Active Channel Property

Short Name: Active Channel

Property of <u>niDMM</u>

Specifies the channel name used to access all subsequent channelbased properties in this property node. Set the channel before setting channel-based properties. Pass a name that the instrument driver defines or a virtual channel name configured in MAX.

Datatype	abc
Permissions	Write Only
High-level VIs	N/A
Resettable	No

Configuration: Function Property

Short Name: Function

Property of <u>niDMM</u>

Specifies the measurement function. If you are setting this property directly, you must also set the <u>Operation Mode</u> property, which controls whether the DMM takes standard single or multipoint measurements, or acquires a waveform. If you are programming properties directly, you must set the Operation Mode property before setting other configuration properties. If the Operation Mode property is set to Waveform Mode, the only valid function types are Waveform Voltage and Waveform Current. Set the Operation Mode property to IVIDMM Mode to set all other function values.

DC Volts (1)	All devices supported.
AC Volts (2)	All devices supported.
DC Current (3)	All devices supported.
AC Current (4)	All devices supported.
2-Wire Resistance (5)	All devices supported.
4-Wire Resistance (101)	NI 4065, and NI 4070/4071/4072 supported.
Frequency (104)	NI 4070/4071/4072 supported.
Period (105)	NI 4070/4071/4072 supported.
AC Volts DC Coupled (1001)	NI 4070/4071/4072 supported.
Diode (1002)	All devices supported.
Waveform Voltage (1003)	NI 4070/4071/4072 supported.
Waveform Current (1004)	NI 4070/4071/4072 supported.
Capacitance (1005)	NI 4072 supported.
Inductance (1006)	NI 4072 supported.
Temperature (108)	NI 4065, and NI 4070/4071/4072 supported.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Measurement Absolute, niDMM Configure Measurement Digits, niDMM Configure Waveform Acquisition
Resettable	No

Configuration:Range Property

Short Name: Range

Property of <u>niDMM</u>

Specifies the measurement range. Use positive values to represent the absolute value of the maximum expected measurement. The value is in units appropriate for the current value of the Function property. For example, if the Function property is set to DC Volts, the units are volts.



Note The NI 4050, NI 4060, and NI 4065 only support Auto Range when the trigger and sample trigger are set to Immediate.

(-1.0)	Auto Range On	NI-DMM performs an Auto Range before acquiring the measurement.
(-2.0)	Auto Range Off	NI-DMM sets the Range to the current <u>Auto Range Value</u> and uses this range for all subsequent measurements until the measurement configuration is changed.
(-3.0)	Auto Range Once	NI-DMM performs an Auto Range before acquiring the next measurement. The <u>Auto Range Value</u> is stored and used for all subsequent measurements until the measurement configuration is changed.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Measurement Absolute, niDMM Configure Measurement Digits
Resettable	No

Configuration: Auto Range Value Property

Short Name: Auto Range Value

Property of <u>niDMM</u>

Specifies the value of the range. If auto ranging is enabled, shows the actual value of the active range. The value of this property is set during a read operation.

Datatype	DBL
Permissions	Read Only
High-level VIs	niDMM Get Auto Range Value
Resettable	No

Configuration: Digits Resolution Property

Short Name: Digits Resolution

Property of <u>niDMM</u>

Specifies the measurement resolution in digits. Setting this property to higher values increases the measurement accuracy. Setting this property to lower values increases the measurement speed.

Note NI-DMM ignores this property for capacitance and inductance measurements on the NI 4072. To achieve better resolution for such measurements, use the <u>Number of LC</u> <u>Measurements to Average</u> property.

3.5 (3.500000E+0)	Specifies 3.5 digits resolution.
4.5 (4.500000E+0)	Specifies 4.5 digits resolution.
5.5 (5.500000E+0)	Specifies 5.5 digits resolution.
6.5 (6.500000E+0)	Specifies 6.5 digits resolution.
7.5 (7.500000E+0)	Specifies 7.5 digits resolution.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Measurement Absolute, niDMM Configure Measurement Digits
Resettable	No

Configuration: Absolute Resolution Property

Short Name: Absolute Resolution

Property of <u>niDMM</u>

Specifies the measurement resolution in absolute units. Setting this property to higher values increases the measurement accuracy. Setting this property to lower values increases the measurement speed.



Note NI-DMM ignores this property for capacitance and inductance measurements on the NI 4072. To achieve better resolution for such measurements, use the Number of LC Measurements to Average property.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Measurement Absolute, niDMM Configure Measurement Digits
Resettable	No

Configuration:Measurement Options:Input Resistance Property

Short Name: Input Resistance

Property of <u>niDMM</u>

Specifies the input resistance of the instrument.

Note The NI 4050 and NI 4060 are not supported.

1 M Ohm (1.000000E+6)	Input resistance of 1 M Ohm
10 M Ohm (1.000000E+7)	Input resistance of 10 M Ohm
Greater Than 10 G Ohm (1.000000E+10)	Input resistance greater than 10 G Ohm

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Auto Zero Property

Short Name: Auto Zero

Property of <u>niDMM</u>

Specifies the AutoZero mode. This property is not supported for the NI 4050.

Auto (-1)	NI-DMM chooses the Auto Zero setting based on the configured function and resolution.
Off (0)	Disables AutoZero.
	Note The NI 4065 does not support this setting
On (1)	The DMM internally disconnects the input signal following each measurement and takes a zero reading. It then subtracts the zero reading from the preceding reading. For NI 4065 devices, Auto Zero is always ON. Auto Zero is an integral part of the signal measurement phase and adds no extra time to the overall measurement.
Once (2)	The DMM internally disconnects the input signal for the first measurement and takes a zero reading. It then subtracts the zero reading from the first reading and the following readings. The NI 4060/4065 does not support this setting.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Auto Zero
Resettable	No

Configuration:Measurement Options:ADC Calibration Property

Short Name: ADC Calibration

Property of <u>niDMM</u>

For the NI 4070/4071/4072 only, specifies the ADC calibration mode.

Auto (-1)	The DMM enables or disables ADC calibration based on the configured function and resolution.
Off (0)	The DMM does not compensate for changes to the gain.
On (1)	The DMM measures an internal reference to calculate the correct gain for the measurement.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure ADC Calibration
Resettable	No

Configuration:Measurement Options:Powerline Frequency Property

Short Name: Powerline Frequency

Property of <u>niDMM</u>

Specifies the powerline frequency. The NI 4060 and NI 4050 use this value to select an aperture time to reject powerline noise by selecting the appropriate internal sample clock and filter. The NI 4065 and NI 4070/4071/4072 use this value to select timebases for setting the Aperture Time property in powerline cycles.

After configuring powerline frequency, set the Aperture Time Units property to PLCs. When setting the Aperture Time property, select the number of PLCs for the powerline frequency. For example, if powerline frequency = 50 Hz (or 20 ms) and aperture time in PLCs = 5, then aperture time in seconds = 20 ms * 5 PLCs = 100 ms. Similarly, if powerline frequency = 60 Hz (or 16.667 ms) and aperture time in PLCs = 6, then aperture time in seconds = 16.667 ms * 6 PLCs = 100 ms.

Note For 400 Hz powerline frequency, use the 50 Hz setting.

50 Hz (5.000000E+1) Specifies the powerline frequency as 50 Hz.

60 Hz (6.000000E+1) Specifies the powerline frequency as 60 Hz.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Powerline Frequency
Resettable	No

Configuration:Measurement Options:Offset Compensated Ohms Property

Short Name: Offset Compensated Ohms

Property of <u>niDMM</u>

For the NI 4070/4071/4072 only, enables or disables offset compensated ohms.

Off (0) Disables Offset Compensated Ohms.

On (1) Enables Offset Compensated Ohms.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Offset Comp Ohms
Resettable	No

Configuration:Measurement Options:Current Source Property

Short Name: Current Source

Property of <u>niDMM</u>

Specifies the current source provided during diode measurements.

The NI 4050 and NI 4060 are not supported.

1 Microamp (1.00000E-6)	NI 4070/4071/4072 are supported.
10 Microamp (1.000000E- 5)	NI 4070/4071/4072 are supported.
100 Microamp (1.000000E-4)	NI 4070/4071/4072 and NI 4065 are supported.
1 Milliamp (1.000000E-3)	NI 4070/4071/4072 and NI 4065 are supported.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Current Source
Resettable	No

Configuration:Measurement Options:Shunt Value Property

Short Name: Shunt Value

Property of <u>niDMM</u>

For the NI 4050 only, specifies the shunt resistance value.



Note The NI 4050 requires an external shunt resistor for current measurements. This property should be set to the value of the shunt resistor.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:DC Noise Rejection Property

Short Name: DC Noise Rejection

Property of <u>niDMM</u>

Specifies the DC noise rejection mode.

Note The NI 4050 and NI 4060 are not supported.

Auto (-1)	The driver chooses the DC noise rejection setting based on the configured function and resolution.	
Normal (0)	NI-DMM weighs all samples equally.	
Second Order (1)	NI-DMM weighs the samples taken in the middle of the aperture time more than samples taken at the beginning and the end of the measurement using a triangular weighing function.	
High Order (2)	NI-DMM weighs the samples taken in the middle of the aperture time more than samples taken at the beginning and the end of the measurement using a bell-curve weighing function.	

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Min Frequency Property

Short Name: Min Frequency

Property of **niDMM**

Specifies the minimum frequency component of the input signal for AC measurements. This property affects the DMM only when you set the Function property to AC measurements. The valid range is 1 Hz-300 kHz for the NI 4070/4071/4072, 10 Hz-100 Hz for the NI 4065, and 20 Hz-25 kHz for the NI 4050 and NI 4060.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure AC Bandwidth
Resettable	No

Configuration:Measurement Options:Max Frequency Property

Short Name: Max Frequency

Property of **niDMM**

Specifies the maximum frequency component of the input signal for AC measurements. This property is used only for error checking and verifies that the value of this parameter is less than the maximum frequency of the device. This property affects the DMM only when you set the Function property to AC measurements.

The valid ranges are shown in the following table.

NI 4070/4071/4072,	1 Hz-300 kHz
NI 4065	10 Hz-100 Hz
NI 4050/4060	20 Hz-25 kHz

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure AC Bandwidth
Resettable	No

Configuration:Measurement Options:Frequency Voltage Range Property

Short Name: Frequency Voltage Range

Property of <u>niDMM</u>

For the NI 4070/4071/4072 only, specifies the maximum amplitude of the input signal for frequency measurements.

Auto Range On	-1.0	Configures the DMM to take an Auto Range measurement to calculate the voltage range before each frequency or period measurement.
Auto Range Off	-2.0	Disables Auto Ranging. NI-DMM sets the voltage range to the last calculated voltage range.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Frequency Voltage Range
Resettable	No

Configuration: Measurement Options: Frequency Voltage Auto Range Value Property

Short Name: Frequency Voltage Auto Range Value

Property of <u>niDMM</u>

For the NI 4070/4071/4072 only, specifies the value of the frequency voltage range. If auto ranging is enabled, shows the actual value of the active frequency voltage range. If not Auto Ranging, the value is the same as that of the Frequency Voltage Range property.

Datatype	DBL
Permissions	Read Only
High-level VIs	N/A
Resettable	No
Configuration:Measurement Options:Temperature:Transducer Type Property

Short Name: Transducer Type

Property of <u>niDMM</u>

Specifies the transducer type.

Thermocouple (1)	Use for thermocouple measurements.
Thermistor (2)	Use for thermistor measurements.
2-Wire RTD (3)	Use for 2-wire RTD measurements.
4-Wire RTD (4)	Use for 4-wire RTD measurements.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Thermocouple:Thermocou Type Property

Short Name: Thermocouple Type

Property of <u>niDMM</u>

Specifies the thermocouple type.

B (1)	Thermocouple type B
E (4)	Thermocouple type E
J (6)	Thermocouple type J
K (7)	Thermocouple type K
N (8)	Thermocouple type N
R (9)	Thermocouple type R
S (10)	Thermocouple type S
T (11)	Thermocouple type T

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Thermocouple:Reference Junction Type Property

Short Name: TC Ref Junction Type

Property of <u>niDMM</u>

Specifies the thermocouple reference junction type.

Fixed (2) Thermocouple reference juction is fixed at the user-specified temperature.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Thermocouple:Fixed Reference Junction Property

Short Name: TC Fixed Ref Junction

Property of <u>niDMM</u>

Specifies the value of the fixed reference junction temperature for a thermocouple in degrees Celsius.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Resistance Temperature Detector:RTD Type Property

Short Name: RTD Type

Property of <u>niDMM</u>

Specifies the RTD type.

Custom (0)	Performs Callendar-Van Dusen RTD scaling with the user- specified A, B, and C coefficients.
Pt 3750 (1)	Performs scaling for a Pt 3750 RTD.
Pt 3851 (2)	Performs scaling for a Pt 3851 RTD.
Pt 3911 (3)	Performs scaling for a Pt 3911 RTD.
Pt 3916 (4)	Performs scaling for a Pt 3916 RTD.
Pt 3920 (5)	Performs scaling for a Pt 3920 RTD.
Pt 3928 (6)	Performs scaling for a Pt 3928 RTD.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Resistance Temperature Detector:RTD Resistance Property

Short Name: RTD Resistance

Property of <u>niDMM</u>

Specifies the RTD resistance at 0 degrees Celsius.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Resistance Temperature Detector:RTD A Property

Short Name: RTD A

Property of <u>niDMM</u>

Specifies the Callendar-Van Dusen A coefficient for RTD scaling when the **RTD Type property** is set to Custom.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Resistance Temperature Detector:RTD B Property

Short Name: RTD B

Property of <u>niDMM</u>

Specifies the Callendar-Van Dusen B coefficient for RTD scaling when the **RTD Type property** is set to Custom.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Resistance Temperature Detector:RTD C Property

Short Name: RTD C

Property of <u>niDMM</u>

Specifies the Callendar-Van Dusen C coefficient for RTD scaling when the **RTD Type property** is set to Custom.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Thermistor:Thermistor Type Property

Short Name: Thermistoror Type

Property of <u>niDMM</u>

Specifies the thermistor type.

Custom (0)	Performs Steinhart-Hart thermistor scaling with the user- specified A, B, and C coefficients.
44004 (1)	Performs scaling for an Omega Series 44004 thermistor.
44006 (2)	Performs scaling for an Omega Series 44006 thermistor.
44007 (3)	Performs scaling for an Omega Series 44007 thermistor.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Thermistor:Thermistor A Property

Short Name: Thermistor A

Property of <u>niDMM</u>

Specifies the Steinhart-Hart A coefficient for thermistor scaling when the **Thermistor Type property** is set to Custom.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Thermistor:Thermistor B Property

Short Name: Thermistor B

Property of <u>niDMM</u>

Specifies the Steinhart-Hart B coefficient for thermistor scaling when the **Thermistor Type property** is set to Custom.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Temperature:Thermistor:Thermistor C Property

Short Name: Thermistor C

Property of <u>niDMM</u>

Specifies the Steinhart-Hart C coefficient for thermistor scaling when the **Thermistor Type property** is set to Custom.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Capacitance and Inductance:Number of LC Measurements To Average Property

Short Name: Number of LC Measurements To Average

Property of **niDMM**

For the NI 4072 only, specifies the number of LC measurements that are averaged to produce one reading.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Capacitance and Inductance:Cable Compensation Type Property

Short Name: Cable Compensation Type

Property of <u>niDMM</u>

For the NI 4072 only, specifies the type of cable compensation that is applied to the current capacitance or inductance measurement for the current range.



Note Changing the function or the range using property nodes or through <u>niDMM Config Measurement</u> resets this property to the default value.

None (0)	No cable compensation.
Open (1)	Open cable compensation.
Short (2)	Short cable compensation.
Open_and_Short (3)	Open and short cable compensation.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Cable Comp Type
Resettable	No

Configuration:Measurement Options:Capacitance and Inductance:Open Cable Compensation Values:Conductance Property

Short Name: Conductance

Property of <u>niDMM</u>

For the NI 4072 only, specifies the active part (conductance) of the open cable compensation. The valid range is any real number >0. The default value (-1.0) indicates that compensation has not taken place.



Note Changing the function or the range using property nodes or through <u>niDMM Config Measurement</u> resets this property to the default value.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Open Cable Comp Values
Resettable	No

Configuration:Measurement Options:Capacitance and Inductance:Open Cable Compensation Values:Susceptance Property

Short Name: Susceptance

Property of <u>niDMM</u>

For the NI 4072 only, specifies the reactive part (susceptance) of the open cable compensation. The valid range is any real number >0. The default value (-1.0) indicates that compensation has not taken place.



Note Changing the function or the range using property nodes or through <u>niDMM Config Measurement</u> resets this property to the default value.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Open Cable Comp Values
Resettable	No

Configuration:Measurement Options:Capacitance and Inductance:Short Cable Compensation Values:Resistance Property

Short Name: Resistance

Property of <u>niDMM</u>

For the NI 4072 only, represents the active part (resistance) of the short cable compensation. The valid range is any real number >0. The default value (-1) indicates that compensation has not taken place.



Note Changing the VI or the range through this property or through <u>niDMM Config Measurement</u> resets this property to the default value.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Short Cable Comp Values
Resettable	No
Configuration:Measurement Options:Capacitance and Inductance:Short Cable Compensation Values:Reactance Property

Short Name: Reactance

Property of <u>niDMM</u>

For the NI 4072 only, represents the reactive part (reactance) of the short cable compensation. The valid range is any real number >0. The default value (-1) indicates that compensation has not taken place.



Note Changing the VI or the range through this property or through <u>niDMM Config Measurement</u> resets this property to the default value.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Short Cable Comp Values
Resettable	No

Configuration:Measurement Options:Capacitance and Inductance:Advanced:Calculation Model Property

Short Name: LC Calculation Model

Property of <u>niDMM</u>

For the NI 4072 only, specifies the type of algorithm that the measurement processing uses for capacitance and inductance measurements.

Auto (-1)	NI-DMM chooses the algorithm based on function and range.
Series (0)	NI-DMM uses the series impedance model to calculate capacitance and inductance.
Parallel (1)	NI-DMM uses the parallel admittance model to calculate capacitance and inductance.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Measurement Options:Capacitance and Inductance:Advanced:DC Bias Property

Short Name: DC Bias

Property of <u>niDMM</u>

For the NI 4072 only, controls the available DC bias for capacitance measurements.

DC Bias Off (0) NI-DMM programs the device not to use the DC bias. **DC Bias On** (1) NI-DMM programs the device to use the DC bias.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Advanced:Aperture Time Property

Short Name: Aperture Time

Property of **niDMM**

Specifies the measurement aperture time for the current configuration. Aperture time is specified in units set by the Aperture Time Units property. To override the default aperture, set this property to the desired aperture time after calling <u>niDMM Config Measurement</u>. To return to the default, set this property to Aperture Time Auto (-1).

On the NI 4070/4071/4072, the minimum aperture time is 8.89 micro s, and the maximum aperture time is 149 s. Any number of powerline cycles (PLCs) within the minimum and maximum ranges is allowed on the NI 4070/4071/4072.

On the NI 4065 the minimum aperture time is 333 micro s and the maximum aperture time is 78.2 s. If setting the number of averages directly, the total measurement time is aperture time X the number of averages, which must be less than 72.8 s. The aperture times allowed are 333 micro s, 667 micro s, or multiples of 1.11 ms—for example 1.11 ms, 2.22 ms, 3.33 ms, and so on. If you set an aperture time other than 333 micro s, 667 micro s, or multiples of 1.11 ms, the value will be coerced up to the next supported aperture time.

On the NI 4060, when the powerline frequency is 60 Hz, the PLCs allowed are 1 PLC, 6 PLC, 12 PLC, and 120 PLC. When the powerline frequency is 50 Hz, the PLCs allowed are 1 PLC, 5 PLC, 10 PLC, and 100 PLC.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Get Aperture Time Info
Resettable	No

Configuration:Advanced:Aperture Time Units Property

Short Name: Aperture Time Units

Property of <u>niDMM</u>

Specifies the units of aperture time for the current configuration.



Note The NI 4060 does not support an aperture time set in seconds.

Seconds (0)	Units are seconds.
Power Line Cycles (1)	Units are powerline cycles (PLCs).

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Get Aperture Time Info
Resettable	No

Configuration:Advanced:Settle Time Property

Short Name: Settle Time

Property of <u>niDMM</u>

Specifies the settling time in seconds. Use this property to override the default settling time. To return to the default, set this property to Auto (-1).

Note The NI 4050 and NI 4060 are not supported.

Datatype	DBL
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Advanced:Number Of Averages Property

Short Name: Number Of Averages

Property of <u>niDMM</u>

Specifies the number of averages to perform in a measurement. For the NI 4070/4071/4072, applies only when the aperture time is not set to Auto and Auto Zero is ON. The default is 1.

The NI 4050 and NI 4060 are not supported.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Configuration:Advanced:Operation Mode Property

Short Name: Operation Mode

Property of <u>niDMM</u>

Specifies how the NI 4065 and NI 4070/4071/4072 acquire data.

When you call <u>niDMM Config Measurement</u>, NI-DMM sets this property to IVIDMM Mode. When you call <u>niDMM Configure Waveform</u> <u>Acquisition</u>, NI-DMM sets this property to Waveform Mode. If you are programming properties directly, you must set this property before setting other configuration properties.

IVIDMM Mode (0)	Single or multipoint measurements: When the Trigger Count and Sample Count properties are both set to 1, the NI 4065 and NI 4070/4071/4072 take a single-point measurement; otherwise, NI-DMM takes multipoint measurements.
Waveform Mode (1)	Configures the NI 4070/4071/4072 to take waveform measurements.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Multi Point Acquisition:Sample Count Property

Short Name: Sample Count

Property of <u>niDMM</u>

Specifies the number of measurements the DMM takes each time it receives a trigger in a multiple point acquisition.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Multi Point
Resettable	No

Multi Point Acquisition: Trigger Count Property

Short Name: Trigger Count

Property of <u>niDMM</u>

Specifies the number of triggers the DMM receives before returning to the Idle state. This property can be set to any positive ViInt32 value for the NI 4065 and NI 4070/4071/4072.

The NI 4050/4060 only support this property being set to 1.

Refer to <u>Multiple Point Acquisitions</u> in the *NI Digital Multimeters Help* for more information.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Multi Point
Resettable	No

Multi Point Acquisition:Sample Trigger Property

Short Name: Sample Trigger

Property of <u>niDMM</u>

Specifies the sample trigger source.

To determine which values are supported by each device, refer to the LabVIEW Trigger Routing section in the *NI Digital Multimeters Help*.

Immediate (1)	No trigger specified
Interval (10)	Interval trigger
External (2)	Pin 9 on the AUX Connector
Software Trig (3)	Configures the DMM to wait until <u>niDMM Send Software</u> <u>Trigger</u> is called.
TTL 0 (111)	PXI Trigger Line 0
TTL 1 (112)	PXI Trigger Line 1
TTL 2 (113)	PXI Trigger Line 2
TTL 3 (114)	PXI Trigger Line 3
TTL 4 (115)	PXI Trigger Line 4
TTL 5 (116)	PXI Trigger Line 5
TTL 6 (117)	PXI Trigger Line 6
TTL 7 (118)	PXI Trigger Line 7
PXI Star (131)	PXI Star trigger line
LBR Trig 1 (1004)	Local Bus Right Trigger Line 1 of PXI/SCXI combination chassis
AUX Trig 1 (1001)	Pin 3 on the AUX connector

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Multi Point
Resettable	No

Multi Point Acquisition:Sample Trig Slope Property

Short Name: Sample Trig Slope

Property of <u>niDMM</u>

Specifies the edge of the signal from the specified sample trigger source on which the DMM is triggered.

Positive (0)	The driver triggers on the rising edge of the trigger signal.
Negative (1)	The driver triggers on the falling edge of the trigger signal.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Multi Point Acquisition:Sample Interval Property

Short Name: Sample Interval

Property of <u>niDMM</u>

Specifies the amount of time in seconds the DMM waits between measurements. This property only applies when the Sample Trigger property is set to INTERVAL. The default value (-1) ensures that the DMM settles for a recommended time, which is the same as using an immediate trigger.

The NI 4065 and NI 4070/4071/4072 use the value specified in this property as additional delay. On the NI 4065 and NI 4070/4071/4072, the onboard timing resolution is 34.72 ns and the valid range is 0-149 s.

On the NI 4060, the value for this property is used as the settling time. When this property is set to 0, the NI 4060 does not settle between measurements. The onboard timing resolution is 1 micro s on the NI 4060.

Only positive values are valid when setting the sample interval.

Note The NI 4050 is not supported.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Multi Point
Resettable	No

Multi Point Acquisition:Sample Delay Mode Property

Short Name: Sample Delay Mode

Property of <u>niDMM</u>

For the NI 4060 only, specifies a delay interval after a sample trigger.

0	IVI compliant	The Sample Interval property is only used when the Sample Trigger is set to Interval.
1	Not IVI compliant	The Sample Interval property is used as a delay after any type of Sample Trigger.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Multi Point Acquisition:Advanced:Buffer Size Property

Short Name: Buffer Size

Property of <u>niDMM</u>

Specifies the size in samples of the internal data buffer. Maximum size is 134,217,727 (OX7FFFFF) samples. When set to Auto (-1), NI-DMM chooses the buffer size.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Multi Point Acquisition:Advanced:Latency Property

Short Name: Latency

Property of <u>niDMM</u>

Specifies the number of measurements transferred at a time from the instrument to an internal buffer. When set to Auto (-1), NI-DMM chooses the transfer size.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Waveform Acquisition:Waveform Points Property

Short Name: Waveform Points

Property of <u>niDMM</u>

For the NI 4070/4071/4072 only, specifies the number of points to acquire in a waveform acquisition.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Waveform Acquisition
Resettable	No

Waveform Acquisition:Waveform Rate Property

Short Name: Waveform Rate

Property of <u>niDMM</u>

For the NI 4070/4071/4072 only, specifies the rate of the waveform acquisition in samples per second (S/s). The valid range is 10.0-1,800,000 S/s. Values are coerced to the closest integer divisor of 1,800,000. The default value is 1,800,000.

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Waveform Acquisition
Resettable	No
Waveform Acquisition:Waveform Coupling Property

Short Name: Waveform Coupling

Property of <u>niDMM</u>

For the NI 4070/4071/4072 only, specifies the coupling during a waveform acquisition.

AC (0) Specifies AC coupling.

DC (1) Specifies DC coupling.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Waveform Coupling
Resettable	No

Trigger: Trigger Source Property

Short Name: Trigger Source

Property of <u>niDMM</u>

Specifies the trigger source. When <u>niDMM Initiate</u> is called, the DMM waits for the trigger specified with this property. After it receives the trigger, the DMM waits the length of time specified with the <u>Trigger Delay</u> property. The DMM then takes a measurement.

To determine which values are supported by each device, refer to the <u>LabVIEW Trigger Routing</u> section in the *NI Digital Multimeters Help*.

Immediate (1)	No trigger specified.
External (2)	Pin 9 on the AUX Connector
Software Trig (3)	Waits until <u>niDMM Send Software Trigger</u> is called.
TTL 0 (111)	PXI Trigger Line 0
TTL 1 (112)	PXI Trigger Line 1
TTL 2 (113)	PXI Trigger Line 2
TTL 3 (114)	PXI Trigger Line 3
TTL 4 (115)	PXI Trigger Line 4
TTL 5 (116)	PXI Trigger Line 5
TTL 6 (117)	PXI Trigger Line 6
TTL 7 (118)	PXI Trigger Line 7
PXI Star (131)	PXI Star Trigger Line
LBR Trig 1 (1004)	Local Bus Right Trigger Line 1 of PXI/SCXI combination chassis
AUX_Trig 1 (1001)	Pin 3 on the AUX connector

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Trigger
Resettable	No

Trigger: Trigger Slope Property

Short Name: Trigger Slope

Property of <u>niDMM</u>

Specifies the edge of the signal from the specified trigger source on which the DMM is triggered.

Positive (0)	The driver triggers on the rising edge of the trigger signal.
Negative (1)	The driver triggers on the falling edge of the trigger signal.

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Sample Trigger Slope, niDMM Configure Trigger Slope
Resettable	No

Trigger: Trigger Delay Property

Short Name: Trigger Delay

Property of <u>niDMM</u>

Specifies the time (in seconds) that the DMM waits after it has received a trigger before taking a measurement. The default value is Auto Delay (-1), which means that the DMM waits an appropriate settling time before taking the measurement. (-1) signifies that Auto Delay is on, and (-2) signifies that Auto Delay is off.

The NI 4065 and NI 4070/4071/4072 use the value specified in this property as additional settling time. For the NI 4065 and NI 4070/4071/4072, the valid range for Trigger Delay is Auto Delay (-1) or 0.0 - 149.0 seconds and the onboard timing resolution is 34.72 ns.

On the NI 4060, if this property is set to 0, the DMM does not settle before taking the measurement. On the NI 4060, the valid range for Auto Delay (-1) is 0.0-12.0 seconds and the onboard timing resolution is 100 ms.

When using the NI 4050, this property must be set to Auto Delay (-1).

Use positive values to set the trigger delay in seconds.

Valid Range: Auto Delay (-1.0), 0.0-12.0 seconds (NI 4060 only), 0.0-149.0 seconds (NI 4065 and NI 4070/4071/4072)

Default Value: Auto Delay

Datatype	DBL
Permissions	Read/Write
High-level VIs	niDMM Configure Trigger
Resettable	No

Trigger:Measurement Complete Dest Property

Short Name: Measurement CompletDest

Property of <u>niDMM</u>

Specifies the destination of the measurement complete (MC) signal.

Note The NI 4050 is not supported.

To determine which values are supported by each device, refer to the <u>LabVIEW Trigger Routing</u> section in the *NI Digital Multimeters Help*.

None (-1)	No destination specified.
External (2)	Pin 6 on the AUX Connector
TTL 0 (111)	PXI Trigger Line 0
TTL 1 (112)	PXI Trigger Line 1
TL 2 (113)	PXI Trigger Line 2
TTL 3 (114)	PXI Trigger Line 3
TL 4 (115)	PXI Trigger Line 4
TTL 5 (116)	PXI Trigger Line 5
TTL 6 (117)	PXI Trigger Line 6
TTL 7 (118)	PXI Trigger Line 7
LBR Trig 0 (1003)	Local Bus Right Trigger Line 0 of PXI/SCXI combination chassis

Datatype	132
Permissions	Read/Write
High-level VIs	niDMM Configure Meas Complete Dest
Resettable	No

Trigger:Measurement Destination Slope Property

Short Name: Measurement Destination Slope

Property of <u>niDMM</u>

Specifies the polarity of the generated measurement complete signal.

Positive (0)	The driver triggers on the rising edge of the trigger signal.
Negative (1)	The driver triggers on the falling edge of the trigger signal.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:User Options:Simulate Property

Short Name: Simulate

Property of <u>niDMM</u>

Specifies whether to simulate instrument driver I/O operations. If simulation is enabled, instrument driver functions perform range checking and call IVI Get and Set VIs, but they do not perform instrument I/O. For output parameters that represent instrument data, the instrument driver VIs return calculated values. The default value is FALSE (0). Use <u>niDMM</u> <u>Initialize With Options</u> to override the default setting.



Note Simulate can only be set within the <u>niDMM Initialize With</u> <u>Options</u> VI. The property value cannot be changed outside of the VI.

Datatype	TF
Permissions	Read/Write
High-level VIs	niDMM Initialize With Options
Resettable	No

Inherent IVI Attributes:User Options:Driver Setup Property

Short Name: Driver Setup

Property of <u>niDMM</u>

This property indicates the Driver Setup string that the user specified when initializing the driver. Some cases exist where the end-user must specify instrument driver options at initialization time. An example of this is specifying a particular instrument model from among a family of instruments that the driver supports. This is useful when using simulation. The end-user can specify driver-specific options through the Driver Setup keyword in the Option String parameter in <u>niDMM Initialize With Options</u>. If the user does not specify a Driver Setup string, this property returns an empty string.

Datatype	abci
Permissions	Read Only
High-level VIs	niDMM Initialize With Options
Resettable	No

Inherent IVI Attributes:User Options:Range Check Property

Short Name: Range Check

Property of <u>niDMM</u>

Specifies whether to validate property values and VI parameters. If enabled, the instrument driver validates the parameter values passed to driver VIs. Range checking parameters is very useful for debugging. After the user program is validated, you can set this property to FALSE (0) to disable range checking and maximize performance. The default value is TRUE (1). Use <u>niDMM Initialize With Options</u> to override the default setting.

Datatype	TF
Permissions	Read/Write
High-level VIs	niDMM Initialize With Options
Resettable	No

Inherent IVI Attributes:User Options:Query Instrument Status Property

Short Name: Query Instrument Status

Property of **niDMM**

Specifies whether the instrument driver queries the instrument status after each operation. Querying the instrument status is very useful for debugging. After the user program is validated, this property can be set to FALSE (0) to disable status checking and maximize performance. The instrument driver can choose to ignore status checking for particular properties regardless of the setting of this property. The default value is TRUE (1). Use <u>niDMM Initialize With Options</u> to override the default setting.

Datatype	TF
Permissions	Read/Write
High-level VIs	niDMM Initialize With Options
Resettable	No

Inherent IVI Attributes:User Options:Cache Property

Short Name: Cache

Property of <u>niDMM</u>

Specifies whether to cache the value of properties. When caching is enabled, the instrument driver keeps track of the current instrument settings and avoids sending redundant commands to the instrument. Thus, it significantly increases execution speed. The instrument driver can choose to always cache or to never cache particular properties regardless of the setting of this property. The default value is TRUE (1). Use <u>niDMM Initialize With Options</u> to override the default setting.

Datatype	TF
Permissions	Read/Write
High-level VIs	niDMM Initialize With Options
Resettable	No

Inherent IVI Attributes:User Options:Record Value Coercions Property

Short Name: Record Value Coercions

Property of <u>niDMM</u>

Specifies whether the IVI engine keeps a list of the value coercions it makes for ViInt32 and ViReal64 properties. The default value is FALSE (0). Use <u>niDMM Initialize With Options</u> to override the default setting. Use <u>niDMM Get Next Coercion Record</u> to extract and delete the oldest coercion record from the list.

Datatype	TF
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:User Options:Interchange Check Property

Short Name: Interchange Check

Property of **niDMM**

Specifies whether to perform interchangeability checking and log interchangeability warnings when you call niDMM VIs. Interchangeability warnings indicate that using your application with a different instrument might cause different behavior. Use <u>niDMM Get Next Interchange</u> Warning to extract interchange warnings. Use <u>niDMM Clear Interchange</u> Warnings to clear the list of interchangeability warnings without reading them. Interchangeability checking examines the properties in a capability group only if you specify a value for at least one property within that group. Interchangeability warnings can occur when a property affects the behavior of the instrument and you have not set that property, or the property has been invalidated since you set it.

TRUE	1
FALSE	0

Datatype	TF
Permissions	Read/Write
High-level VIs	niDMM Clear Interchange Warnings, niDMM Get Next Interchange Warning
Resettable	No

Inherent IVI Attributes:Instrument Capabilities:Channel Count Property

Short Name: Channel Count

Property of <u>niDMM</u>

Indicates the number of channels that the specific instrument driver supports. For each property for which the IVI_VAL_MULTI_CHANNEL flag property is set, the IVI engine maintains a separate cache value for each channel.

Datatype	132
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Instrument Capabilities:Specific Driver Prefix Property

Short Name: Specific Driver Prefix

Property of <u>niDMM</u>

The prefix for the specific instrument driver. The name of each usercallable VI in this driver starts with this prefix. The prefix can be up to a maximum of eight characters.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Instrument Identification:Instrument Manufacturer Property

Short Name: Instrument Manufacturer

Property of <u>niDMM</u>

A string containing the manufacturer of the instrument.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Instrument Identification:Instrument Model Property

Short Name: Instrument Model

Property of <u>niDMM</u>

A string containing the instrument model.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Instrument Identification:Instrument Product ID Property

Short Name: Instrument Product ID

Property of <u>niDMM</u>

The PCI product ID.

Datatype	132
Permissions	Read Only
High-level VIs	N/A
Resettable	No
Inherent IVI Attributes:Instrument Identification:Instrument Firmware Revision Property

Short Name: Instrument Firmware Revision

Property of <u>niDMM</u>

A string containing the instrument firmware revision number.

Datatype	abc
Permissions	Read Only
High-level VIs	niDMM Revision Query
Resettable	No

Inherent IVI Attributes:Instrument Identification:Instrument Serial Number Property

Short Name: Instrument Serial Number

Property of <u>niDMM</u>

A string containing the serial number of the instrument. This property corresponds to the serial number label that is attached to most products.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Specific Driver Capabilities:Supported Instrument Models Property

Short Name: Supported Instrument Models

Property of <u>niDMM</u>

A string containing the instrument models supported by the specific driver.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Specific Driver Capabilities:Group Capabilities Property

Short Name: Group Capabilities

Property of <u>niDMM</u>

A string containing the capabilities and extension groups supported by the specific driver.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Specific Driver Identification:Specific Driver Vendor Property

Short Name: Specific Driver Vendor

Property of **niDMM**

A string containing the vendor of the specific driver.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Specific Driver Identification:Specific Driver Class Spec Major Version Property

Short Name: Specific Driver Class Spec Major Version

Property of <u>niDMM</u>

The major version number of the class specification for the specific driver.

Datatype	132
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Specific Driver Identification:Specific Driver Class Spec Minor Version Property

Short Name: Specific Driver Class Spec Minor Version

Property of **niDMM**

The minor version number of the class specification for the specific driver.

Datatype	132
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Specific Driver Identification:Specific Driver Description Property

Short Name: Specific Driver Description

Property of <u>niDMM</u>

A string containing a description of the specific driver.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Version Info:Specific Driver Major Version Property

Short Name: Specific Driver Major Version

Property of <u>niDMM</u>

Returns the major version number of this instrument driver.

Datatype	132
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Version Info:Specific Driver Minor Version Property

Short Name: Specific Driver Minor Version

Property of <u>niDMM</u>

Returns the minor version number of this instrument driver.

Datatype	132
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Version Info:Specific Driver Revision Property

Short Name: Specific Driver Revision

Property of <u>niDMM</u>

A string that contains additional version information about this instrument driver.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Advanced Session Information:Logical Name Property

Short Name: Logical Name

Property of <u>niDMM</u>

A string containing the logical name of the instrument.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Inherent IVI Attributes:Advanced Session Information:I/O Resource Descriptor Property

Short Name: I/O Resource Descriptor

Property of <u>niDMM</u>

A string containing the resource descriptor of the instrument.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Obsolete:Inherent IVI Attributes:Error Info:Primary Error Property

Short Name: Primary Error

Property of <u>niDMM</u>

A code that describes the first error that occurred since the last call to niDMM Get Error for the session. The value follows the VXIplug&play conventions. A negative value describes an error condition. A positive value describes a warning condition. A zero indicates that no error or warning occurred. The error and warning values can be status codes defined by IVI, VISA, class drivers, or specific drivers.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Obsolete:Inherent IVI Attributes:Error Info:Secondary Error Property

Short Name: Secondary Error

Property of <u>niDMM</u>

An optional code that provides additional information concerning the primary error condition. The error and warning values can be status codes defined by IVI, VISA, class drivers, or specific drivers. Zero indicates no additional information.

Datatype	1321
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Obsolete:Inherent IVI Attributes:Error Info:Error Elaboration Property

Short Name: Error Elaboration

Property of <u>niDMM</u>

An optional string that contains additional information concerning the primary error condition.

Datatype	abcl
Permissions	Read/Write
High-level VIs	N/A
Resettable	No

Obsolete:Inherent IVI Attributes:Version Info:Engine Major Version Property

Short Name: Engine Major Version

Property of <u>niDMM</u>

The major version number of the IVI engine.

Datatype	132
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Obsolete:Inherent IVI Attributes:Version Info:Engine Minor Version Property

Short Name: Engine Minor Version

Property of <u>niDMM</u>

The minor version number of the IVI engine.

Datatype	132
Permissions	Read Only
High-level VIs	N/A
Resettable	No
Obsolete:Inherent IVI Attributes:Version Info:Engine Revision Property

Short Name: Engine Revision

Property of <u>niDMM</u>

A string that contains additional version information about the IVI engine.

Remarks

The following table lists the characteristics of this property.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No

Obsolete:Misc:IDQuery response Property

Short Name: IDQuery response

Property of <u>niDMM</u>

A string containing the type of instrument used in the current session.

Remarks

The following table lists the characteristics of this property.

Datatype	abc
Permissions	Read Only
High-level VIs	N/A
Resettable	No