

NI-DMM Instrument Driver Quick Reference Guide






Easy Programming for National Instruments Digital Multimeter

ICON	FUNCTION NAME AND DESCRIPTION [†]	TYPE	PARAMETER	VALUE TO SET, COMMENTS
Initialize and Close				
	<code>niDMM_Initialize</code> (<code>niDMM_init</code>)	ViRsrc ViBoolean ViBoolean ViSession*	resourceName IDQuery resetDevice vi	DAQ::#, where # is the device number VI_TRUE, VI_FALSE VI_TRUE, VI_FALSE Reference to new session handle
	<code>niDMM_Initialize With Options</code> (<code>niDMM_InitWithOptions</code>)	ViRsrc ViBoolean ViBoolean ViString ViSession*	resourceName IDQuery resetDevice Option String vi	DAQ::#, where # is the device number VI_TRUE, VI_FALSE VI_TRUE, VI_FALSE Simulate = 0, RangeCheck = 1 QueryInstrStatus = 1, Cache = 1 Reference to new session handle
	<code>niDMM_Close</code> (<code>niDMM_close</code>)	ViSession	vi	Session handle
Configure				
	<code>niDMM_Configure Measurement</code> (<code>niDMM_ConfigureMeasurement</code>)	ViSession ViInt32 ViReal64 ViReal64	vi Function Range Resolution	Session handle DC volts, AC volts, and so on
	<code>niDMM_Configure Multi Point</code> (<code>niDMM_ConfigureMultiPoint</code>)	ViSession ViInt32 ViInt32 ViInt32 ViReal64	vi Trigger Count Sample Count Sample Trigger Sample Interval	Session handle Default = 1 Default = 1 Immediate, External, TTL0, and so on Default = -1.0 seconds
Measurement Options				
	<code>niDMM_Configure Powerline Frequency</code> (<code>niDMM_ConfigurePowerlineFrequency</code>)	ViSession ViReal64	vi Powerline Frequency	Session handle Default = 60 Hz
	<code>niDMM_Configure Auto Zero</code> (<code>niDMM_ConfigureAutoZeroMode</code>)	ViSession ViInt32	vi AutoZero	Session handle Default = Auto
	<code>niDMM_Configure ADC Calibration</code> (<code>niDMM_ConfigureADCCalibration</code>)	ViSession ViInt32	vi ADC Calibration	Session handle Default = Auto
	<code>niDMM_Configure Offset Comp Ohms</code> (<code>niDMM_ConfigureOffsetCompOhms</code>)	ViSession ViInt32	vi Offset Compensated Ohms	Session handle Default = Off








[†]Function names for C, C++, LabWindows/CVI, and Visual Basic are in parentheses.

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ICON	FUNCTION NAME AND DESCRIPTION [†]	TYPE	PARAMETER	VALUE TO SET, COMMENTS
Measurement Options (Continued)				
	niDMM Configure AC Bandwidth (niDMM_ConfigureACBandwidth)	ViSession	vi	Session handle
		ViReal64	Minimum Frequency	Hz
		ViReal64	Maximum Frequency	Hz
	niDMM Configure Frequency Voltage Range (niDMM_ConfigureFrequencyVoltageRange)	ViSession	vi	Session handle
		ViReal64	Frequency Voltage Range	
	niDMM Configure Current Source (niDMM_ConfigureCurrentSource)	ViSession	vi	Session handle
		ViReal64	Current Source	Default = 100.00 mA






Triggers




	niDMM Configure Trigger (niDMM_ConfigureTrigger)	ViSession	vi	Session handle
		ViInt32	Trigger Source	Default = Immediate
		ViReal64	Trigger Delay	Default = -1.0 seconds
	niDMM Send Software Trigger (niDMM_SendSoftwareTrigger)	ViSession	vi	Session handle
	niDMM Configure Trigger Slope (niDMM_ConfigureTriggerSlope)	ViSession	vi	Session handle
		ViInt32	Trigger Slope	
	niDMM Configure Sample Trigger Slope (niDMM_ConfigureSampleTriggerSlope)	ViSession	vi	Session handle
		ViInt32	Slope	
	niDMM Configure Meas Complete Dest (niDMM_ConfigureMeasCompleteDest)	ViSession	vi	Session handle
		ViInt32	Measurement Complete Destination	
	niDMM Configure Meas Complete Slope (niDMM_ConfigureMeasCompleteSlope)	ViSession	vi	Session handle
		ViInt32	Slope	
	niDMM Configure Sample Delay Mode (niDMM_ConfigureSampleDelayMode)	ViSession	vi	Session handle
		ViInt32	Sample Delay Mode	0 Delay with Interval Trigger; 1 Delay with any trigger



Actual Values






	niDMM Get Auto Range Value (niDMM_GetAutoRangeValue)	ViSession	vi	Session handle
		ViReal64*	autoRange Value	Output
	niDMM Get Aperture Time Info (niDMM_GetApertureTimeInfo)	ViSession	vi	Session handle
		ViReal64*	Aperture Time	Output
		ViInt32*	Aperture Time Units	Output (seconds or PLC)
	niDMM Get Measurement Period (niDMM_GetMeasurementPeriod)	ViSession	vi	Session handle
		ViReal64*	Measurement Period	Output (seconds)




ICON	FUNCTION NAME AND DESCRIPTION [†]	TYPE	PARAMETER	VALUE TO SET, COMMENTS
Acquisition				
	niDMM Read (niDMM_Read)	ViSession ViInt32 ViReal64*	vi Maximum Time Measurement	Session handle Milliseconds Output
	niDMM Read Multi Point (niDMM_ReadMultiPoint)	ViSession ViInt32 ViInt32 ViReal64 [] ViInt32*	vi Maximum Time Number to Read Measurements Actual Points	Session handle Milliseconds Default = 4 Output Output
	niDMM Is Over Range (niDMM_IsOverRange)	ViSession ViReal64 ViBoolean*	vi Measurement Over Range?	Session handle Input Output

Low-Level Acquisition				
	niDMM Initiate (niDMM_Initiate)	ViSession	vi	Session handle
	niDMM Fetch (niDMM_Fetch)	ViSession ViInt32 ViReal64*	vi Maximum Time Measurement	Session handle Milliseconds Output
	niDMM Fetch Multi Point (niDMM_FetchMultiPoint)	ViSession ViInt32 ViInt32 ViReal64 [] ViInt32*	vi Maximum Time Number to Fetch Measurements Actual Points	Session handle Milliseconds Default = 4 Output Output
	niDMM Read Status (niDMM_ReadStatus)	ViSession ViInt32* ViInt16*	vi Backlog Acquisition State	Session handle Output Output
	niDMM Abort (niDMM_Abort)	ViSession	vi	Session handle

Utility				
	niDMM Reset (niDMM_reset)	ViSession	vi	Session handle
	niDMM Self Test (niDMM_self_test)	ViSession ViInt16* ViChar []	vi Self Test Result Self Test Message	Session handle Output Output
	niDMM Revision Query (niDMM_revision_query)	ViSession ViChar [] ViChar []	vi Instrument Driver Revision Firmware Revision	Session handle Output Output

ICON	FUNCTION NAME AND DESCRIPTION [†]	TYPE	PARAMETER	VALUE TO SET, COMMENTS
Utility (Continued)				
	niDMM Format Measurement Absolute (niDMM_FormatMeasurementAbsolute)	ViInt32 ViReal64 ViReal64 ViReal64 ViChar[] ViChar[] ViChar[]	Function Range Resolution Measurement Mode String Range String Data String	DC volts, AC volts, and so on Input Input Input Output Output Output
	niDMM Get Digits Of Precision (niDMM_GetDigitsOfPrecision)	ViSession ViReal64*	vi Digits	Session handle Output (3.5/4.5/5.5/6.5)

Calibration				
	niDMM Self Cal (niDMM_SelfCal)	ViSession	vi	Session handle
	niDMM Get Cal Count (niDMM_GetCalCount)	ViSession ViInt32 ViInt32*	vi Area Count	Session handle Default = Internal Output
	niDMM Get Dev Temp (niDMM_GetDevTemp)	ViSession ViString ViReal64*	vi Reserved Temperature	Session handle "" Output
	niDMM Get Last Cal Temp (niDMM_GetLastCalTemp)	ViSession ViInt32 ViReal64*	vi Area Temperature	Session handle Default = Internal Output
	niDMM Get Cal Date and Time (niDMM_GetCalDateandTime)	ViSession ViInt32 ViInt32* ViInt32* ViInt32* ViInt32* ViInt32*	vi Area Month Day Year Hour Minute	Session handle Default = Internal Output Output Output Output Output

ICON	FUNCTION NAME AND DESCRIPTION [†]	TYPE	PARAMETER	VALUE TO SET, COMMENTS
	niDMM Error Message (niDMM_error_message)	ViSession ViBoolean ViStatus* ViChar []	vi Message Box (Only applies to LV) Error Code Error Message	Session handle Default = Do not show dialog Input/Output Output
	niDMM Get Error (niDMM_GetError)	ViSession ViStatus* ViInt32 ViChar []	vi Error Code Buffer Size Error Message	Session handle Output Input Output
	niDMM Clear Error (niDMM_ClearError)	ViSession	vi	Session handle

Programming Flow

Initialize

Configure Hardware

Read

Close Session

Error Checking

