

Admesy function library manual





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All correspondence regarding copyrights :

Admesy B.V.

Beneluxstraat 7

6014 CC Ittervoort

The Netherlands

Tel : +31 (0)475 600232

Fax : +31 (0) 45 5213156

URL : <http://www.admesy.nl>

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1 General information

The VI library functions all use NI-VISA for communication through USB or RS232. All Admesy devices can be directly controlled by NI-VISA without the need for additional driver software or wrappers since the Admesy devices comply to the USBTMC standard.

The sub-directories of the VI library also contains some examples which perform real measurements using the Admesy products.

Note that regarding any used programming language, the commands send to Admesy devices are all in ASCII format and regardless of the programming language used, NI-VISA can be used or other drivers.

The below overview shows different drivers that are available on different platforms. Covering libusb or the linux kernel driver is currently out of scope for this document but will be addressed in a later version of this manual. Currently this manual covers the Labview function library. This is however valid for Windows, Linux and OSX Labview development using NI-VISA.

Driver name →	NI-VISA	Libusb	Native kernel driver	Agilent USBTMC
Windows 98	untested	untested	not available	untested
Windows NT	untested	untested	not available	untested
Windows XP	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	not available	untested
Windows VISTA	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	not available	untested
Windows CE	untested	untested	not available	untested
Apple OSX PPC	<input checked="" type="checkbox"/>	untested	not available	unknown
Apple OSX Intel	<input checked="" type="checkbox"/>	untested	not available	unknown
Linux i386 (32bit)	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	Kernel >= 2.6.28	<input checked="" type="checkbox"/>
Linux i386 (64bit)	32bit mode	<input checked="" type="checkbox"/>	Kernel >= 2.6.28	<input checked="" type="checkbox"/>
Linux ARM	not available	<input checked="" type="checkbox"/>	Kernel >= 2.6.28	<input checked="" type="checkbox"/>
Linux other	not available	<input checked="" type="checkbox"/>	Kernel >= 2.6.28	<input checked="" type="checkbox"/>

Untested : Available, but not tested by Admesy.

Native kernel driver : Driver included with the operating system

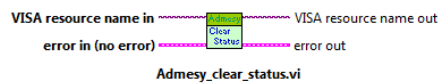
2 System commands

The following commands can be used to control or retrieve information about the device.

2.1 **:*CLS**

Program language:

Labview



Admesy_clear_status.vi

Clears the status of the device.

Function description:

Clear status of the device.

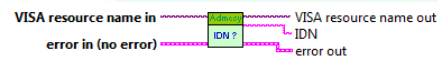
Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.2 **:*IDN?**

Program language:

Labview



Admesy_IDN.vi

retrieve Identification of the device

Function description:

Retrieve identification of the device.

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.3 **:*RST**

Program language:

Labview



Admesy_reset.vi

Reset the device. This is not a hardware reset, but does initialise all internal variables to their default values.
Make sure to wait a while after this function has executed for the device to come back online again.

Function description:

Reset the device. This is not a hardware reset, but does initialise all internal variables to their default values.

Make sure to wait a while after this function has executed for the device to come back on line again.

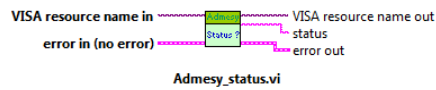
Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.4 :*STB?

Program language:

Labview



read the current device status :

0 : Device is idle
1: Data available
2: command processed
4: Data in buffer (should not occur)
8: An error occurred (use ":SYSTem:ERRor?" to get the exact error that occurred)

Function description:

Read status byte (only USB).

- 0: Device is idle
- 1: Data available
- 2: Command processed
- 4: Data in buffer (should not occur)
- 8: An error occurred (use ":SYSTem:ERRor?" to get the exact error that occurred).

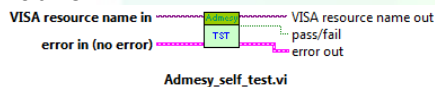
Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.5 :*TST

Program language:

Labview



Perform a self test of the device. This will perform tests on internal voltage levels and RAM functionality.

Function description:

Perform a self test of the device. This will perform tests on internal voltage levels and RAM functionality.

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.6 :*FWD?

Program language:

Labview



retrieves the firmware date of the device.

Function description:

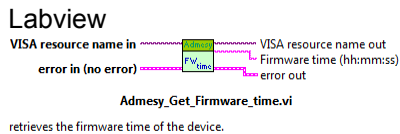
Retrieves the firmware date of the device..

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.7 :*FWT?

Program language:



Function description:

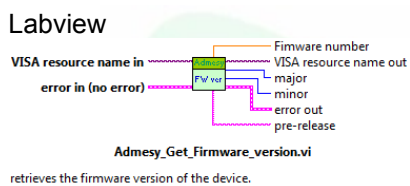
Retrieves the firmware time of the device..

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.8 :SYSTEM:VERSION?

Program language:



Function description:

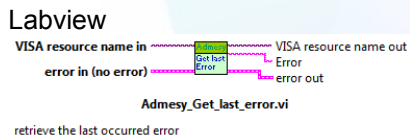
Retrieves the firmware version of the device..

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.9 :SYSTEM:ERROR?

Program language:



Function description:

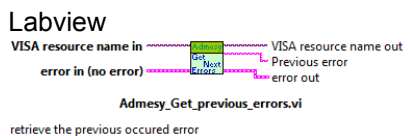
Retrieve the last occurred error.

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and steropes.

2.10 :SYSTEM:ERROR:NEXT?

Program language:



Function description:

Retrieve the last occurred error.

Applicable devices:

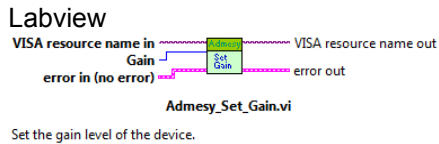
Brontes, Brontes-is, Arges 45⁰ and steropes.

3 Configuration commands

The following commands can be used to control or retrieve information about the device.

3.1 **:SENSe:GAIN**

Program language:



Parameter:

Gain, 0 – 8 (0 = auto).

Function description:

Set the gain level of the device.

The highest gain is "1", the lowest "8". For low luminance levels it must therefore be set to "1".

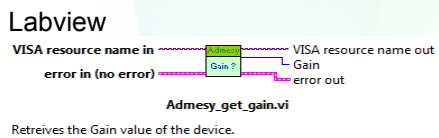
Autorange will find the best suitable setting, but care should be taken that this is not used for Pulse width modulated signals as the autoranging function may fail in such case. Autoranging is based on 50 samples to which the device will adjust it's gain.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

3.2 **:SENSe:GAIN?**

Program language:



Function description:

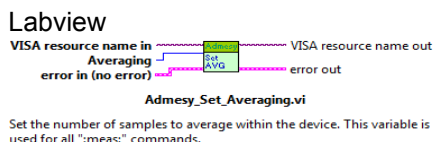
Retrieves the current Gain value (1 – 8) of the device.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

3.3 **:SENSe:AVERAge**

Program language:



Parameter:

Averaging, 1 – 4000.

Function description:

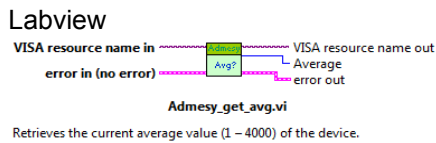
Set the number of samples to average within the device. This variable is used for all ":MEASure:" commands.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

3.4 :SENSe:AVERage?

Program language:



Function description:

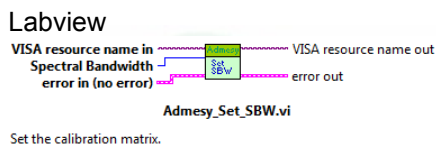
Retrieves the current average value (1 – 4000) of the device.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

3.5 :SENSe:SBW

Program language:



Parameter:

Spectral bandwidth, “small”, “Wide”, “Off”, “User1”, “User2”, or “User3”.

Function description:

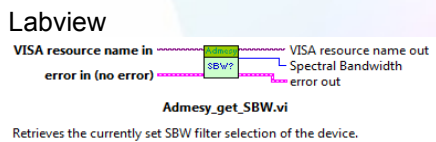
Set the calibration matrix to use.

Applicable devices:

Brontes and Brontes-is.

3.6 :SENSe:SBW?

Program language:



Function description:

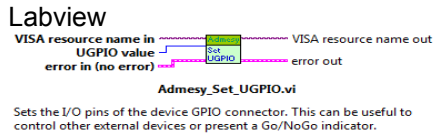
Retrieves the currently set SBW filter selection of the device.

Applicable devices:

Brontes and Brontes-is.

3.7 :SENSe:GPIO

Program language:



Parameter:

GPIO value, 0 – 16 brontes(-IS), 0 – 255 Arges 45⁰.

Function description:

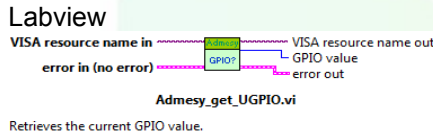
Sets the I/O pins of the device GPIO connector. This can be useful to control other external devices or present a Go/NoGo indicator.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

3.8 :SENSe:GPIO?

Program language:



Function description:

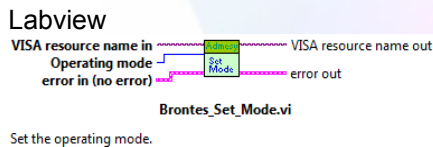
Retrieves the current GPIO value.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

3.9 :CONFigure:MODE

Program language:



Parameter:

MODE:	Brontes	Brontes-IS	Arges 45 ⁰	Steropes
0	USB	USB	USB	USB
1	RS232	RS232	RS232	RS232
2	I2C	Standalone_lum	Standalone_lum	Standalone
3	Standalone_lum	Standalone_dw	Standalone_target_colour	NA
4	Standalone_target_colour	NA	Standalone_colour_match	NA
5	Standalone_colour_match	NA	NA	NA
6	Standalone_dw	NA	NA	NA

Function description:

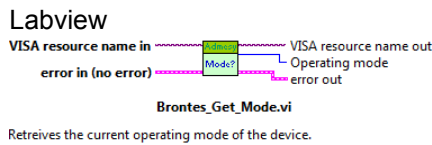
Set the operating mode of the device

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and Steropes.

3.10 :CONFigure:MODE?

Program language:



Function description:

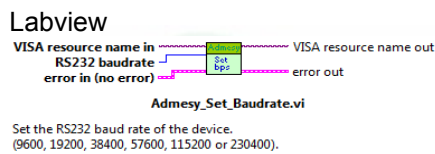
Retrieves the current operating mode of the device.

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and Steropes.

3.11 :CONFigure:BAUDRATE

Program language:



Parameter:

Baud rate, 0 – 5 (9600 - 230400)

Function description:

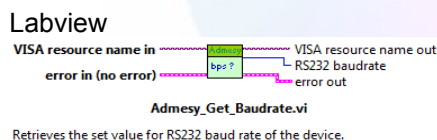
Set the RS232 baud rate of the device.
(9600, 19200, 38400, 57600, 115200 or 230400).

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and Steropes.

3.12 :CONFigure:BAUDRATE?

Program language:



Function description:

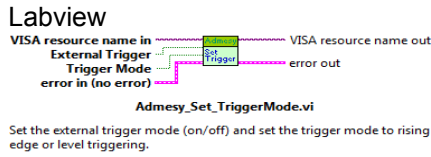
Retrieves the set value for RS232 baud rate of the device.

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and Steropes.

3.13 :CONFigure:TRIG

Program language:



Parameter:

External trigger, (0, 1)
Trigger mode, (0, 1) (rising edge , level)

Function description:

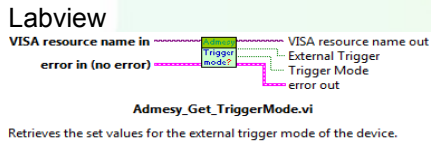
Set the external trigger mode (on/off) and set the trigger mode to rising edge or level triggering.

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and Steropes.

3.14 :CONFigure:TRIG?

Program language:



Function description:

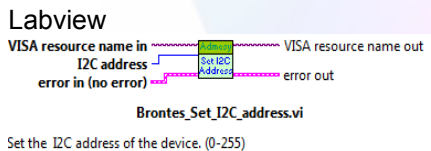
Retrieves the set values for the external trigger mode of the device.

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and Steropes.

3.15 :CONFigure:I2CADDR

Program language:



Parameter:

I2C address, (0, 255)

Function description:

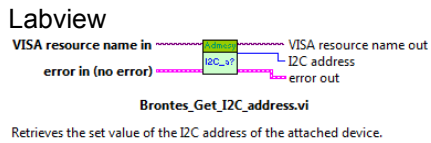
Set the I2C address of the device. (0-255)

Applicable devices:

Brontes.

3.16 :CONFigure:I2CADDR?

Program language:



Function description:

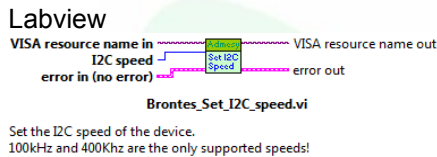
Retrieves the set value of the I2C address of the attached device.

Applicable devices:

Brontes.

3.17 :CONFigure:I2CSPEED

Program language:



Parameter:

I2C speed, (0 = 100KHz, 1 = 400KHz)

Function description:

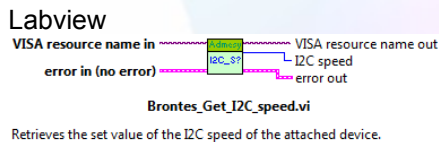
Set the I2C speed of the device. 100kHz and 400kHz are the only supported speeds!

Applicable devices:

Brontes.

3.18 :CONFigure:I2CSPEED?

Program language:



Function description:

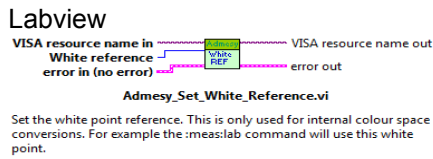
Retrieves the set value of the I2C speed of the attached device.

Applicable devices:

Brontes.

3.19 :CONFigure:WHITE

Program language:



Parameter:

White reference, "A", "B", "C", "D40", "D42", "D50", "D55", "D65", "D75", "D90", "D95", "E", "F2", "F7" or "F11".

Function description:

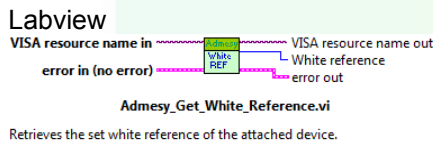
Set the white point reference. This is only used for internal colour space conversions. For example the :meas:lab command will use this white point.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

3.20 :CONFigure:WHITE?

Program language:



Function description:

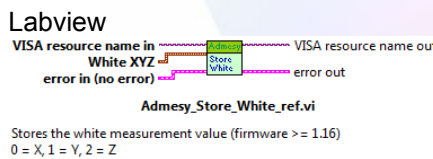
Retrieves the set white reference of the attached device.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

3.21 :STORE:WHITE

Program language:



Parameter:

White, 0 = X, 1 = Y, 2 = Z.

Function description:

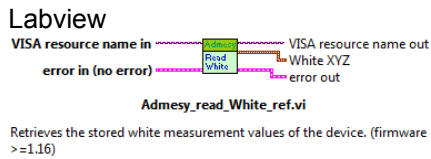
Stores the white measurement value for relative measurements (firmware >= 1.16).

Applicable devices:

Brontes and Brontes-is.

3.22 :READ:WHITE?

Program language:



Function description:

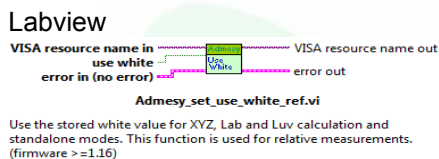
Retrieves the stored white measurement values of the device. (firmware >=1.16)

Applicable devices:

Brontes and Brontes-is.

3.23 :USE:WHITE

Program language:



Parameter:

Use White, 0 = No, 1 = Yes.

Function description:

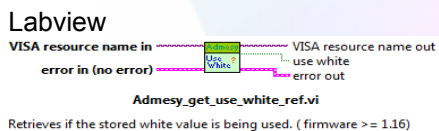
Use the stored white value for XYZ, Lab and Luv calculation and standalone modes. This function is used for relative measurements. (firmware >=1.16)

Applicable devices:

Brontes and Brontes-is.

3.24 :USE:WHITE?

Program language:



Function description:

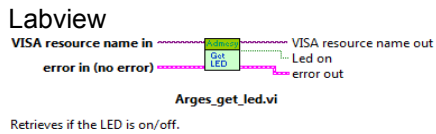
Retrieves if the stored white value is being used. (firmware >= 1.16)

Applicable devices:

Brontes and Brontes-is.

3.25 :SENSE:LED?

Program language:



Function description:

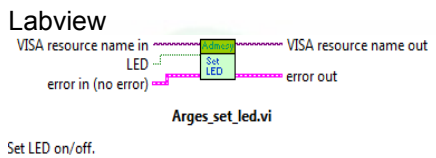
Retrieves if the LED is on/off.

Applicable devices:

Argès 45⁰.

3.26 :SENSE:LED

Program language:



Parameter:

LED, 0 = Off, 1 = On.

Function description:

Set LED on/off.

Applicable devices:

Argès 45⁰.

3.27 :CONFigure:LIGHT?

Program language:



Function description:

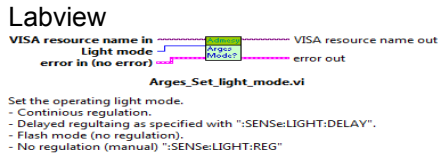
Retrieves the current light mode.

Applicable devices:

Argès 45⁰.

3.28 :CONFigure:LIGHT

Program language:



Parameter:

Light mode, 0 – 3 Continuous regulation. Delayed regulating as specified with ":SENSe:LIGHT:DELAY", Flash mode (no regulation), No regulation (manual) ":SENSe:LIGHT:REG".

Function description:

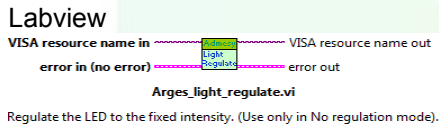
Set the operating light mode.

Applicable devices:

Argès 45⁰.

3.29 :SENSe:LIGHT:REG

Program language:



Function description:

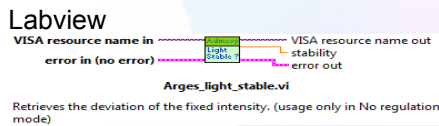
Regulate the LED to the fixed intensity. (Use only in No regulation mode).

Applicable devices:

Argès 45⁰.

3.30 :SENSe:LIGHT:STABLE?

Program language:



Function description:

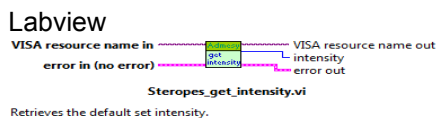
Retrieves the deviation of the fixed intensity. (usage only in No regulation mode).

Applicable devices:

Argès 45⁰.

3.31 :CONFigure:LUM?

Program language:



Function description:

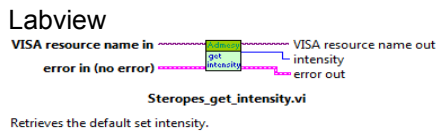
Retrieves the default set intensity.

Applicable devices:

Steropes.

3.32 :CONFigure:LUM

Program language:



Parameter:

intensity, 0 – 1000.

Function description:

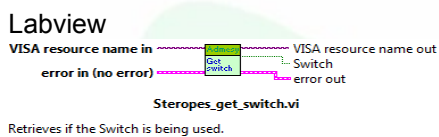
Sets the default intensity.

Applicable devices:

Steropes.

3.33 :CONFigure:SWITCH?

Program language:



Function description:

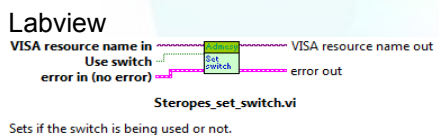
Retrieves if the Switch is being used.

Applicable devices:

Steropes.

3.34 :CONFigure:SWITCH

Program language:



Parameter:

Use Switch, 0=No 1=Yes.

Function description:

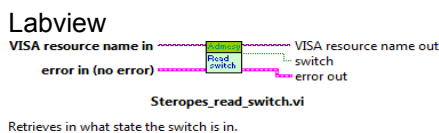
Sets if the switch is being used or not.

Applicable devices:

Steropes.

3.35 :READ:SWITCH

Program language:



Function description:

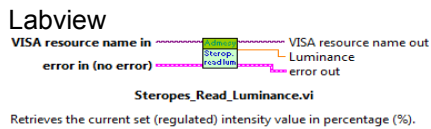
Retrieves in what state the switch is in.

Applicable devices:

Steropes.

3.36 :READ:LUMinance

Program language:



Function description:

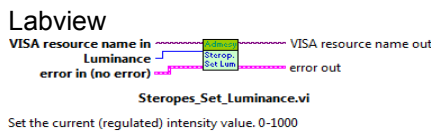
Retrieves the current set (regulated) intensity value in percentage (%)

Applicable devices:

Steropes.

3.37 :SET:LUMinance

Program language:



Parameter:

Luminance, 0 – 1000.

Function description:

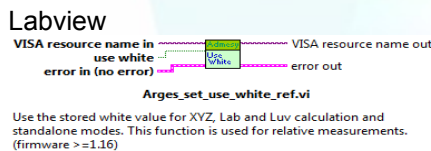
Set the current (regulated) intensity value.

Applicable devices:

Steropes.

3.38 :CONFigure:WHITE:USE

Program language:



Parameter:

Use White, 0 = No, 1 = Yes.

Function description:

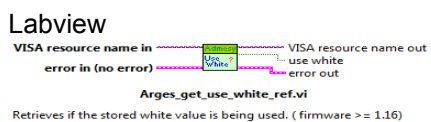
Use the stored white value for XYZ, Lab and Luv calculation and standalone modes. This function is used for relative measurements. (firmware >=1.16)

Applicable devices:

Arges 45⁰.

3.39 :CONFigure:WHITE:USE?

Program language:



Function description:

Retrieves if the stored white value is being used. (firmware >= 1.16)

Applicable devices:

Arges 45⁰.

4 Measurement commands

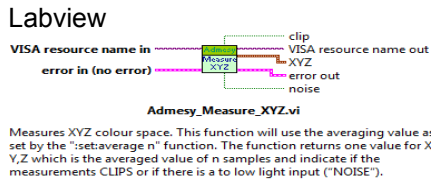
The following commands can be used to retrieve the measurement data of the device. Regarding colour/luminance measurement there are two kind of commands (MEASure/SAMPLE).

The MEASure commands measure the requested values using the set averaging and gain and returns the result in a single structure of three single precision floating point values.

The SAMPLE commands measure the requested parameters using a sample count and delay time and return an array of data. The array contains single floating point data. Each sample count equals one complete structure, for example one XYZ structure of data.

4.1 :MEASure:XYZ

Program language:



Function description:

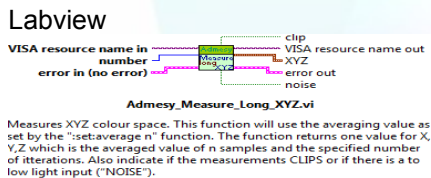
Measures XYZ colour space. This function will use the averaging value as set by the ":set:average n" function. The function returns one value for X,Y,Z which is the averaged value of n samples and indicate if the measurements CLIPS or if there is a to low light input ("NOISE").

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

4.2 :MEASure:LONG:XYZ

Program language:



Parameter:

iterations, (1 - 255)

Function description:

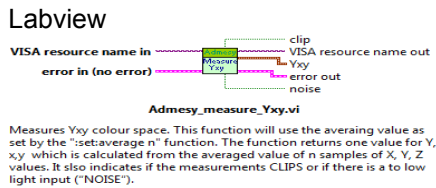
Measures XYZ colour space. This function will use the averaging value as set by the ":set:average n" function. The function returns one value for X,Y,Z which is the averaged value of n samples and the specified number of iterations. Also indicates if the measurements CLIPS or if there is a to low light input ("NOISE").

Applicable devices:

Brontes and Brontes-is.

4.3 :MEASure:Yxy

Program language:



Function description:

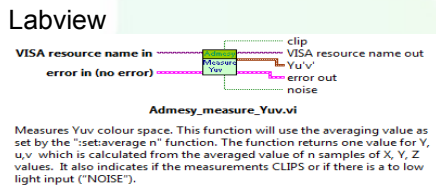
Measures Yxy colour space. This function will use the averaging value as set by the ":set:average n" function. The function returns one value for Y,x,y which is calculated from the averaged value of n samples of X, Y, Z values. It also indicates if the measurements CLIPS or if there is a to low light input ("NOISE").

Applicable devices:

Brontes and Brontes-is.

4.4 :MEASure:Yuv

Program language:



Function description:

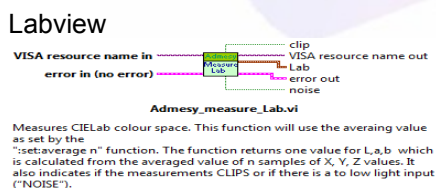
Measures Yuv colour space. This function will use the averaging value as set by the ":set:average n" function. The function returns one value for Y,u,v which is calculated from the averaged value of n samples of X, Y, Z values. It also indicates if the measurements CLIPS or if there is a to low light input ("NOISE").

Applicable devices:

Brontes and Brontes-is.

4.5 :MEASure:Lab

Program language:



Function description:

Measures CIELab colour space. This function will use the averaging value as set by the ":set:average n" function. The function returns one value for L,a,b which is calculated from the averaged value of n samples of X, Y, Z values. It also indicates if the measurements CLIPS or if there is a to low light input ("NOISE").

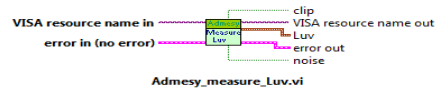
Applicable devices:

Brontes, Brontes-is and Arges 45°.

4.6 :MEASure:Luv

Program language:

Labview



Measures Luv colour space. This function will use the averaging value as set by the ":set:average n" function. The function returns one value for L, u,v which is calculated from the averaged value of n samples of X, Y, Z values. It also indicates if the measurements CLIPS or if there is a too low light input ("NOISE").

Function description:

Measures Luv colour space. This function will use the averaging value as set by the ":set:average n" function. The function returns one value for L,u,v which is calculated from the averaged value of n samples of X, Y, Z values. It also indicates if the measurements CLIPS or if there is a too low light input ("NOISE").

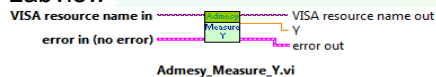
Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

4.7 :MEASure:Y

Program language:

Labview



Measures Y. This function will use the averaging value as set by the ":set:average n" function. The function returns Y in counts which is the averaged value of n samples.

Function description:

Measures Y. This function will use the averaging value as set by the ":set:average n" function. The function returns Y in counts which is the averaged value of n samples.

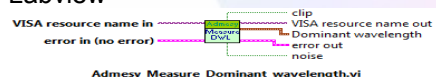
Applicable devices:

Brontes and Brontes-is.

4.8 :MEASure:DWL

Program language:

Labview



Measure dominant wavelength (DWL) of a measured colour (CIEx,y). This function will use the averaging value as set by the ":set:average n" function. The function returns one value for DWL, Pe, Y, x, y which is calculated from the averaged value of n samples of X, Y, Z values. Be careful that the result depends on the selected white point, as the dominant wavelength is defined as the interception form that white point through the measured point with the CIE1931 locus.

Function description:

Measure dominant wavelength (DWL) of a measured colour (CIEx,y). This function will use the averaging value as set by the ":set:average n" function. The function returns one value for DWL, Pe, Y, x, y which is calculated from the averaged value of n samples of X, Y, Z values. Be careful that the result depends on the selected white point, as the dominant wavelength is defined as the interception form that white point through the measured point with the CIE1931 locus.

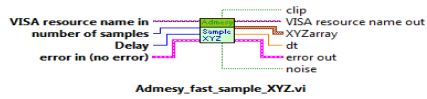
Applicable devices:

Brontes and Brontes-is.

4.9 :SAMPle:XYZ

Program language:

Labview



Measures the specified number of X,Y,Z samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE").

Parameter:

Numbers of samples, 0 – 4000

Delay, 0 - 255

Function description:

Measures the specified number of X,Y,Z samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE").

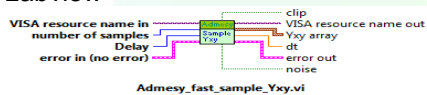
Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

4.10 :SAMPle:Yxy

Program language:

Labview



Measures the specified number of Y,x,y samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Brontes always measures in X,Y,Z and colour space conversion is done after all sampling has been finished.

Parameter:

Numbers of samples, 0 – 4000

Delay, 0 - 255

Function description:

Measures the specified number of Y,x,y samples. The specified delay is in sample time, meaning that samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Brontes always measures in X,Y,Z and colour space conversion is done after all sampling has been finished.

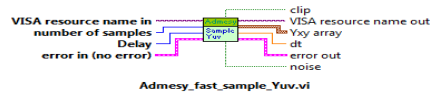
Applicable devices:

Brontes and Brontes-is .

4.11 :SAMPLE:Yuv

Program language:

Labview



Admesy_fast_sample_Yuv.vi
Measures the specified number of Y,u,v samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Brontes always measures in X,Y,Z and colour space conversion is done after all sampling has been finished.

Parameter:

Numbers of samples, 0 – 4000

Delay, 0 - 255

Function description:

Measures the specified number of Y,u,v samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Brontes always measures in X,Y,Z and colour space conversion is done after all sampling has been finished.

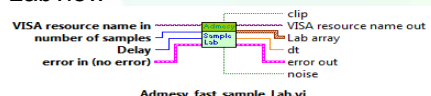
Applicable devices:

Brontes and Brontes-is.

4.12 :SAMPLE:Lab

Program language:

Labview



Admesy_fast_sample_Lab.vi
Measures the specified number of CIE L,a,b samples. The specified delay is in sample time, meaning that samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Brontes always measures in X,Y,Z and colour space conversion is done after all sampling has been finished.

Parameter:

Numbers of samples, 0 – 4000

Delay, 0 - 255

Function description:

Measures the specified number of CIE L,a,b samples. The specified delay is in sample time, meaning that samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Brontes always measures in X,Y,Z and colour space conversion is done after all sampling has been finished.

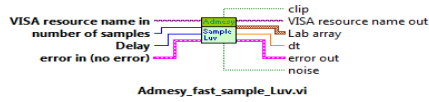
Applicable devices:

Brontes, Brontes-is and Arges 45°.

4.13 :SAMPLe:Luv

Program language:

Labview



Measures the specified number of L,u,v samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Brontes always measures in X,Y,Z and colour space conversion is done after all sampling has been finished.

Parameter:

Numbers of samples, 0 – 4000

Delay, 0 - 255

Function description:

Measures the specified number of L,u,v samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Brontes always measures in X,Y,Z and colour space conversion is done after all sampling has been finished.

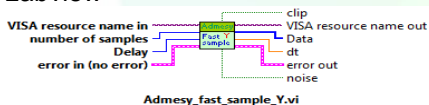
Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

4.14 :SAMPLe:Y

Program language:

Labview



Measures the specified number of Y samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Y value is in counts (not-calibrated).

Parameter:

Numbers of samples, 0 – 4000

Delay, 0 - 255

Function description:

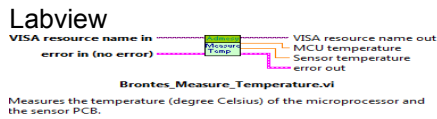
Measures the specified number of Y samples. The specified delay is in sample time, meaning that these samples are skipped. It also indicates the dt of the measurement and if the measurements CLIPS or if there is a to low light input ("NOISE"). Note that the Y value is in counts (not-calibrated).

Applicable devices:

Brontes and Brontes-is.

4.15 :MEASure:TEMPerature

Program language:



Function description:

Measures the temperature in degree Celsius.

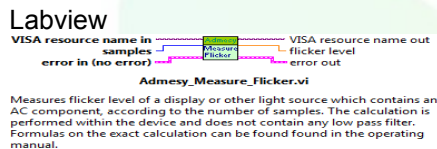
Temperature:	Brontes	Brontes-IS	Arges 45 ⁰	Steropes
microprocessor	X	X	X	X
Sensor PCB	X	X	X	X
LED PCB			X	X
Control PCB			X	

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and Steropes

4.16 :MEASure:FLICker

Program language:



Function description:

Samples, 0 - 24000

Function description:

Measures flicker level of a display or other light source which contains an AC component, according to the number of samples. The calculation is performed within the device and does not contain any low pass filter. This method is based on the RMS of the AC component.

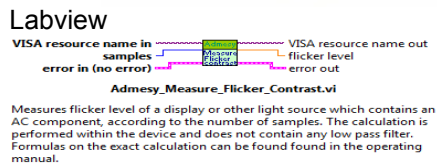
Formulas on the exact calculation can be found found in the operating manual.

Applicable devices:

Brontes and Brontes-is.

4.17 :MEASure:FLICker:CONtrast

Program language:



Function description:

Samples, 0 - 24000

Function description:

Measures flicker level of a display or other light source which contains an AC component, according to the number of samples. The calculation is performed within the device and does not contain any low pass filter. This method is based on the minimum and maximum value of the AC component. *Formulas on the exact calculation can be found found in the operating manual.*

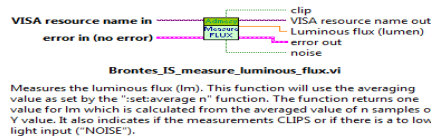
Applicable devices:

Brontes and Brontes-is.

4.18 :MEASure:FLUX

Program language:

Labview



Function description:

Measures the luminous flux (lm). This function will use the averaging value as set by the ":set:average n" function. The function returns one value for lm which is calculated from the averaged value of n samples of Y value. It also indicates if the measurements CLIPS or if there is a to low light input ("NOISE").

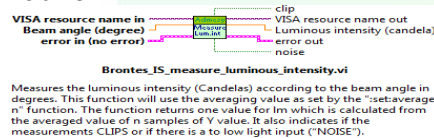
Applicable devices:

Brontes-is.

4.19 :MEASure:LUMIntensity

Program language:

Labview



Function description:

Beam angle (degree), 0 – 360

Function description:

Measures the luminous intensity (Candelas) according to the beam angle in degrees. This function will use the averaging value as set by the ":set:average n" function. The function returns one value for lm which is calculated from the averaged value of n samples of Y value. It also indicates if the measurements CLIPS or if there is a to low light input ("NOISE").

Applicable devices:

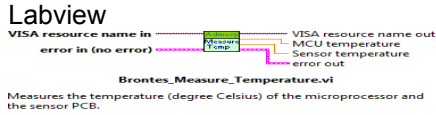
Brontes-is.

5 User EEPROM commands

The following commands can be used to store values in the user EEPROM space. Note that they are not stored until a :EEPROM:WRITE command is given. It is advised to reboot the Brontes after writing new values to the EEPROM.

5.1 :EEPROM:STARTUP:READ

Program language:



Function description:

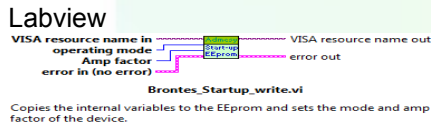
Copies start-up conditions from the EEprom to internal variables of the device. After this command is send the start-up values can be read using the configure commands.

Applicable devices:

Brontes, Brontes-is, Arges 45⁰ and Steropes.

5.2 :EEPROM:STARTUP:WRITE

Program language:



Parameter:

Device mode as specified in chapter 2.7 :CONFigure:MODE.

Function description:

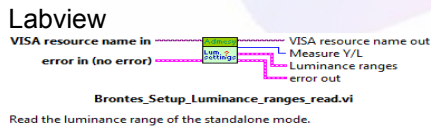
Copies the internal variables to the EEprom and sets the mode and amp factor of the device.

Applicable devices:

Brontes and Brontes-is.

5.3 :EEPROM:LUM:READ

Program language:



Function description:

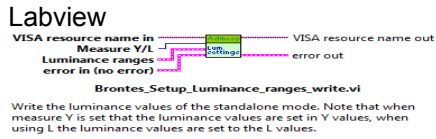
Read the luminance range of the standalone mode.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

5.4 :EEPROM:LUM:WRITE

Program language:



Parameter:

Measure Y/L , Y=0, L=1.

Luminance ranges, 1 – 15, min. value, max. value.

Function description:

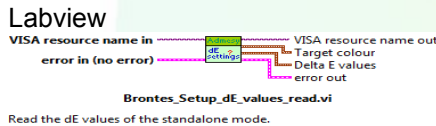
Write the luminance values of the standalone mode. Note that when measure Y is set that the luminance values are set in Y values, when using L the luminance values are set to the L values.

Applicable devices:

Brontes, Brontes-is and Arges 45⁰.

5.5 :EEPROM:DE:READ

Program language:



Function description:

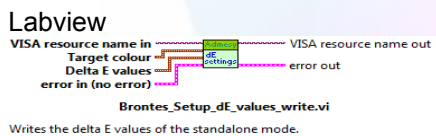
Read the dE values of the standalone mode.

Applicable devices:

Brontes and Arges 45⁰.

5.6 :EEPROM:DE:WRITE

Program language:



Parameter:

Target colour , 0 , L a b.

Delta E values, 1 – 15, dE.

Function description:

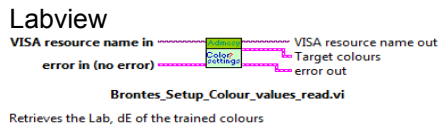
Writes the delta E values of the standalone mode.

Applicable devices:

Brontes and Arges 45⁰.

5.7 :EEPROM:COLOUR:READ

Program language:



Function description:

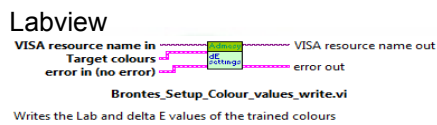
Retrieves the Lab, dE of the trained colours

Applicable devices:

Brontes and Arges 45⁰.

5.8 :EEPROM:COLOUR:WRITE

Program language:



Parameter:

Target colour , 1 – 15, L, a, b, dE.

Function description:

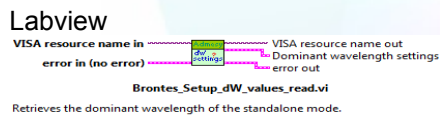
Writes the Lab and delta E values of the trained colours

Applicable devices:

Brontes and Arges 45⁰.

5.9 :EEPROM:DW:READ

Program language:



Function description:

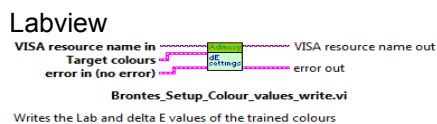
Retrieves the dominant wavelength of the standalone mode.

Applicable devices:

Brontes and Brontes-IS.

5.10 :EEPROM:DW:WRITE

Program language:



Parameter:

dominant wavelength settings , 1 – 15, wavelength, max. deviation.

Function description:

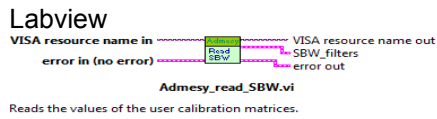
Writes the dominant wavelength with the maximum deviation of the standalone mode.

Applicable devices:

Brontes and Brontes-IS.

5.11 :EEPROM:SBW:READ

Program language:



Function description:

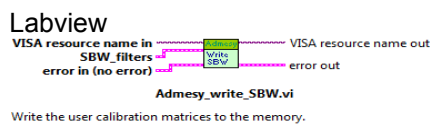
Reads the values of the user calibration matrices.

Applicable devices:

Brontes and Brontes-IS.

5.12 :EEPROM:SBW:WRITE

Program language:



Parameter:

User matrix, (0="user1", 1="user2", 2="user3"), 3X3matrix values.

Function description:

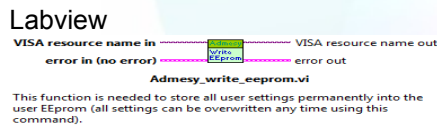
Write the user calibration matrices to the memory.

Applicable devices:

Brontes and Brontes-IS.

5.13 :EEPROM:WRITE

Program language:



Function description:

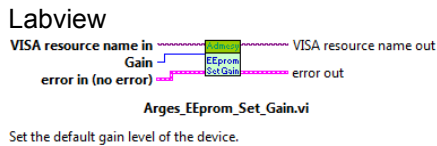
This function is needed to store all user settings permanently into the user EEPROM (all settings can be overwritten any time using this command).

Applicable devices:

Brontes, Brontes-IS, Arges 45⁰ and Steropes.

5.14 :EEPROM:SENSe:GAIN

Program language:



Parameter:

Gain, 0 – 8 (0 = auto).

Function description:

Set the default gain level of the device.

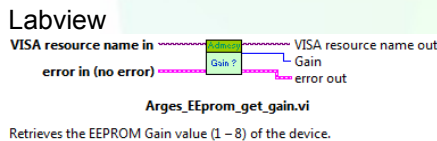
The highest gain is "1", the lowest "8". For low luminance levels it must therefore be set to "1". Auto range will find the best suitable setting, but care should be taken that this is not used for Pulse width modulated signals as the auto ranging function may fail in such case. Auto ranging is based on 50 samples to which the device will adjust it's gain.

Applicable devices:

Argos 45⁰.

5.15 :EEPROM:SENSe:GAIN?

Program language:



Function description:

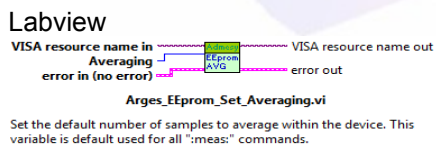
Retrieves the EEPROM Gain value (1 – 8) of the device.

Applicable devices:

Argos 45⁰.

5.16 :EEPROM:SENSe:AVERage

Program language:



Parameter:

Averaging, 1 – 4000.

Function description:

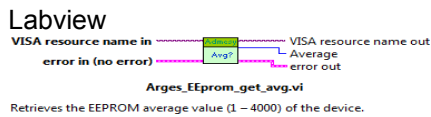
Set the default number of samples to average within the device. This variable is default used for all ":meas:" commands.

Applicable devices:

Argos 45⁰.

5.17 :EEPROM:SENSe:AVERage?

Program language:



Function description:

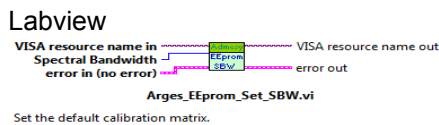
Retrieves the EEPROM average value (1 – 4000) of the device.

Applicable devices:

Arges 45⁰.

5.18 :EEPROM:SENSe:SBW

Program language:



Parameter:

Spectral bandwidth, "small", "Wide", "Off", "User1", "User2", or "User3".

Function description:

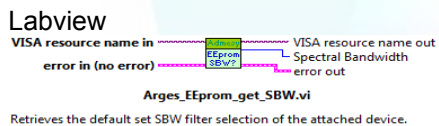
Set the default calibration matrix.

Applicable devices:

Arges 45⁰.

5.19 :EEPROM:SENSe:SBW?

Program language:



Function description:

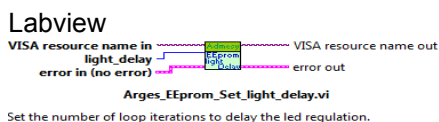
Retrieves the default set SBW filter selection of the attached device.

Applicable devices:

Arges 45⁰.

5.20 :EEPROM:LIGHT:DELAY

Program language:



Parameter:

Light delay, 0 - 65535

Function description:

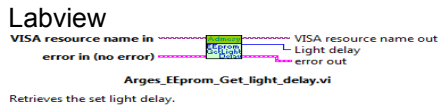
Set the number of loop iterations to delay the led regulation.

Applicable devices:

Arges 45⁰.

5.21 :EEPROM:LIGHT:DELAY?

Program language:



Function description:

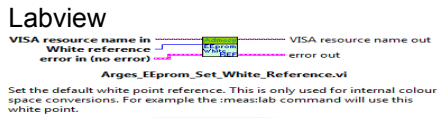
Retrieves the set light delay.

Applicable devices:

Arges 45⁰.

5.22 :EEPROM:CONFigure:WHITE

Program language:



Parameter:

White reference, "A", "B", "C", "D40", "D42", "D50", "D55", "D65", "D75", "D90", "D95", "E", "F2", "F7" or "F11".

Function description:

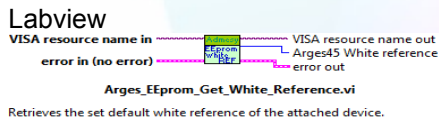
Set the default white point reference. This is only used for internal colour space conversions. For example the :meas:lab command will use this white point.

Applicable devices:

Arges 45⁰.

5.23 :EEPROM:CONFigure:WHITE?

Program language:



Function description:

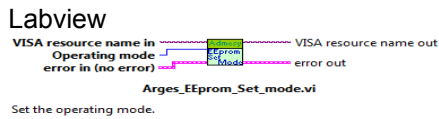
Retrieves the set default white reference of the attached device.

Applicable devices:

Arges 45⁰.

5.24 :EEPROM:CONFigure:MODE

Program language:



Parameter:

Mode, 1 = USB, 2 = RS232 , 3 = Standalone_lum, 4 = Standalone_target_colour, 5 = Standalone_colour_match.

Function description:

Set the operating mode.

Note : When operating is USB mode only, make sure the set value is "USB" as processing speed of command will be faster this way.

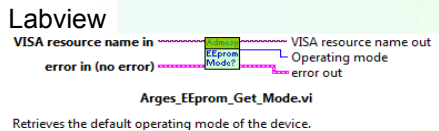
USB will also work in all other modes. In stand alone mode it is however necessary to first connect the USB before connecting the power supply in order for USB to be active.

Applicable devices:

Arges 45⁰.

5.25 :EEPROM:CONFigure:MODE?

Program language:



Function description:

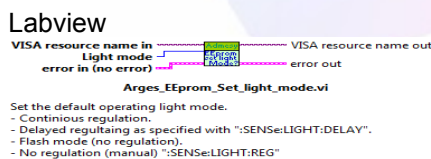
Retrieves the default operating mode of the device.

Applicable devices:

Arges 45⁰.

5.26 :EEPROM:CONFigure:LIGHT

Program language:



Parameter:

Light mode, 0 – 3 Continuous regulation. Delayed regulating as specified with \":SENSe:LIGHT:DELAY\" , Flash mode (no regulation), No regulation (manual) \":SENSe:LIGHT:REG\".

Function description:

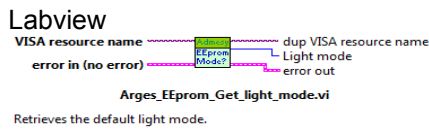
Set the default operating light mode.

Applicable devices:

Arges 45⁰.

5.27 :EEPROM:CONFigure:LIGHT?

Program language:



Function description:

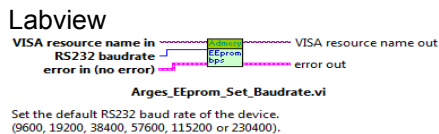
Retrieves the default light mode.

Applicable devices:

Argès 45⁰.

5.28 :EEPROM:CONFigure:BAUDRATE

Program language:



Parameter:

Baud rate, 0 – 5 (9600 - 230400)

Function description:

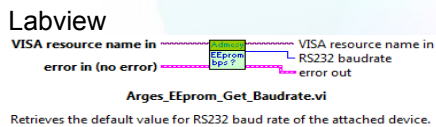
Set the default RS232 baud rate of the device.
(9600, 19200, 38400, 57600, 115200 or 230400).

Applicable devices:

Argès 45⁰.

5.29 :EEPROM:CONFigure:BAUDRATE?

Program language:



Function description:

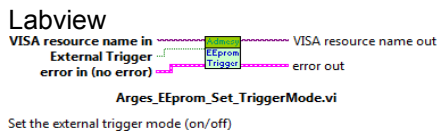
Retrieves the default value for RS232 baud rate of the attached device.

Applicable devices:

Argès 45⁰.

5.30 :EEPROM:CONFigure:TRIG

Program language:



Parameter:

External trigger, (0, 1)

Function description:

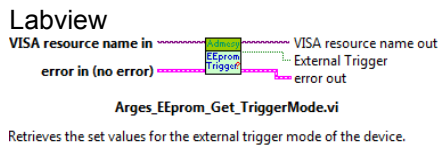
Set the external trigger mode (on/off)

Applicable devices:

Argès 45⁰.

5.31 :EEPROM:CONFigure:TRIG?

Program language:



Function description:

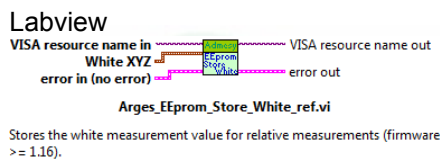
Retrieves the set values for the external trigger mode of the device.

Applicable devices:

Arges 45⁰.

5.32 :EEPROM:STORE:WHITE

Program language:



Parameter:

White, 0 = X, 1 = Y, 2 = Z.

Function description:

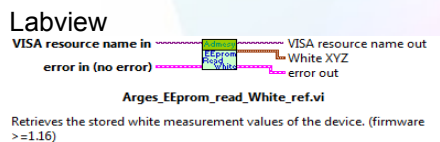
Stores the white measurement value for relative measurements (firmware \geq 1.16).

Applicable devices:

Arges 45⁰.

5.33 :EEPROM:READ:WHITE?

Program language:



Function description:

Retrieves the stored white measurement values of the device. (firmware \geq 1.16)

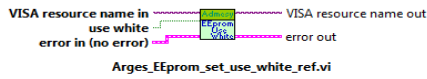
Applicable devices:

Arges 45⁰.

5.34 :EEPROM:USE:WHITE

Program language:

Labview



Use the stored white value at startup for XYZ, Lab and Luv calculation and standalone modes. This function is used for relative measurements. (firmware >=1.16)

Parameter:

Use White, 0 = No, 1 = Yes.

Function description:

Use the stored white value at start-up for XYZ, Lab and Luv calculation and standalone modes. This function is used for relative measurements. (firmware >=1.16)

Applicable devices:

Arges 45⁰.

5.35 :EEPROM:USE:WHITE?

Program language:

Labview



Retrieves if the stored white value is being used at startup. (firmware >= 1.16)

Function description:

Retrieves if the stored white value is being used at start-up. (firmware >= 1.16)

Applicable devices:

Arges 45⁰.