Batronix Magnova®
Datasheet
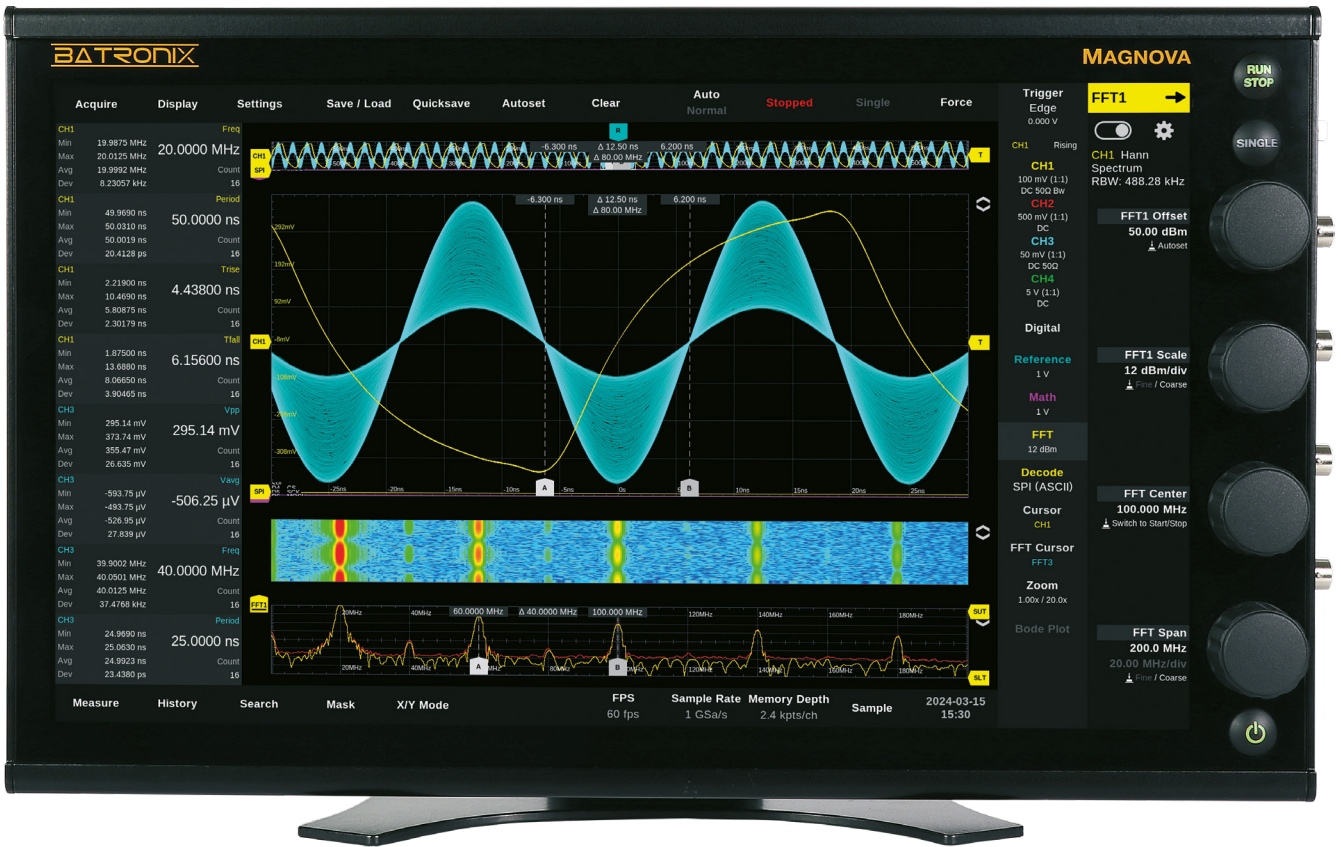
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Magnova Specifications

Model Overview

Magnova model	BMO100	BMO200	BMO350
Analog channel bandwidth (-3 dB)	≥ 100 MHz	≥ 200 MHz	≥ 350 MHz
Analog channel rise / fall time (calc.) (10 % to 90 % at 50 Ω)	≤ 3.5 ns	≤ 1.75 ns	≤ 1 ns

General

Operation system	Linux
Power-up time to full operation	≤ 30 s
Cooling concept	Passive cooling (noiseless) up to an ambient temperature of 40°C. When operating in particularly warm environments above 40°C, the built-in fan is activated.

Vertical System - Analog Channels

Analog channels	4
Vertical resolution	12-bit ADC resolution 16-bit system architecture: The signals are always processed and stored with 16 bits after being recorded by the 12-bit ADC. Interpolation, software filters, average and high resolution oversampling are used to utilise the high resolution.
Input impedance	50 Ω ±1 %, 1 MΩ ±1 % parallel to 19 pF ± 2 pF
Input coupling	DC, AC
Bandwidth limit filters	Hardware filters: 20 MHz, 100 MHz Software filters: Various bandwidth filters supported; details in upcoming datasheet version.
Maximum input voltage	At 50 Ω: 5 Vrms, 30 Vpk At 1 MΩ: 300 Vrms, 400 Vpk, CAT I derates at 20 dB/decade from 200 kHz to 2 MHz; derates at 6 dB/decade from 2 MHz to 400 MHz, > 400 MHz max. 5 Vrms With Testec TT-HX 312 (10:1 setting): 400 Vrms, CAT II With Testec TT-HF 612RA: 400 Vrms, CAT II Please refer to the Testec datasheets for derating and details.
Vertical scale with 1:1 probe (8 divisions / screen)	500 µV/div - 5 V/div 4 mV/screen - 40 V/screen
DC gain accuracy	±0.5 % at > 5 mV/div; ±1.5 % at ≤ 5 mV/div
Offset range	±70 V at > 200 mV/div; ±2 V at ≤ 200 mV/div With automatic early attenuation (reduced accuracy): ±70 V at > 35 mV/div
Offset accuracy	± (1 % of offset value + 0.1 div vertical scale + 0.5 mV)
Channel-to-channel isolation (channels with same vertical scale)	≥ 70 dB (3162:1) up to 200 MHz ≥ 60 dB (1000:1) above 200 MHz
Probe attenuation factor	List of standard factors and custom values from 1:1,000,000 up to 1,000,000:1

Analog channel noise floor and ENOB at 50 Ω input impedance
4 Channel active with 1 GSa/s each, open inputs, 5 ms/div (60 ms/screen), typical values

Analog bandwidth (by model or filter)	20 MHz	≥ 100 MHz (BMO100)	≥ 200 MHz (BMO200)	≥ 350 MHz (BMO350)
500 µV/div	22 µVrms ENOB 7.2 bit	To be published.	To be published.	65 µVrms ENOB 5.6 bit
1 mV/div	23 µVrms ENOB 8.1 bit	"	"	66 µVrms ENOB 6.6 bit
2 mV/div	23 µVrms ENOB 9.1 bit	"	"	67 µVrms ENOB 7.6 bit
5 mV/div	32 µVrms ENOB 10.0 bit	"	"	68 µVrms ENOB 8.9 bit
10 mV/div	35 µVrms ENOB 10.9 bit	"	"	76 µVrms ENOB 9.7 bit
20 mV/div	61 µVrms ENOB 11.1 bit	"	"	107 µVrms ENOB 10.3 bit
50 mV/div	138 µVrms ENOB 11.2 bit	"	"	362 µVrms ENOB 9.8 bit
100 mV/div	264 µVrms ENOB 11.3 bit	"	"	502 µVrms ENOB 10.3 bit
200 mV/div	412 µVrms ENOB 11.6 bit	"	"	951 µVrms ENOB 10.4 bit
500 mV/div	1.38 mVrms ENOB 11.2 bit	"	"	2.82 mVrms ENOB 10.2 bit
1 V/div	2.19 mVrms ENOB 11.5 bit	"	"	4.52 mVrms ENOB 10.5 bit
2 V/div	4.89 mVrms ENOB 11.4 bit	"	"	12.8 mVrms ENOB 10.0 bit
5 V/div	10.3 mVrms ENOB 11.6 bit	"	"	22.5 mVrms ENOB 10.5 bit

Analog channel noise floor and ENOB at 1 MΩ input impedance
4 Channel active with 1 GSa/s each, open inputs, 5ms/div (60 ms/screen), typical values

Analog bandwidth (by model or filter)	20 MHz	≥ 100 MHz (BMO100)	≥ 200 MHz (BMO200)	≥ 350 MHz (BMO350)
500 µV/div	46 µVrms ENOB 6.2 bit	To be published.	To be published.	75 µVrms ENOB 5.4 bit
1 mV/div	47 µVrms ENOB 7.1 bit	"	"	76 µVrms ENOB 6.4 bit
2 mV/div	47 µVrms ENOB 8.1 bit	"	"	77 µVrms ENOB 7.4 bit
5 mV/div	49 µVrms ENOB 9.4 bit	"	"	79 µVrms ENOB 8.7 bit
10 mV/div	54 µVrms ENOB 10.2 bit	"	"	86 µVrms ENOB 9.6 bit
20 mV/div	64 µVrms ENOB 11.0 bit	"	"	112 µVrms ENOB 10.2 bit
50 mV/div	139 µVrms ENOB 11.2 bit	"	"	369 µVrms ENOB 9.8 bit

Analog bandwidth (by model or filter)	20 MHz	≥ 100 MHz	≥ 200 MHz	≥ 350 MHz
100 mV/div	266 µVrms ENOB 11.3 bit	To be published.	To be published.	505 µVrms ENOB 10.3 bit
200 mV/div	460 µVrms ENOB 11.5 bit	"	"	955 µVrms ENOB 10.4 bit
500 mV/div	1.40 mVrms ENOB 11.2 bit	"	"	2.85 mVrms ENOB 10.2 bit
1 V/div	2.38 mVrms ENOB 11.4 bit	"	"	5.04 mVrms ENOB 10.3 bit
2 V/div	5.02 mVrms ENOB 11.3 bit	"	"	12.9 mVrms ENOB 10.0 bit
5 V/div	10.4 mVrms ENOB 11.6 bit	"	"	22.7 mVrms ENOB 10.5 bit

Vertical System - Digital Channels

Digital channels	8 with one optional logic analyser module 16 with two optional logic analyser modules
Input impedance	100 kΩ ±1 % parallel to 8 pF ±1 pF
Threshold range	±8 V in 5 mV steps Predefined and custom logic levels supported Individually adjustable for each module (8 channels)
Threshold accuracy	±(80 mV + 2.5 % of threshold setting)
Maximum input voltage	±40 Vpk CAT I
Minimum input voltage swing	400 mVpp
Maximum input frequency	400 MHz at 1.6 GSa/s and input voltage swing ≥ 400 mVpp 250 MHz at 1.0 GSa/s and input voltage swing ≥ 400 mVpp

Horizontal System

Time scale range (12 divisions / screen)	In normal mode: 200 ps/div - 500 ks/div 2400 ps/screen - 6000 ks/screen In roll mode: 50 ms/div - 500 ks/div 600 ms/screen - 6000 ks/screen
Time scale resolution	Fine steps: freely definable in 1 ps/div resolution Coarse steps: 1-2-5
Time base accuracy (at full temperature range)	±2.0 ppm initial ±3.0 ppm after one year aging
Trigger time offset range	Before trigger: ≥1/2 screen After trigger: 500 ks
Channel to channel skew	< 100 ps between channels with same channel settings (vertical scale, impedance, filter, deskew)
Deskew range	0 - 511 ns (analog and digital channels) Deskew resolution equals to sample time

Zoom

Horizontal zoom	Zoom factor 1 up to 100 Coarse 1-2-5 steps Fine steps freely definable
Vertical zoom	Zoom factor 1 up to 100 Coarse 1-2-5 steps Fine steps freely definable
Visible in zoom	Analog channels CH1 - CH4 Digital channels D0 - D15 References R1-R8 Math channels M1-M4 Decoder B1-B4 Cursor

Acquisition

Sampling rate (ADC and digital channels)	1.6 GSa/s if - only channel 1 and/or 2 are active - only channel 1 or 2 and one LA-module are active - only one or two LA-modules are active - only channel 1 and/or 2 are active plus one or two LA-modules are active and time scale is ≤ 20 ns/div 1.0 GSa/s if - Channel 3 and/or 4 are active - The number of analog channels plus LA-modules is 3 or more and time scale is > 20 ns/div.
Interpolated sampling rate	819.2 GSa/s at 1.6 GSa/s sampling rate 512 GSa/s at 1.0 GSa/s sampling rate
Memory depth per channel	The total memory of 320 Mpts is divided over the number of active analogue channels and LA modules: 1 analog channel or LA-module: 320 Mpts 2 analog channels / LA-modules: 160 Mpts per channel 3-4 analog channels / LA-modules: 80 Mpts per channel ≥ 5 analog channels / LA-modules: 40 Mpts per channel
Waveform acquisition rate	≥ 300,000 wfms/s in normal mode ≥ 12,000,000 wfms/s in history mode (time scale 1 ns/div, 50 MHz signal frequency)
Trigger rearm time	< 70 ns
Acquisition modes	Sample: First sample in decimation interval Peak detect: Maximum and minimum samples in decimation interval Average: Average value of the samples in the decimation interval
Average number range	Up to 3.8 million (freely adjustable)
Average vertical resolution	Calculated with 32 bit resolution
High Resolution	Up to 16 bit, details on following page

High Resolution Oversampling

The signals are always processed and stored at 16 bits after they have been captured by the 12-bit ADC. High-resolution oversampling by averaging successive samples is one way of utilising the high vertical resolution. Please note the limitation of the bandwidth due to the method. Alternatively, interpolation, averaging over several waveforms and bandwidth filters also benefit from the 16-bit system architecture.

ADC resolution enhancement by oversampling	Oversampling factor	Bandwidth limit at 1.0 GSa/s sample rate	Bandwidth limit at 1.6 GSa/s sample rate
13 bit	4x	~113 MHz	~181 MHz or model bandwidth if lower
14 bit	16x	~28.4 MHz	~45.5 MHz
15 bit	64x	~7.1 MHz	~11.4 MHz
16 bit	256x	~1.8 MHz	~2.8 MHz

Display

Display size	15.6" (39.6 cm)
Display resolution	1920 * 1080 pixel (Full HD, 16:9)
Display touch	Capacitive touchscreen
Interpolation	Sin(x)/x, linear, hold, none
Color grading	Intensity, inverted intensity, 7-color heatmap, 5-color heatmap, 2-color heatmap
Persistence	Off, 100 ms up to 200 s, infinite
Grid	Grid type: none, simple, normal and fine Grid intensity: Low and high
Reference point	Center, left border, right border, trigger
Color themes	Dark, light

Trigger System

Trigger modes	Auto, normal, single
Trigger sources	Analog channels CH1-CH4 Digital channels D0-D15 AC line Decoder
Trigger level range	±4 div from center of screen At AC line trigger source: fixed 50 %
Trigger accuracy	1/500 div 1/4000 screen
Trigger hysteresis / sensitivity	0 % up to 100 % of screen
Trigger coupling	Same as trigger channel coupling
Trigger bandwidth limit filter	Same as trigger channel bandwidth limit
Trigger jitter	< 2 ps

Trigger Types

Edge	Sources: CH1-CH4, D0-D15, AC line Slopes: Rising, falling, both and alternate
Nth Edge	Sources: CH1-CH4, D0-D15 Slopes: Rising, falling Edge count: 1 up to 1,000,000,000
Timeout (Dropout)	Sources: CH1-CH4, D0-D15 Slopes: Rising, falling, both Timeout: 1 ns up to 10 s
Delay	Sources: CH1-CH4, D0-D15, AC line Slopes: Rising, falling Time: Less than, greater than, inside, outside 1 ns up to 10 s
Window	Sources: CH1-CH4 Window type: Enter, leave Time: None, less than, greater than, inside, outside 1 ns up to 10 s
Pulse (width)	Sources: CH1-CH4, D0-D15, AC line Polarity: Positive, negative Time: None, less than, greater than, inside, outside 1 ns up to 10 s
Slope (slew rate / rise time)	Sources: CH1-CH4 Slopes: Rising, falling Time: Less than, greater than, inside, outside 1 ns up to 10 s
Interval (Period)	Sources: CH1-CH4, D0-D15, AC line Polarity: Positive, negative Time: Less than, greater than, inside, outside 1 ns up to 10 s
Setup & Hold	Sources: CH1-CH4, D0-D15, AC line Clock slope: Rising, Falling Types: Setup, hold, setup & hold Time: 1 ns up to 10 s
Runt	Sources: CH1-CH4 Polarity: Positive, negative Time: None, less than, greater than, inside, outside 1 ns up to 10 s
Pattern (duration / state)	Sources: CH1-CH4, D0-D15 Pattern logic: And, or, nand, nor Signal: X, high, low Clock: Rising, falling Time: None, less than, greater than, inside, outside 1 ns up to 10 s
Decoder	SPI: Data on MOSI or MISO I2C: Start, stop, restart, ack, nack, address, data, address & data (direction read and/or write) UART: Frame start, incomplete frame start, failed parity check, incomplete frame detection, data Parallel: Data

Measurements

Vertical automatic measurements	Vamp, Vtop, Vbase, Vpp, Vmax, Vmin, Vavg, Vrms, Vmid, Vupper, Vlower, Std. Dev., +Preshoot, -Preshoot, +Overshoot, -Overshoot, +Area, -Area, |Area|, Area, +Per. Area, -Per. Area, |Per. Area|, Per. Area
Horizontal automatic measurements	Freq, Period, Trise, Tfall, +Width, -Width, +Duty, -Duty, +Edge#, -Edge#, +Pulse#, -Pulse#, ++Delay, +-Delay, -+Delay, --Delay, ++Phase, +-Phase, -+Phase, --Phase
Number of displayed measurements	Up to 8 simultaneously displayed measurements
Measurement source	Analog channels CH1-CH4 Digital channels D0-D15
Measurement gate area	Complete screen width or adjustable gate
Measurements based on	Complete sampling memory in selected area
Annotations	Live display of the measured values in the signal curves.
Statistics	Maximum, minimum, average and standard deviation Measurement count for each measurement
Measurement average	Running average or fixed average over 1 to 4096 measurements
Trend charts	Up to 4 trend charts, each with selectable current, average, minimum and/or maximum value.
Trend chart time base (12 divisions / screen)	1 ms/div up to 100 ks/div 12 ms/screen up to 1,200 ks/screen Automatic or manual setting
Trend vertical offset and scale	Full range of possible measured values Automatic or manual setting

History (Segmented Memory)

Number of waveforms in history memory	Up to 3.8 million waveforms (segments)
History data	Analog channels CH1-CH4 Digital channels D0-D15 The waveforms are displayed including math channels, FFT, peak tables, bus decoding, cursors, zoom and measurements.
History player	Replay of recorded waveforms forward and backward in 5 speed levels.

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Magnova datasheet, preliminary version 0.91 (subject to change), May 7th, 2024, www.batronix.com/magnova
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Search

Search types	Edge, Nth edge, timeout, delay, window, pulse, slope, interval, setup & hold, runt, pattern The search allows all parameters and sources that can also be set for the triggers.
Source	All waveforms in history memory Current waveform

Mask (Pass/Fail Test)

Mask sources	Analog channels CH1-CH4
Mask actions	Stop on fail Aux-Out output signal on pass or fail Quicksave (screenshot and/or waveform data and more)
Mask speed	Up to 300,000 mask tests per second

X/Y Mode

X/Y sources	Analog channels CH1-CH4
Features	X/Y cursors

References

Reference sources	Analog channels CH1 - CH4
Number of references	Up to 8
Features	References can be named, timestamp, color selection

Math

Sources	Analog channels CH1 - CH4
Math channels	4
Formula editor	The formula editor allows to input mathematical expressions with the arrangement and utilization of operators in any sequence while adhering to the correct mathematical order of operations. Brackets are also supported.
Operators	+, -, *, /, pow, sqrt, sin, cos, tan, asin, acos, atan, intg, diff &&, ||, !, <, >, ==, <=, >=, != Brackets Constants Pi, Phi, e

FFT

Sources	Analog channels CH1 - CH4
FFT channels	4
FFT length (sample points)	256 pts up to 8 Mpts per channel
Resolution bandwidth (RBW)	RBW = sample rate stored in memory / FFT length - at 1 GSa/s down to 59.6 Hz - at 1.6 GSa/s down to 190.73 Hz
Window types	Hann(ing), Hamming, Blackman, Kaiser-Bessel, Flat Top, Rectangle
Horizontal axis	Center and span Start and stop
Vertical axis	Logarithmic: dBm, dBv, dBmV, dBµV Linear: V
Traces	Spectrum, Average, Min Hold, Max Hold
Peak tables	2 simultaneous peak tables Area: Complete or span Type: Max or min Excursion and threshold
Spectrogram	Color grading: 7-color, 5-color, 2-color Lower and upper threshold settings

RF Characteristics

Dynamic range (measured at 100 mV/div)	105 dB between carrier at 50 MHz sine signal with 0 dBm (632 mVpp) and average noise level at 51 MHz.
Spurious-free dynamic range, excluding harmonics (measured at 100 mV/div)	>80 dBc
Second harmonic distortion HD2 (measured at 100 mV/div)	-60 dBc at 10 MHz sine signal, level 0 dBm (632 mVpp) -58 dBc at 50 MHz sine signal, level 0 dBm (632 mVpp) -56 dBc at 100 MHz sine signal, level 0 dBm (632 mVpp)
Third harmonic distortion HD3 (measured at 100 mV/div)	-64 dBc at 10 MHz sine signal, level 0 dBm (632 mVpp) -70 dBc at 50 MHz sine signal, level 0 dBm (632 mVpp) -61 dBc at 100 MHz sine signal, level 0 dBm (632 mVpp)

Cursors And FFT Cursors/Markers

Cursor measurements	Period time and frequency for CH1-CH4 and D0-D15 Voltage levels and voltage difference for CH1-CH4 Voltage levels and voltage difference in X/Y mode Frequency and amplitudes for FFT1 - FFT4
Cursor tracking	Voltage tracking for CH1-CH4 Amplitude tracking for FFT1 - FFT4
Marker measurements	Amplitude and frequency for FFT1 - FFT4 Up to 10 markers for each FFT

Decoding

Decoder channels	4
Sources for all decoders	Analog channels CH1 - CH4 Digital channels D0 - D15
Threshold settings	Separate upper and lower threshold settings for each analog channel. At digital channels same level as set for the logic analyser module.
I2C	Clock settings: Source, slope Data settings: Source, active high/low
SPI	Chip select settings: Source or none (timeout), active high/low Clock settings: Source, slope MOSI and MISO settings: Source or none, active high/low Timeout: 0 up to 1 ks Bits: 1 up to 128 Bit order: MSB, LSB
UART	Rx/Tx settings: Source, active high/low Baud rate: 1 up to 10 Mbps Parity: None, even, odd, mark, space Stop bits: 1, 1.5, 2 Bits: 4 up to 32 Bit order: MSB, LSB
CAN (CAN-FD)	Source Type: CAN-H, CAN-L Baud rate: 1 bps up to 1 Mbps Data baud rate at CAN-FD: 1 bps up to 8 Mbps
LIN	Channel: Source, active high/low Version: 1.x, 2.x/J2602 Baud rate: 1 bps up to 8 Mbps
Parallel	Clock: Source or none (timeout), slope Data: Source, active high/low Bits: 1 up to 20
Number format	Binary, decimal, hexadecimal, ASCII
Features	Decoder table with time, type, address, data, error display. Import/Export to trigger system. For trigger possibilities see "trigger system" above.

Generator Module (Option)

Generator channels	1
Vertical resolution	14-bit DAC resolution
Sample rate	400 MSa/s while analog channels sample at 1.6 GSa/s 375 MSa/s when analog channels sample at 1.0 GSa/s
Output impedance	50 Ω ±1 %
Output amplitude	2 mV up to 20 Vpp 1 mV up to 10 Vpp into 50 Ω load Smallest increment step: 1 µVpp (min. amplitude / 16384)
Output offset	+- 10 V Limitation: |Offset| + Amplitude/2 ≤ 10 V +- 5 V into 50 Ω load Limitation: |Offset| + Amplitude/2 ≤ 5 V
Sine	Frequency: 1 µHz up to 90 MHz Period: 1 Ms down to 11.11 ns
Rectangle	Rectangle: 1 µHz up to 50 MHz Period: 1 Ms down to 20 ns
Pulse	Pulse: 1 µHz up to 50 MHz Period: 1 Ms down to 20 ns
Ramp	Ramp: 1 µHz up to 25 MHz Period: 1 Ms down to 40 ns
Arbitrary	Built-in waveforms Edit custom waveforms on display Load and save custom waveform (csv, bin)
Noise	Noise can be selected as a separate waveform or added to any signal.
DC	+- 10 V
AM modulation	Shape: Sine, rectangle, triangle, ramp up, ramp down, noise, arbitrary Modulation frequency: 1 µHz up to 90 MHz Depth: 0 up to 100 %
FM modulation	Shape: Sine, rectangle, triangle, ramp up, ramp down, noise, arbitrary Modulation frequency and frequency deviation: Details in upcoming datasheet version.
PM modulation	Shape: Sine, rectangle, triangle, ramp up, ramp down, noise, arbitrary Modulation frequency: 1 µHz up to 90 MHz Phase deviation: 0° up to 360°
Sweep	Sweep type: Linear or logarithmic Direction: Up, down, up & down Sweep time: 1 µs up to 600 s Start and stop frequency: 1 µHz up to max. frequency Start and stop hold: 0 up to 60 s
Burst	Trigger: Automatic or manual Start phase: 0° - 360 ° Cycles: 1 - 4,294,967,295 Period: 10 ns - 60 s Burst idle level: First point or manual value

Bode Plot (Requires Generator Module)

Bode plot channels	3
Frequency scales	Linear, logarithmic
Vertical modes and scale	Ratio (out/in): Linear, logarithmic Amplitude (out): Linear V, logarithmic dBm, dBV, dBmV, dBµV
Point display	Points, interpolated points, shapes
Sources	Analog channels CH1 - CH4
Number of points	2 up to 1,500
Point distribution	Linear, logarithmic
Frequency range	1 µHz up to 90 MHz
Generator setup	Offset: -10 V up to +10 V Amplitude: 2 mVpp up to 20 Vpp Limitation: |Offset| + Amplitude/2 ≤ 10 V Unit: V, dBm, dBV, dBmV, dbµV
Features	Auto scale, cursor, tables

I/O Connectivity

Analog channels	Probe readout interface for automatic detection of probe scaling for probes with read-out pin function. Proprietary probe interface. No custom probes are currently available for this. We recommend the use of manufacturer-independent probes that can be supplied via USB or a power supply unit. Pinout (top down): GND, I2C SCL, SDA, Select, -5.5 V, +5.5 V
Probe calibration output	1 kHz, 3.5 Vpp, ~70 ns rise/fall time
USB	Three USB 3.0 host ports One USB 3.0 device port
Monitor interface	DisplayPort with 1920 x 1080 pixel (Full HD, 16:9)
LAN interface	Gigabit-Ethernet, RJ-45 connector, 10/100/1000 BASE-T
Ref-Clock-Input	Ref-Clock-Input, BNC connector, 50 Ω impedance 10 MHz ± 20 ppm 0.5 Vpp up to 2.4 Vpp into 50 Ω input impedance
Aux-Output	Aux-Out, BNC connector, 50 Ω impedance Signals: Trigger, mask test, 10 MHz Ref-Out

Other

VESA mounting	75 x 75 mm, M4
Kensington lock	3 x 7 mm

Accessories (Included)

Probes	BMO100, BMO200: 4 Testec TT-HX 312 (switchable 10:1 / 1:1, 350 MHz) BMO350: 4 Testec TT-HF 612RA (10:1, 500 MHz)
Power cable	CEE 7/7 to IEC C13 1.8 m

Options

Function generator module	Specifications see "Generator Module (Option)"
Logic analyser module	Specifications see "Vertical System - Digital Channels"
Rack mount kit	Available in Q3/2024

Operation Conditions

Temperature	Operating: 0°C to +50°C Storage: -30°C to +70°C
Altitude	Operating: up to 3000 m above sea level Storage and transport: up to 15000 m above sea level

Passed Conformity Tests

Conducted Emission	DIN EN 61326-1, DIN EN 55011, 150 kHz – 30 MHz Group 1 Class B (for use in industrial and non-industrial environments)
Radiated Emission E-field	DIN EN 61326-1, DIN EN 55011, 30 MHz – 1 GHz Group 1 Class B (for use in industrial and non-industrial environments)
Immunity to Electromagnetic Field	DIN EN 61326-1, DIN EN 61000-4-3
Immunity to Electrical Fast Transient / Burst	DIN EN 61326-1, DIN EN 61000-4-4
Immunity to Electrical Slow Transient / Surge	DIN EN 61326-1, DIN EN 61000-4-5
Immunity to Conducted RF Voltage	DIN EN 61326-1, DIN EN 61000-4-6
Immunity to Magnetic Field	DIN EN 61326-1, DIN EN 61000-4-8
Immunity to Voltage Dips, Short Interruptions and Voltage Variations	DIN EN 61326-1, DIN EN 61000-4-11
Harmonic Current Emission	DIN EN 61326-1, DIN EN 61000-3-2
Voltage Changes, Voltage Fluctuations and Flicker	DIN EN 61326-1, DIN EN 61000-3-3

Power Supply And Consumption

Power supply	100 - 240 VAC ±10 % 50 to 60 Hz
Power consumption	- Max. 65 watts including the function generator module, two logic analyzer modules, and externally powered devices via USB. - Typ. 48 watts including the function generator module and two logic analyzer modules. - Typ. 38 watts without optional hardware modules. - Less than 0.5 watts in standby (by using the power key on the front panel). The Magnova is equipped with a power switch on the back that disconnects it completely from the mains so that it does not consume any power.

Mechanical Data

Dimensions	Housing width: 395 mm (15.55 inch) Housing height without stand: 239 mm (9.41 inch) Housing height including stand: 255 mm (10.04 inch) Housing depth: 63 mm (2.48 inch) Stand base plate depth: 170 mm (6.69 inch)
Rackmount height	6 HU
Weight	~5.0 kg (11.02 lb) without options