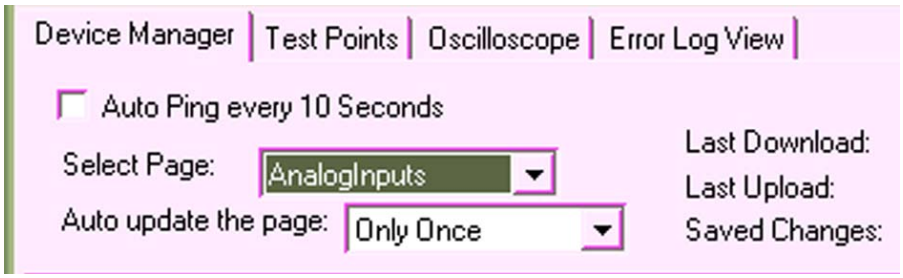

Figure 47 – Analog Inputs

Description:
The analog Inputs page allows the user to set and monitor the analog input.

1.4.1 43 - AIN1 Volts

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Figure 48- AIN1 Volts

Description:
Monitor data. It shows the input voltage of AIN1 (Reference command)

1.4.2 44 - AIN1 OffsetV

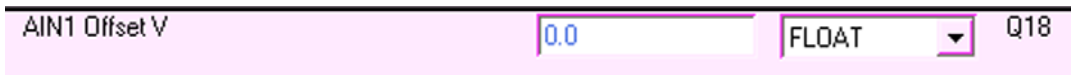

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Figure 49 – AIN1 OffsetV

Description:
Input data. It defines the offset of AIN1. I.E. if the AIN1 volt is -0.5 when there is no AIN1 input, typing in “0.5” will give a 0 input.

1.4.3 45 - Autobalance AIN1

45

Figure 50 – Autobalance AIN1

Description:
Input data. 0—Manual
1—Autobalance the AIN1 and insert the voltage offset in the offset column. I.e. if the AIN1 volt is -0.5V when there is no AIN1 input, the auto-balance will automatically generate a 0.5 in the AIN1 offset V which will give a 0 input.

1.4.4 46 - AIN1 LPF Hz

46 AIN1 LPF Hz | 300.0 | FLOAT | Q18

Figure 51 – AIN1 LPF Hz

Description:
Input data. It defines the AIN1 software low pass filter frequency. The unit is Hz.

1.4.5 47 - AIN1 DeadBand V

47 AIN1 DeadBand V | 0.0 | FLOAT | Q18

Figure 52 – AIN1 DeadBand V

Description:
Input data. It defines the dead band of the AIN1. The unit is V. I.e. if 0.5 V is inserted the AIN1 input will be considered zero if the amplitude is less than 0.5V (-0.5V ~ +0.5V).

1.4.6 48 - AIN2 Volts

48 AIN2 Volts | 2.507102966 | FLOAT | Q18

Figure 53 – AIN2 Volts

Description:
Monitor data. It shows the input voltage of AIN2 (Tachometer input).

1.4.7 49 - AIN2 Offset V

49 AIN2 Offset V | 0.0 | FLOAT | Q18

Figure 54 – AIN2 Offset V

Description:
Input data. It defines the offset of AIN2. The unit is V. I.e. if the AIN2 volt is -0.5 when there is no AIN2 input, typing in “0.5” will give a 0 input.

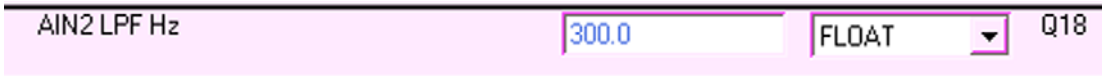
1.4.8 50 - Autobalance AIN2

50 Autobalance AIN2 | 0 | DEC | U16

Figure 55 – Autobalance AIN2

Description:
Input data. 0—Manual
1—Autobalance the AIN2 and insert the voltage offset in the offset column.
I.e. if the AIN2 volt is -0.5V when there is no AIN2 input, the auto-balance will automatically generate a 0.5 in the AIN2 offset V which will give a 0 input.

1.4.9 51 - AIN2 LPF Hz



51

Figure 56 – AIN2 LPF Hz

Description:
Input data. It defines the AIN2 software low pass filter frequency. The unit is Hz.

1.4.10 52 - AIN2 DeadBand V

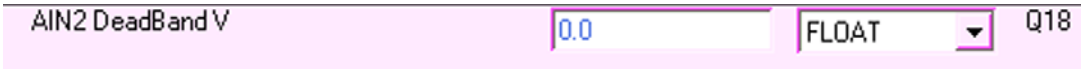


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Figure 57 – AIN2 DeadBand V

Description:
Input data. It defines the dead band of the AIN2. The unit is V. I.E. if 0.5 V is inserted the AIN2 input will be considered zero if the amplitude is less than 0.5V (-0.5V ~ +0.5V).

1.5 Analog Outputs Page

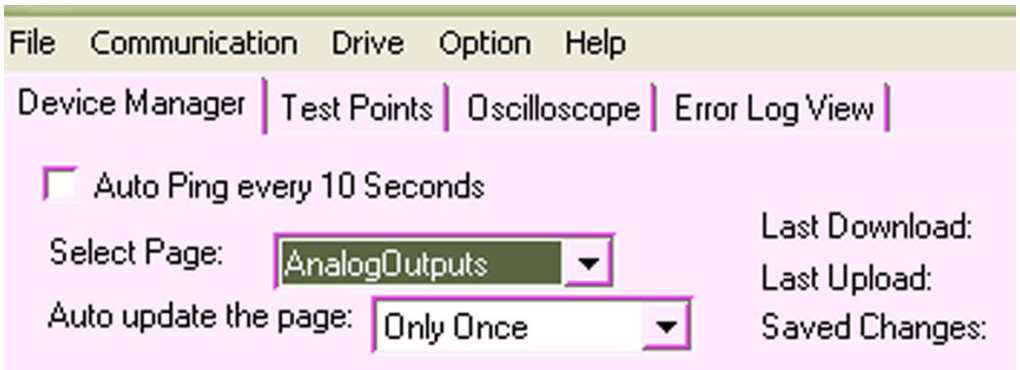


Figure 58 – Analog Outputs Page

Description:
The Analog Outputs page allows the user to set and monitor the output signals.

1.5.1 53 - AO1 CH Sel

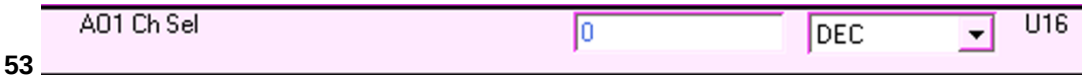


Figure 59 – AO1 Ch Sel

Description:
Input data. It defines the types of the AO1 channel.

0— Current
1— Current command
2— Current error
3— Velocity
4— Velocity command
5— Velocity error

1.5.2 54 - A01

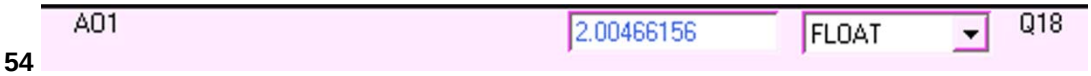


Figure 60 – A01

Description:
Monitor data. It shows the output voltage of A01. The output range is 0~4V which is defined by the full scale current or velocity. 2V is the centerline corresponding to 0 RPM or 0 Amp.

1.5.3 55 - A01 Offset V

Figure 61 – A01 Offset V

Description:
Input data. It defines the offset voltage of the A01.

1.5.4 56 - A02 Ch Sel

56	AO2 Ch Sel	3	DEC	U16

Figure 62 – A02 Ch Sel

Description:
Input data. It defines the types of the AO2 channel.

0-- Current
1--Current command
2--Current error
3--Velocity
4--Velocity command
5--Velocity error

1.5.5 57 - A02

57	AO2	2.0	FLOAT	Q18

Figure 63 – A02

Description:
Monitor data. It shows the output voltage of AO2. The output range is 0~4V which is defined by the full scale current or velocity. 2V is the centerline corresponding to 0 RPM or 0 Amp.

1.5.6 58 - A02 Offset V

58	AO2 Offset V	0.0	FLOAT	Q18

Figure 64 – A02 Offset V

Description:
Input data. It defines the offset voltage of the AO2.

1.5.7 59 - A0 Full Scale RPM

59	A0 Full Scale RPM	2000.0	FLOAT	Q18

Figure 65 – A0 Full Scale RPM

Description:
Input data. It defines the full velocity scale of the analog output.

1.5.8 60 - A0 Full Scale A

60	A0 Full Scale A	10.0	FLOAT	Q18

Figure 66 – Full Scale A

Description:
Input data. It defines the full current scale of the analog output.

1.6 Digital Inputs Page

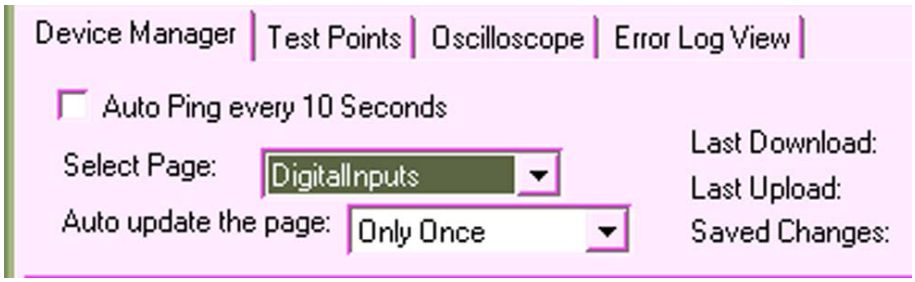


Figure 67 – Digital Inputs Page

Description:
The Digital Inputs page allows the user to set and monitor the digital input.

1.6.1 61 - DI0 Ena Status

61	DI0 Ena Status	0	DEC	U16

Figure 68 – DI0 Ena Status

Description:
Monitor data. It shows the status of the digital input 0, which is the enable signal.

0- The drive is disabled
1- The drive is enabled

1.6.2 62 - DI0 Ena Actv Hi-1/Low-0

62	DI0 Ena Actv Hi-1/Low-0	1	DEC	U16

Figure 69 – DI0 Ena Actv Hi-1/Low-0

Description:
Input data. It defines the logic of the digital input 0 (enable).

0— The enable signal will be considered active if the input voltage is low.
1— The enable signal will be considered active if the input voltage is high.

1.6.3 63 – Debounce time DI0 ms

63	Debounce time DI0 ms	10.0	FLOAT	Q18

Figure 70 – Debounce time DI0 ms

Description:
Input data. It defines the delay time of the digital output 0 after this signal is activated. The unit is ms. The maximum value is 500ms.

1.6.4 64 – DI1 LS – Status

64	DI1 LS+ Status	0	DEC	U16

Figure 71 – DI1 LS - Status

Description:

Monitor data. It shows the status of the digital input 1, which is the positive limit switch signal

0- The positive limit switch has been reached.
1- The positive limit switch has not been reached.

1.6.5 65 – DI1 LS + Actv Hi-1/Low-0

65	DI1 LS+ Actv Hi-1/Low-0	1	DEC	U16

Figure 72 – DI1 LS + Actv Hi-1/Low-0

Description:

Input data. It defines the logic of the digital input 1 (positive limit switch).

0- The LS+ signal will be considered active if the input voltage is low.
1- The LS+ signal will be considered active if the input voltage is high.

1.6.6 66 - Debounce time DI1 ms

66	Debounce time DI1 ms	10.0	FLOAT	Q18

Figure 73 – Debounce time DI1 ms

Description:

Input data. It defines the delay time of the digital output 1 after this signal has been activated. The unit is ms. The maximum value is 500ms.

1.6.7 67 – DI2 LS – Status

67	DI1 LS+ Status	0	DEC	U16

Figure 74 – DI2 LS - Status

Description:

Monitor data. It shows the status of the digital input 2, which is the negative limit switch signal

0- The negative limit switch has been reached.
2- The negative limit switch has not been reached.

1.6.8 68 – DI2 LS + Actv Hi-1/Low-0

Figure 75 – DI2 LS + Actv Hi-1/Low-0

Description:

Input data. It defines the logic of the digital input 2 (negative limit switch).

0- The LS- signal will be considered active if the input voltage is low.
1- The LS- signal will be considered active if the input voltage is high.

1.6.9 69 - Debounce time DI2 ms

Figure 76 – Debounce time DI2 ms

Description:

Input data. It defines the delay time of the digital output 2 after this signal is activated. The unit is ms. The maximum value is 500ms.

1.7 Digital Outputs Page

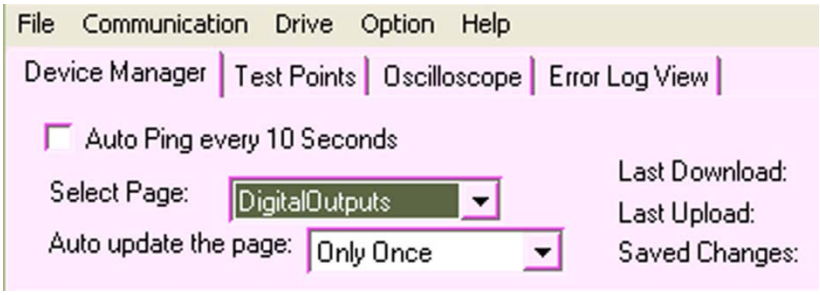


Figure 77 – Digital Outputs Page

Description:
The Digital Outputs page allows the user to set and monitor the Output Signals.

1.7.1 70 - DO0 Brk Status

70

Figure 78 – DO0 Brk Status

Description:
Monitor data. It shows the status of the digital output 0, which is the brake output.

0- The brake output is enabled
1- The brake output is disabled

1.7.2 71 - DO0 Brk Actv Hi-1/Low-0

71

Figure 79 – DO0 Brk Actv Hi-1/Low-0

Description:
Input data. It defines the logic of the digital output 0 (brake control voltage).

0- The DO0 voltage will be low if the drive is disabled.
1- The DO0 voltage will be high (24V) if the drive is disabled.

1.7.3 72 - Brake engage time ms

72

Figure 80 – Brake engage time ms

Description:
Input data. It defines the delay time before the brake's been engaged (The drive is disabled). The maximum value is 1s.

1.7.4 73 - Brake disendage time ms

Figure 81 – Brake disendage time ms

Description:
Input data. It defines the delay time before the brake's been disengaged (The drive is enabled). The maximum value is 1s.

1.7.5 74 - DO1 Flt Status

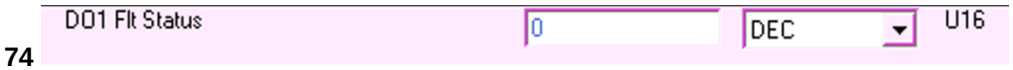


Figure 82 – D01 Flt Status

Description:
Monitor data. It shows the status of the digital output 1 (fault).

0- The drive has no faults
1- The drive has faults

1.7.6 75 - DO1 Flt Actv Hi-1/Low-0

Figure 83 – Do1 Flt Actv Hi-1/Low-0

Description:
Input data. It defines the logic of the digital output 1 (fault).

0-The DO1 output will be low if the drive faults.
1- The DO1 output will be high if the drive faults.

1.7.7 76 - DO2 Rdy Status

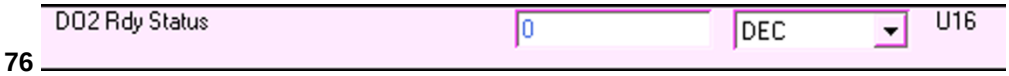


Figure 84 – D02 Rdy Status

Description:
Monitor data. It shows the status of the digital output 2 (ready).

0- The drive is not ready (Disabled)
1- The drive is ready (Enabled)

1.7.8 77 - DO2 Rdy Actv Hi-1/Low-0

Figure 85 – DO2 Rdy Actv Hi-1/Low-0

Description:
Input data. This defines the logic of the digital output 2 (ready).

0-The DO2 output will be low if the drive is enabled.
1- The DO2 output will be high if the drive is enabled.

1.8 Current Controllers Page

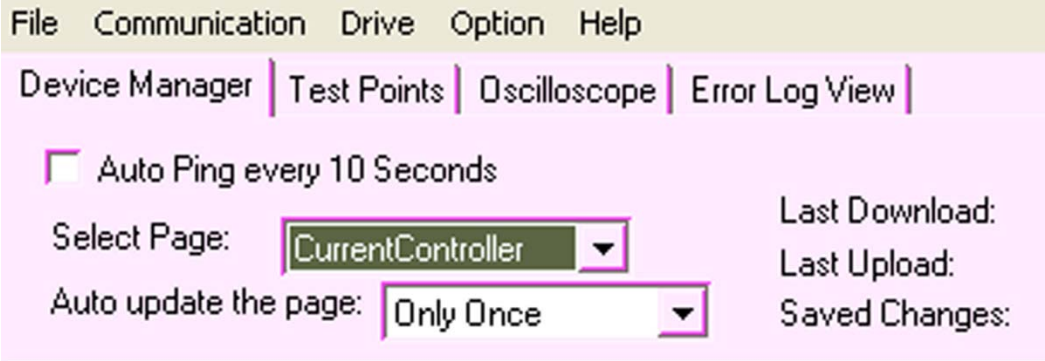


Figure 86 – Current Controllers page

Description:
The controller page allows the user to configure the control parameters.

1.8.1 78 - Current PI Man-0/Auto-1

78

Figure 87 – Current PI Man-0/Auto-1

Description:
Input data. It starts the current loop auto-tuning process.

- 0— Manual tuning. If the 0 shows after the auto-tuning process, the tuning is successful.
- 1— Start the auto-tuning
- 5-- Auto-tuning in progress.
- 99- Auto-tuning fails

1.8.2 79 - Current Loop BW (Hz)

79

Figure 88 – Current Loop BW

Description:
Input data. It defines the current loop bandwidth for the auto-tuning. The default is 1kHz.

1.8.3 80 - I-Kp

80

Figure 89 – I-Kp

Description:
Input data. It defines the current loop proportional gain.

1.8.4 81 - I-Ki

81	I-Ki	0.009998322	FLOAT	Q18

Figure 90 – I-Ki

Description:
Input data. It defines the current loop integral gain.

1.8.5 82 - I-Ksat

82	I-Ksat	10.0	FLOAT	Q18

Figure 91 – I-Ksat

Description:

1.8.6 83 - I-Ui

83	I-Ui	-0.000213623	FLOAT	Q18

Figure 92 – I-Ui

Description:

1.8.7 84 - I-SatErr

84	I-SatErr	0.0	FLOAT	Q18

Figure 93 – I-SatErr

Description:

1.9 Velocity Controller Page

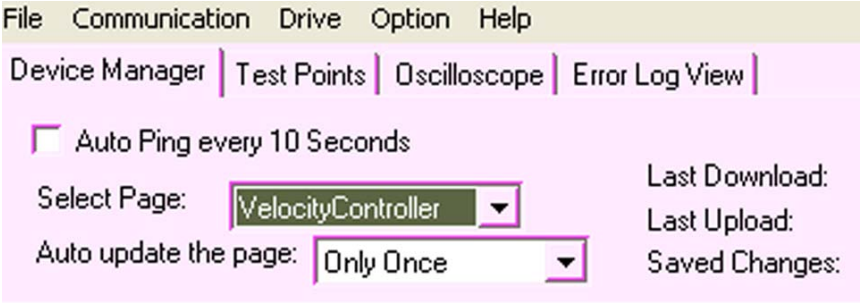


Figure 94 – Velocity Controller page

Description:
The controller page allows the user to configure the Velocity parameters.

1.9.1 85 - Vel-Kp

85

Figure 95 – Vel-Kp

Description:
Input data. It defines the velocity loop proportional gain.

1.9.2 86 - Vel-Ki

86

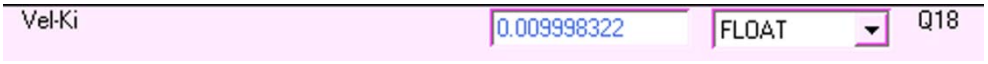


Figure 96 – Vel-Ki

Description:
Input data. It defines the velocity loop integral gain.

1.9.3 87 - Vel-Kvf

87

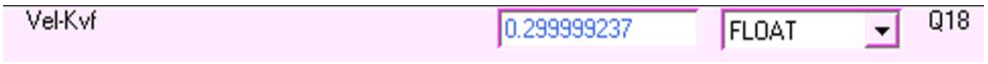


Figure 97 – Vel-Kvf

Description:
Input data. It defines the velocity loop feed forward gain.

1.9.4 88 - Vel-Ksat

88

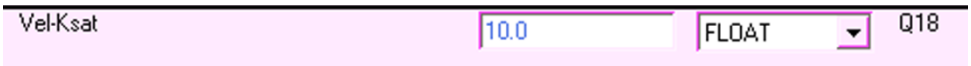


Figure 98 – Vel-Ksat

Description:

1.9.5 89 - Vel-Ui

89

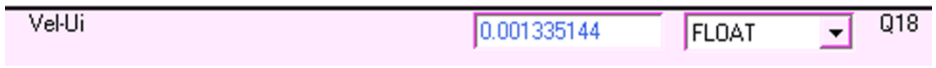


Figure 99 – Vel-Ui

Description:

1.9.6 90 - Vel-SatErr

90

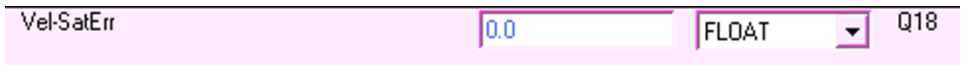


Figure 100 – Vel-SatErr

Description:

1.9.7 91 - Cntr Loop Ctf Frq (Hz)

91

Figure 101 – Cntr Loop Ctf Frq (Hz)

Description:
Input data. It defines the control loop cut off frequency.

1.9.8 92 - Pos-Kp

92

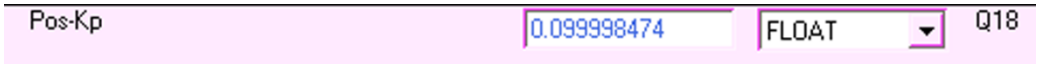


Figure 102 – Pos-Kp

Description:
Input data. It defines the position loop proportional gain.

1.10 Temperatures

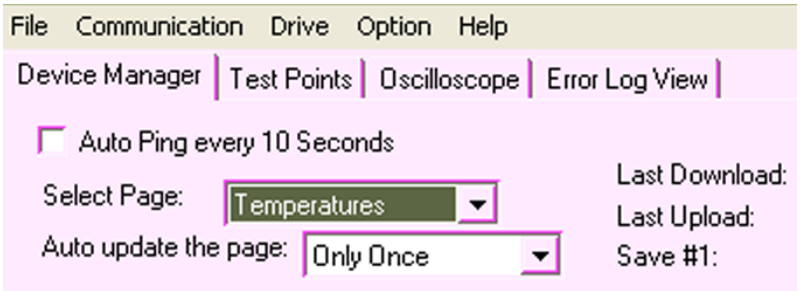


Figure 103 – Temperatures

Description:
The temperature page allows the user to monitor the heatsink and motor temperature and configure the motor temperature settings.

1.10.1 Heatsink Temp

93

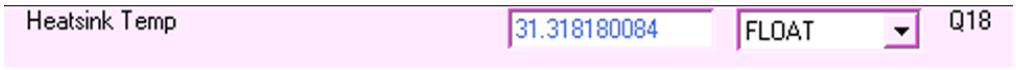


Figure 104 – Heatsink Temp

Description:
Monitor data. It shows the heatsink temperature. The unit is degree C.

1.10.2 Motor Temp

94

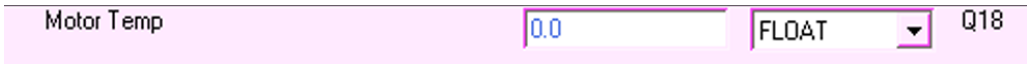


Figure 105 – Motor Temp

Description:
Monitor data. It shows the motor temperature. The unit is degree C.

1.10.3 Mot Temp Sensor On/Off

95

Figure 106 – Mot Temp Sensor On/Off

Description:
Input data. It defines the existence of the motor temperature sensor.

0- The sensor is off.
1- The sensor is on.

1.10.4 Motor Max Temp

96

Motor Max Temp	150.0	FLOAT	Q18

Figure 107 – Motor Max Temp

Description:
Input data. It defines the allowed maximum motor temperate. The unit is degree C.

1.10.5 Mot Temp Poly Coef a0 - a4

Mot Temp Poly Coef a0	0.0	FLOAT	Q18
Mot Temp Poly Coef a1	0.0	FLOAT	Q18
Mot Temp Poly Coef a2	0.0	FLOAT	Q18
Mot Temp Poly Coef a3	0.0	FLOAT	Q18
Mot Temp Poly Coef a4	0.0	FLOAT	Q18

Figure 108 – Mot Temp Poly Coef a0 – a4

Description:
Input data. The motor temperature calculation formula is

$$T=a4*V^4+a3*V^3+a2*V^2+a1*V+a0$$

In which,

T= Motor temperature (degree C)

V= Voltage of the TEMP signal. (Factory use only)

Consult the factory to use these parameters.

1.11 Protected Parameters

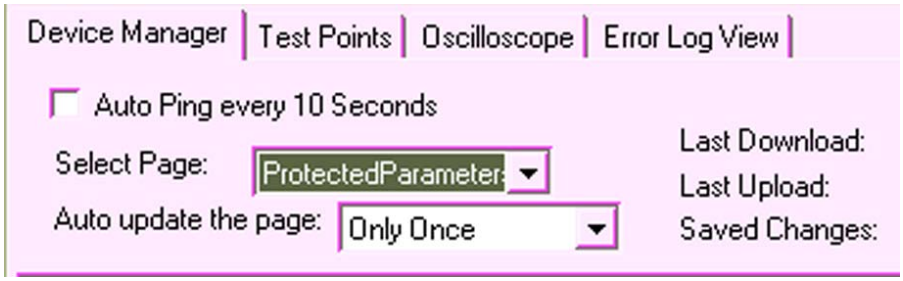


Figure 109 – Protected Parameters

Description:
Protected Parameter page is for factory use only.

1.11.1 102 - Password

102

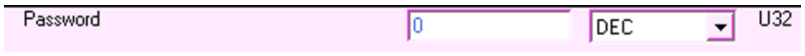


Figure 110 – Password

Description:
Input data. The password for the protected parameter page. Factory use only.

1.11.2 103 - Serial Number

103

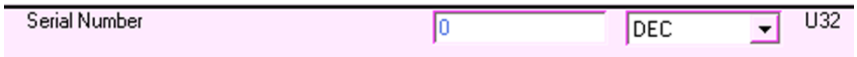


Figure 111 – Serial Number

Description:
Input data. It shows the production serial number of the drive. Factory use only.

1.11.3 104 - Current Rating (2/4/8/12)

104

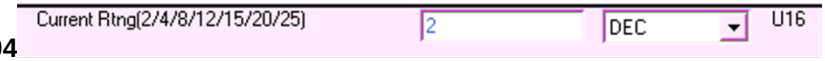


Figure 112 – Current Rating (2/4/8/12)

Description:
Input data. It defines the current rating of the drive. Factory use only.

1.11.4 105 - Volt Rating (70/110/240)

105

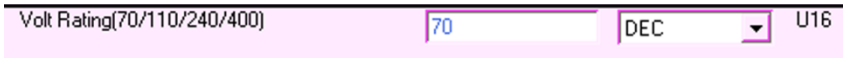


Figure 113 – Volt Rating (70/110/240)

Description:
Input data. It defines the voltage rating of the drive. Factory use only.

1.11.5 106 - PWM Freq (kHz)

Figure 114 – PWM Freq (kHz)

Description:
Input data. It defines the PWM frequency of the drive. Factory use only.

1.11.6 107 - Tacho HW gain

Figure 115 – Tacho HW gain

Description:
Input data. It defines the tachometer hardware gain. Factory use only.

1.11.7 108 - Vbus offset

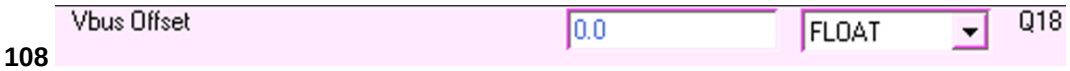


Figure 116 – Vbus offset

Description:
Input data. It defines the offset of the bus voltage. Factory use only.

1.11.8 109 – Heatshrink Temperature Offset

Figure 117 – Heatshrink Temperature offset

Description:
Input data. It defines the offset of the bus voltage. Factory use only.

1.11.9 110 - IGBT Von

Figure 118 – IGBT Von

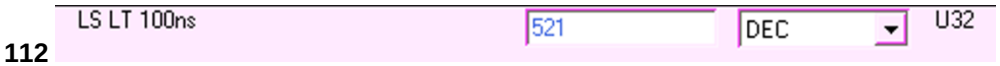
Description:
Input data. Factory use only.

1.11.10 111 – HS LT 100ns

Figure 119 – HS LT 100ns

Description:

1.11.11 112 – LS LT 100ns



112

Figure 120 – LS LT 100ns

Description:

1.11.12 113 – Main LT 100ns

113

Figure 121 – Main LT 100ns

Description:

1.12 System Status

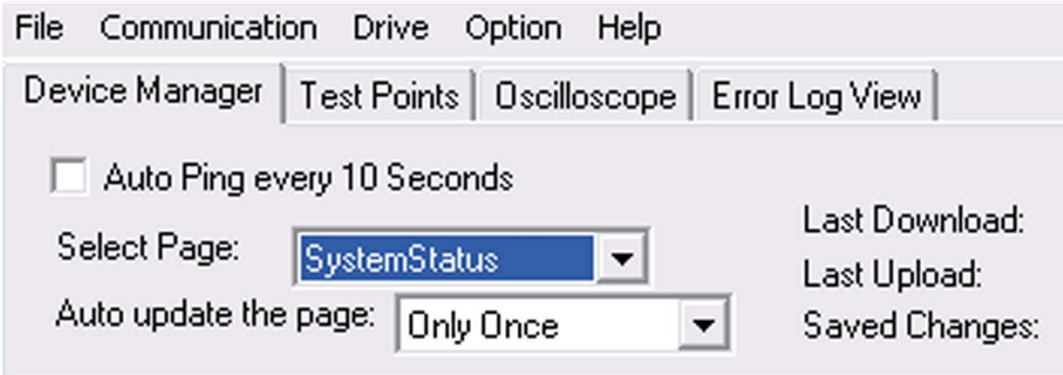


Figure 122 – System Status

Description:
Factory use only.

1.12.1 EEPROMStatus

Figure 123 – EEPROMStatus

Description:
Factory use only.

1.13 Test Points

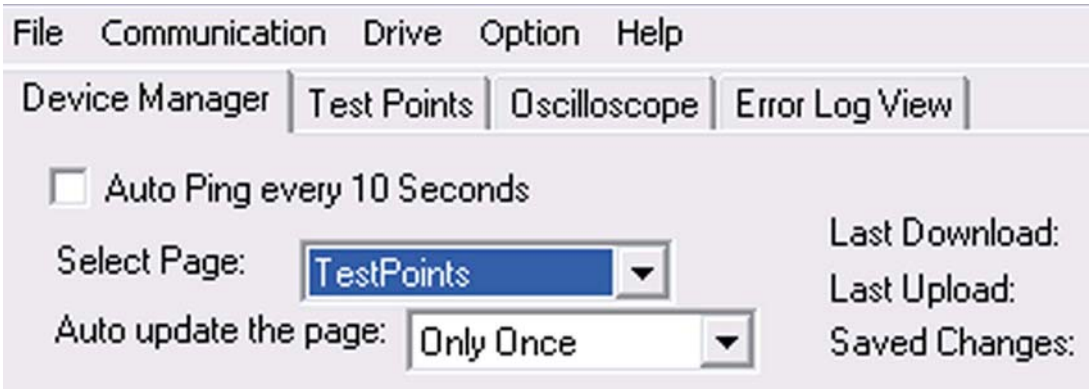


Figure 124 – Test Points

Description:
Factory use only.

1.13.1 115 - DTPTime

Figure 125 – DTPTime

Description:
Factory use only.

1.13.2 116 - DTPWrap

116

Figure 126 – DTPWrap

Description:
Factory use only.

1.13.3 117 - DTPRunning

117

Figure 127 – DTPRunning

Description:
Factory use only.

1.13.4 118 - DTP1ObjectNumber

118

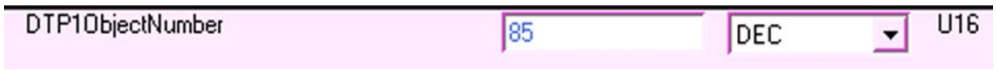


Figure 128 – DTP1objectNumber

Description:
Factory use only.

1.13.5 119 - DTP2ObjectNumber

119

Figure 129 – DTP2ObjectNumber

Description:
Factory use only.

1.13.6 120 - DTPPointsCollected

120

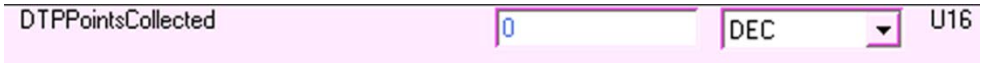


Figure 130 – DTPPointsCollected

Description:
Factory use only.

2 Test Points

Figure 131 – Test Points

Description:
Factory use only.

2.1 ATP1

Figure 132 – ATP1

Description:
Factory use only.

2.2 ATP2

Figure 133 – ATP2

Description:
Factory use only.

2.3 ATP3

Figure 134 – ATP3

Description:
Factory use only.

2.4 Digital Test Points

Figure 135 – Digital test Points

Description:
Factory use only.

2.5 DTP1

Figure 136 – DTP1

Description:
Factory use only.

2.6 DTP2

Figure 137 – DTP2

Description:
Factory use only.

3 Oscilloscope

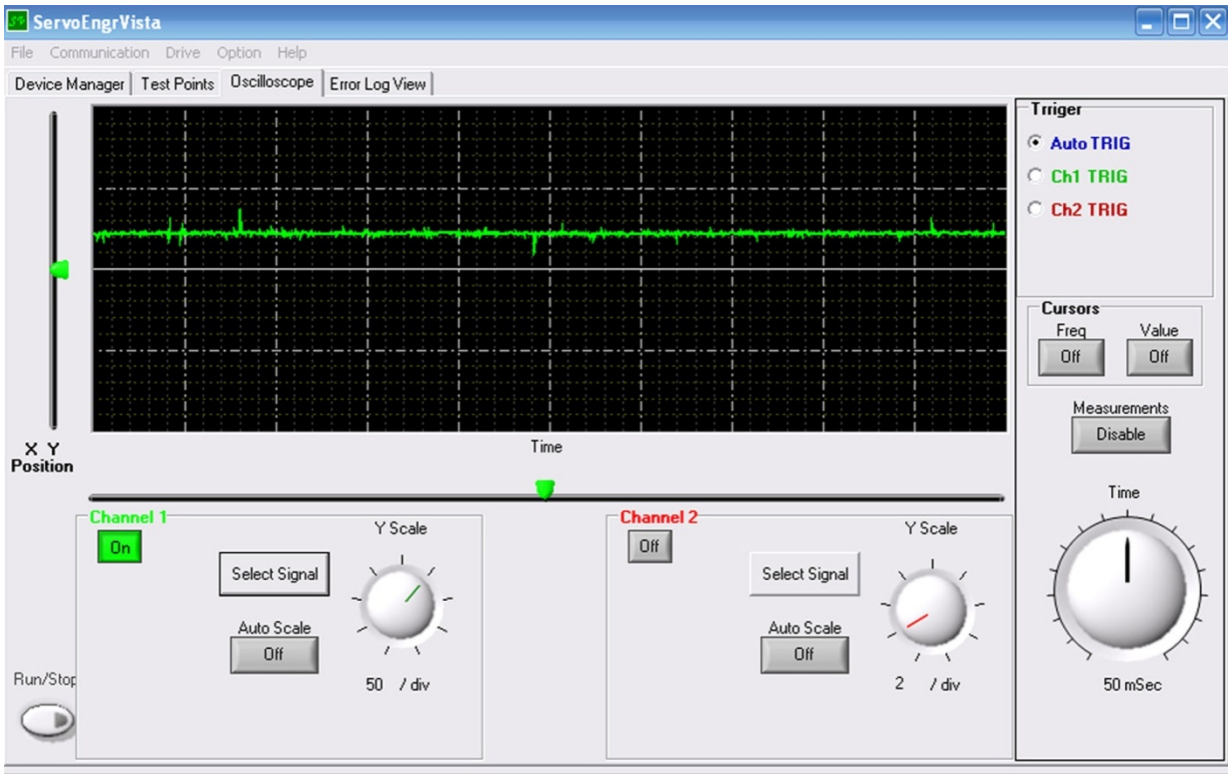


Figure 138 – Oscilloscope

Description:
This is the real-time oscilloscope tool.

- **Select signal**—Select all the signals from the previous pages.

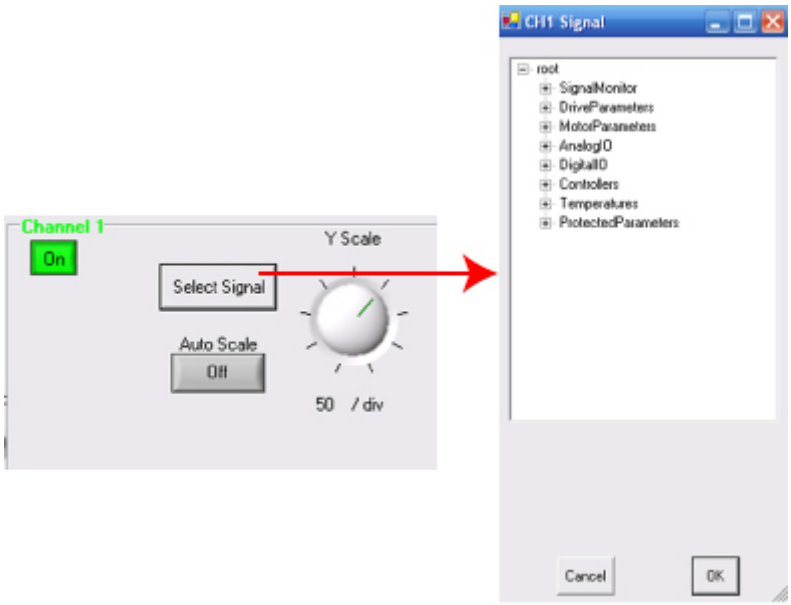


Figure 139 – Select Signal

- **Auto scale**—Auto scale the axis Y to fit the data range.

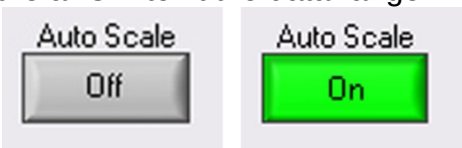


Figure 140 – Auto Scale

- **Y scale pan switch**— Turning clockwise increases the scale. Turning counter-clockwise decreases the scale. The switches have multi-turns.

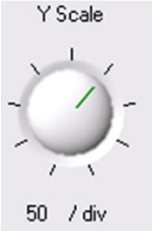


Figure 141 - Y Scale

- **Channel on/off** – This is the switch to turn on/off the channel.

Figure 142 – Channel

- **Time scale switch**—Tuning clockwise increases the time scale. Turning counter-clockwise decreases the time scale.

Figure 143 - Time Scale

- **Run/Stop switch**— This switch runs/stops the oscilloscope including all the active channels.

Figure 144 - Run/Stop

- **X Y Position cursors**— These 2 cursors are only available when the oscilloscope is stopped. Moving the cursors changes the X and Y positions of the graph.

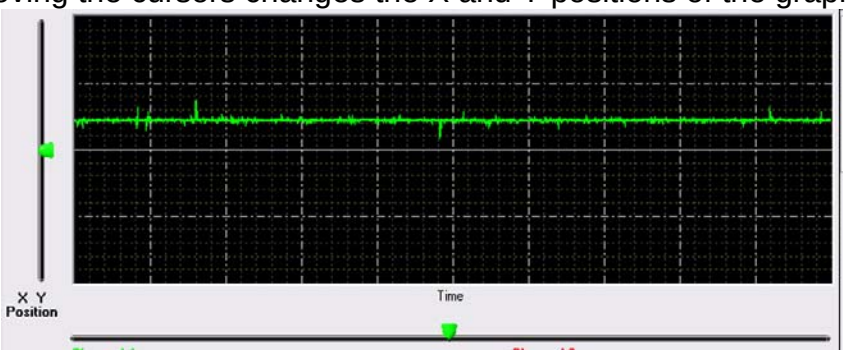


Figure 145 - X Y Position Cursers

- **Offset cursors**— The offset cursors are only available when the oscilloscope is running and the channel has been selected. Moving this cursor changes the Y axis offset of the graph.

Figure 146 - Offset Cursers

- **Measurement switch**— This switch shows the average, DC RMS and AC RMS value of the active channels.

Figure 147 - Measurement Switches

- **Frequency cursor**— This switch enables the vertical cursors (in blue) for frequency measurement.

Figure 148 – Frequency and Value Curser

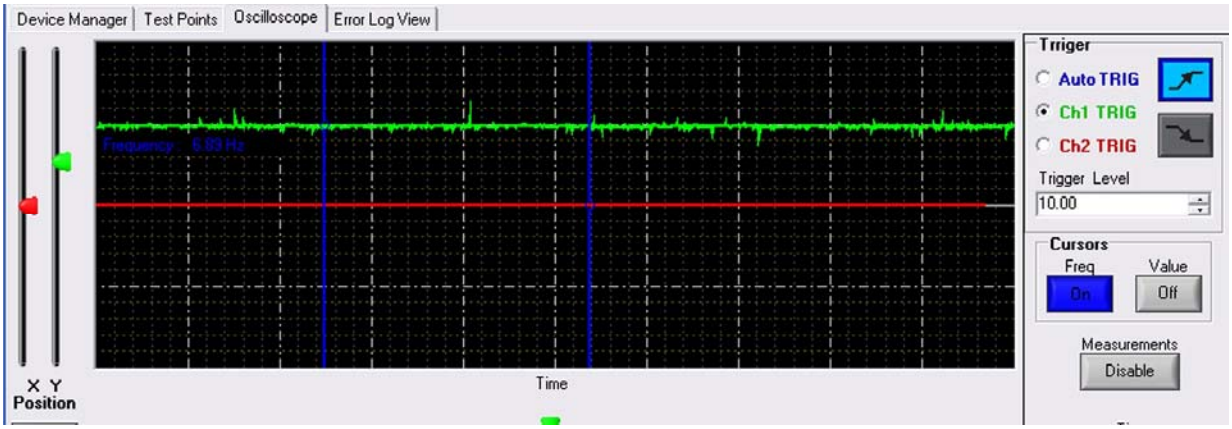


Figure 149 - Frequency ON

- **Value cursor**— This switch enables the horizontal cursors for value measurement.

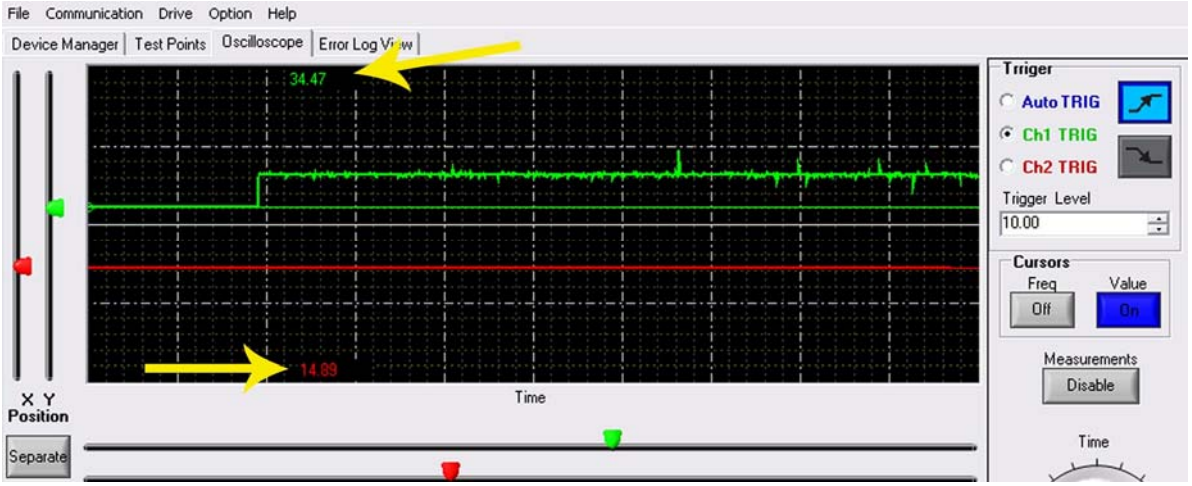


Figure 150 - Value ON

- **Trigger selection:**
  Auto trig-- The graph will be shown continuously.
  CHx trig— The graph will be triggered by the channel x. The trigger method can be selected between rising edge and dropping edge at the user-defined trigger level.

Note: The trigger has to be selected when the oscilloscope stops.

Figure 151

Figure 152

3.1 Error Log View

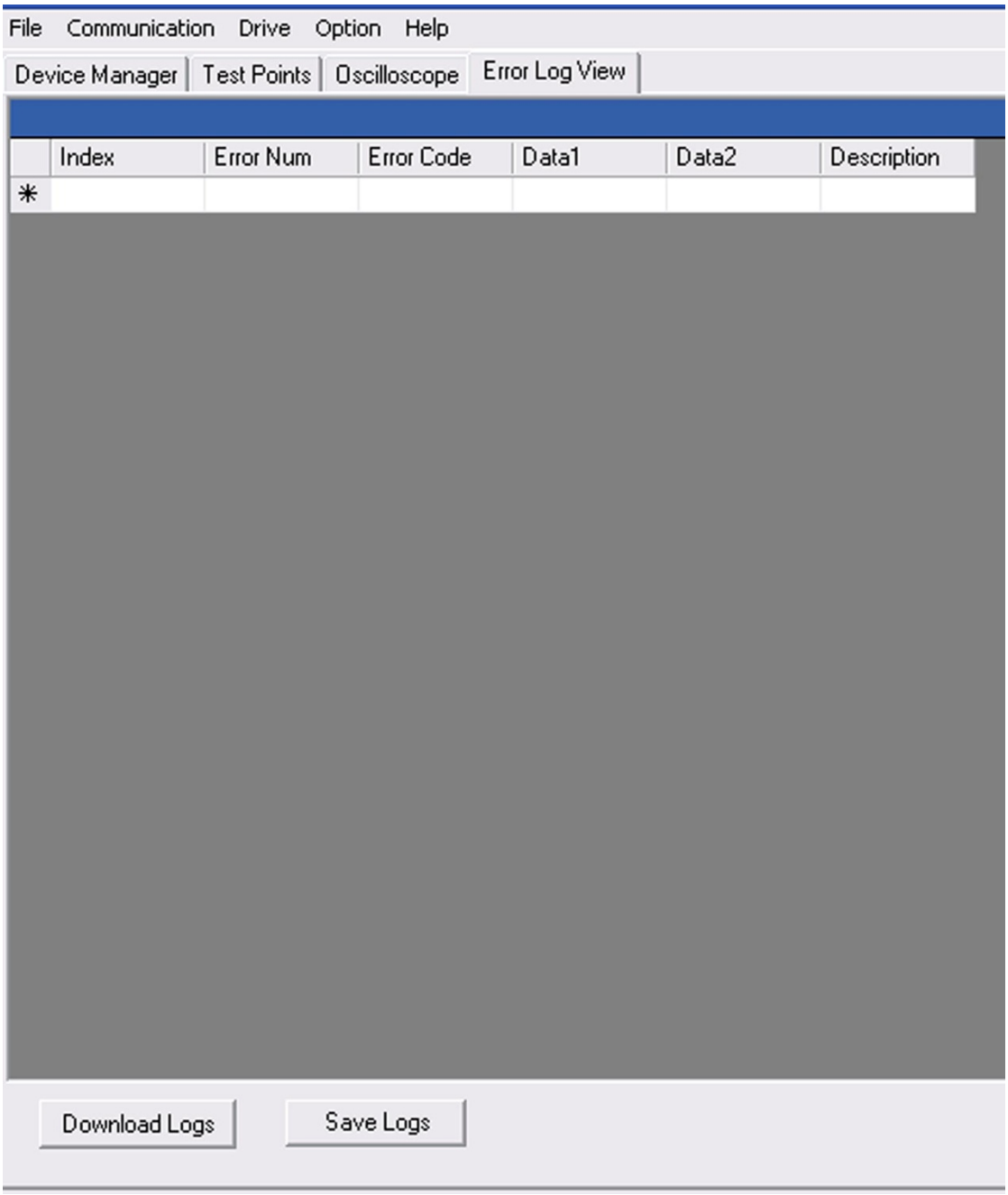


Figure 153 – Error Log View

Description:
This page allows the user to check the error history log.

- **Download logs**—The error log will be downloaded from the drive.
- **Save logs**— The error log will be saved in XML format.