

Comms parameters (default, can be changed using Utility menu):

Speed: 115200, 8 bits, 1 stop, no parity


Applies to firmware V1.2.0 and firmware dated 20210525


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(common)	*IDN?	Return the ID character string: OWON <model>,<serialnum>,<version> e.g: OWON,XDM1041,12345678,V1.2.0,3
	*RST	(does not work)
SYSTem	SYST:REM	Switches to remote control: Locks the front buttons except for soft key “Local”

	SYST:LOC	Switches to local control: Unlocks the front buttons but all remote control commands still work, even in local mode																																		
MEASure	MEAS? MEAS1?	Returns the current measured value in unformatted floating point format. No unit. If averaging is on, it returns the average																																		
	MEAS2?	Returns the 2 nd function (FREQ in AC mode) in unformatted floating point format. No unit. Returns “NONE” if no 2 nd function is active																																		
	MEAS:SHOW? MEAS1:SHOW? MEAS2:SHOW?	Shows the same value as MEAS[1 2] alone but formatted as displayed and with unit. Beware some unit symbols are not UTF-8 compatible, eg <table><tr><th>Code</th><th>meaning</th></tr><tr><td>0xa6 0xb8</td><td>Ω (Ohm)</td></tr><tr><td>0xaa 0xcc</td><td>μ (micro)</td></tr><tr><td>0xa1 0xe6</td><td>°C</td></tr><tr><td>0xa8 0x48</td><td>°F</td></tr></table>				Code	meaning	0xa6 0xb8	Ω (Ohm)	0xaa 0xcc	μ (micro)	0xa1 0xe6	°C	0xa8 0x48	°F																					
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CONFigure	CONF:VOLT	Same as CONF:VOLT:DC DEF																																		
	CONF:VOLT:DC AUTO	Switches to DC volts and V auto range																																		
	CONF:VOLT:DC rng	Switches to DC volts and manual range, rng must be specified as below: <table><tr><th>#</th><th colspan="2">rng</th><th>meaning</th><th>notes</th></tr><tr><td>1</td><td>50E-3</td><td>MIN</td><td>50mV</td><td rowspan="2">mV auto range</td></tr><tr><td>2</td><td>500E-3</td><td></td><td>500mV</td></tr><tr><td>3</td><td>5</td><td>DEF</td><td>5V</td><td rowspan="4">V auto range</td></tr><tr><td>4</td><td>50</td><td></td><td>50V</td></tr><tr><td>5</td><td>500</td><td></td><td>500V</td></tr><tr><td>6</td><td>1000</td><td>MAX</td><td>1000V</td></tr></table> Quirk: AUTO can switch from mV to V range but not back				#	rng		meaning	notes	1	50E-3	MIN	50mV	mV auto range	2	500E-3		500mV	3	5	DEF	5V	V auto range	4	50		50V	5	500		500V	6	1000	MAX	1000V
	#	rng		meaning	notes																															
	1	50E-3	MIN	50mV	mV auto range																															
	2	500E-3		500mV																																
3	5	DEF	5V	V auto range																																
4	50		50V																																	
5	500		500V																																	
6	1000	MAX	1000V																																	
	CONF:VOLT:AC AUTO	Switches to AC volts and V auto range																																		

CONF:VOLT:AC rng	Switches to AC volts and manual range, rng must be specified as below:				
	#	rng		meaning	notes
	1	500E-3	MIN	500mV	mV auto range
	2	5	DEF	5V	V auto range
	3	50		50V	
	4	500		500V	
	5	750	MAX	750V	
	Quirk: AUTO can switch from mV to V range but not back				
CONF:CURRE	Same as CONF:CURRE:DC DEF				
CONF:CURRE:DC AUTO	witches to DC current and A auto range				
CONF:CURRE:DC rng	Switches to DC current and manual range, rng must be specified as below:				
	#	rng		meaning	notes
	1	500E-6	MIN	500uA	mA / A auto range
	2	5E-3		5mA	
	3	50E-3		50mA	
	4	500E-3		500mA	
	5	5	DEF	5A	A auto range
	6	10	MAX	10A	
	Quick1: because mA and A have different sockets, AUTO range for mA also works for A as long as the mA socket is used.				
	<div> Danger: if 10A socket is used and function is set to mA it reads 0 although current is flowing</div>				
CONF:CURRE:AC AUTO	Switches to AC current and A auto range				

CONF:CURR AC rng	Switches to AC current and manual range, rng must be specified as below:			
	#	rng		meaning
	1	500E-6	MIN	500uA
	2	5E-3		5mA
	3	50E-3		50mA
	4	500E-3		500mA
	5	5	DEF	5A
	6	10	MAX	10A
<p>Quick1: because mA and A have different sockets, AUTO range for mA also works for A as long as the mA socket is used.</p> <p> Danger: if 10A socket is used and function is set to mA it reads 0 although current is flowing</p>				
CONF:RES AUTO				
CONF:RES rng	Switches to resistance mode and manual range, rng must be specified as below:			
	#	rng		meaning
	1	500	MIN DEF	500Ω
	2	5E3		5KΩ
	3	50E3		50KΩ
	4	500E3		500KΩ
	5	5E6		5MΩ
	6	50E6	MAX	50MΩ
CONF:CAP AUTO				
switches to capacitance mode and enables AUTO range				

	CONF:CAP rng	Switches to capacitance mode and manual range, rng must be specified as below:		
		#	rng	meaning
		1	50E-9	MIN DEF 50nF
		2	500E-9	500nF
		3	5E-6	5uF
		4	50E-6	50uF
		5	500E-6	500uF
		6	5E-3	5mF
		7	50E-3	MAX 50mF
	CONF:FREQ	Switches to frequency		
	CONF:PER	Switches to period		
	CONF:DIOD	Switches to diode mode		
	CONF:CONT	Switches to continuity mode		
	CONF:TEMP:RTD type	Switches to temperature mode, sensor type must be specified as below:		
TEMP		#	type	meaning
		1	KITS90	MIN DEF K-type
		2	PT100	MAX PT100
		Quirk: in TEMP mode with KITS90 selected, the XDM1041 will update its internal cold junction temperature reference every 600 seconds (10 minutes). During that update, it does not respond to SCPI commands for about 3 seconds but will queue the responses which are then made available once the update is complete.		
	TEMP:RTD:UNIT unit	Switches temperature unit, unit must be specified as below:		
		C = Celsius		
		F = Fahrenheit		
		K = Kelvin		

	TEMP:RTD:SHOW type	Selects what is displayed in temperature mode, type must be specified as below: <table><tr><th>type</th><th>meaning</th></tr><tr><td>TEMP</td><td>temperature value only</td></tr><tr><td>MEAS</td><td>measurement value only, e.g. resistance of PT100 or K-type voltage</td></tr><tr><td>ALL</td><td>Both TEMP and MEAS are displayed</td></tr></table> Note: MEAS? or MEAS1? always return the temperature value, whatever is specified for type, however, MEAS:SHOW? returns either the temperature or the measurement depending on type. MEAS2? always returns NONE Bug: on SCPI if MEAS is selected. The temperature value returned by MEAS? or MEAS1? Is no longer updated.		type	meaning	TEMP	temperature value only	MEAS	measurement value only, e.g. resistance of PT100 or K-type voltage	ALL	Both TEMP and MEAS are displayed		
type	meaning												
TEMP	temperature value only												
MEAS	measurement value only, e.g. resistance of PT100 or K-type voltage												
ALL	Both TEMP and MEAS are displayed												
CONT	CONT:THRE val	Specifies the resistance below which the continuity beeper will beep. Sensible values for val are integer values between 0 and 1000											
CALC	CALC:FUNC func	Selects the maths function, func needs to be as specified below: <table><tr><th>Func</th><th>meaning</th></tr><tr><td>NULL (=Rel)</td><td>Rel mode. The current value is taken as reference and subtracted from all measured values.</td></tr><tr><td>DB</td><td>Convert to dB based on selected reference</td></tr><tr><td>DBM</td><td>Convert to dBm based on selected reverence</td></tr><tr><td>AVER</td><td>Calculate max, min and average</td></tr></table> Quirk1: using any maths option turns the others off for that for that measurement function, i.e. only one can be active. In case of REL, the offset is lost when another math function is selected. Quirk2: To use AVER with REL, select REL first, then select some other measurement function, turn AVER on and then go back to the original measurement.		Func	meaning	NULL (=Rel)	Rel mode. The current value is taken as reference and subtracted from all measured values.	DB	Convert to dB based on selected reference	DBM	Convert to dBm based on selected reverence	AVER	Calculate max, min and average
		Func	meaning										
		NULL (=Rel)	Rel mode. The current value is taken as reference and subtracted from all measured values.										
		DB	Convert to dB based on selected reference										
		DBM	Convert to dBm based on selected reverence										
		AVER	Calculate max, min and average										
	CALC:FUNC?	Returns the selected CALC function (NULL, DB, DBM, AVER) if and only if it is active. Times out if no CALC function is active.											
CALC:STAT OFF	Turns math function off (including rel = NULL mode)												

	CALC:DB:REF?	Returns the selected reference resistance for dB	
	CALC:DB:REF val	Sets the reference resistance for dB. It must be one of the values below: 50, 75, 93, 110, 124, 125, 135, 150, 250, 300, 500, 600, 800, 900, 1000, 1200, 8000 Note: using MIN, DEF, MAX does not work. The power-on default is 50	
	CALC:DBM:REF?	[not working]?	
	CALC:DBM:REF val	[not working]?	
	CALC:AVER:AVER?	Returns average	
	CALC:AVER:MIN?	Returns minimum	
	CALC:AVER:MAX?	Returns maximum	
	CALC:NULL:OFFS?	Supposed to return the offset used by REL function but the value returned makes little sense (to me). Needs more investigation.	
	FUNC	FUNC? FUNC1?	Returns the current function on the main display. One of the following:
Return			meaning
VOLT AC			AC volts
VOLT			DC volts
CURR AC			AC amps
CURR			DC amps
FREQ			Frequency
PER			Period
CAP			Capacitance
CONT			Continuity
DIOD			Diode
RES			Resistance
TEMP			Temperature

	FUNC2?	Returns the current function of the secondary display. One of: <table><tr><th>Return</th><th>meaning</th></tr><tr><td>NONE</td><td>No secondary function active</td></tr><tr><td>FREQ</td><td>Frequency (works only Volt AC or CURR AC)</td></tr></table>	Return	meaning	NONE	No secondary function active	FREQ	Frequency (works only Volt AC or CURR AC)																					
Return	meaning																												
NONE	No secondary function active																												
FREQ	Frequency (works only Volt AC or CURR AC)																												
	FUNC2 “FREQ”	Sets the secondary function to frequency Bug: on SCPI the FREQ value is erroneously scaled with the range of the primary measurement <table><tr><th>Primary Range</th><th>Scale</th><th>50 Hz returned as</th></tr><tr><td>500mV</td><td>1000</td><td>0.05</td></tr><tr><td>5V and above</td><td>1</td><td>50</td></tr></table> <table><tr><th>Primary Range</th><th>Scale</th><th>50 Hz returned as</th></tr><tr><td>500uA</td><td>1000,000</td><td>0.000050</td></tr><tr><td>5mA</td><td>1000</td><td>0.05</td></tr><tr><td>50mA</td><td>1000</td><td>0.05</td></tr><tr><td>500mA</td><td>1000</td><td>0.05</td></tr><tr><td>5A and above</td><td>1</td><td>50</td></tr></table>	Primary Range	Scale	50 Hz returned as	500mV	1000	0.05	5V and above	1	50	Primary Range	Scale	50 Hz returned as	500uA	1000,000	0.000050	5mA	1000	0.05	50mA	1000	0.05	500mA	1000	0.05	5A and above	1	50
Primary Range	Scale	50 Hz returned as																											
500mV	1000	0.05																											
5V and above	1	50																											
Primary Range	Scale	50 Hz returned as																											
500uA	1000,000	0.000050																											
5mA	1000	0.05																											
50mA	1000	0.05																											
500mA	1000	0.05																											
5A and above	1	50																											
	FUNC2 “NONE”	Turns secondary function off																											
(other)	BEEP:STAT?	Returns the status of the beeper, NO [sic] for on and OFF for off.																											
	BEEP:STAT ON	Turns beeper on																											
	BEEP:STAT OFF	Turns beeper off																											
	AUTO	Turns auto range on																											
	AUTO?	Returns 0 if auto range is off or 1 if auto range is on																											
	RATE chr	Sets the measuring speed: chr must be: S = slow M = medium F = fast																											
	RATE?	Returns a character indicating the measring speed (rate): S = slow M = medium F = fast																											

	RANGE #	<p>The # is the number shown in the column # in the range tables. For example in resistance mode, RATE 2 selects 5KΩ</p> <p>Quirk: it changes range regardless of function, so in VOLT: Function: V, the command RANGE MIN changes range to manual 50mV, however if then command AUTO is send it changes back to 5V AUTO (because that is the default AUTO range for function V)</p> <p>To switch to 50mV AUTO use this sequence: CONF:VOLT:DC 50E-3 AUTO</p>
	RANGE?	<p>Returns the current range setting formatted as shown on the display.</p> <p>The XDM1041 does not respond to this command in DIOD and CONT mode</p> <p>Quirk1: Beware that some unit symbols are not UTF-8 compatible, eg “Ω” is represented as 2 bytes: 0xa6 0xb8, and μ of μF is shown as 0xaa 0xcc but uA works because it uses u instead of μ</p> <p>Quirk2: For temperature it returns the sensor type. e.g. KITS90</p>