

THE MEASURABLE DIFFERENCE.



OXYGEN TRAINING

- > Formulas
- > Statistics
- > Filters



- > Adding Math Channels
- > Creating Formulas
 - > Standard Operations
 - > Trigonometric
 - > Logical
 - > Measurement
 - > Miscellaneous
 - > Creation of Reference Curves in Time Domain
 - > Array channel support for formulas
- > Creating Statistics
 - > Array channel support for statistics
- > Creating Filters
- > Offline Math

ADD MATH CALCULATIONS TO THE MEASUREMENT SETUP

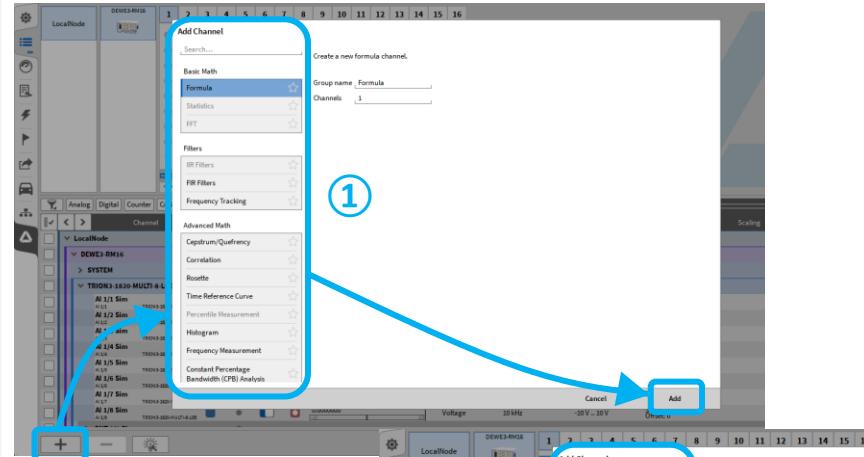


DEWETRON

①

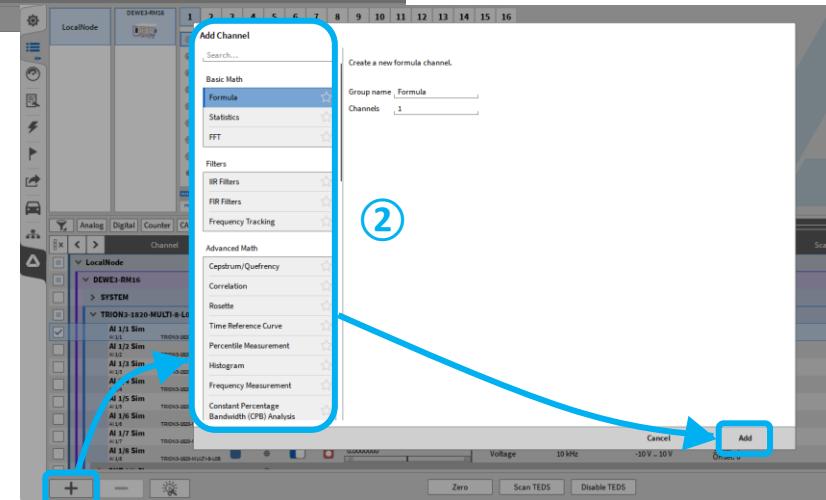
- To create
 - > Formulas
 - > FIR Filter
 - > Frequency Tracking
 - > Cepstrum/Quefrency
 - > Correlation
 - > Rosette calculations
 - > Time Reference Curve
 - > Histogram
 - > Frequency Measurement
 - > Constant Percentage Bandwidth (CPB)
 - > Order analysis modules
 - > Power Group
 - > Sound Level
 - > Modal Test
 - > Tape Sensor
 - > Resolver
 - > Matrix Sampler

Press the + button. Select the proper calculation and press Add



②

- Reference channels must be selected before creating
 - > Statistics
 - > FFT
 - > IIR Filter
 - > Percentile Measurement
 - > Array Statistics
 - > Swept sine analysis
 - > Psophometers

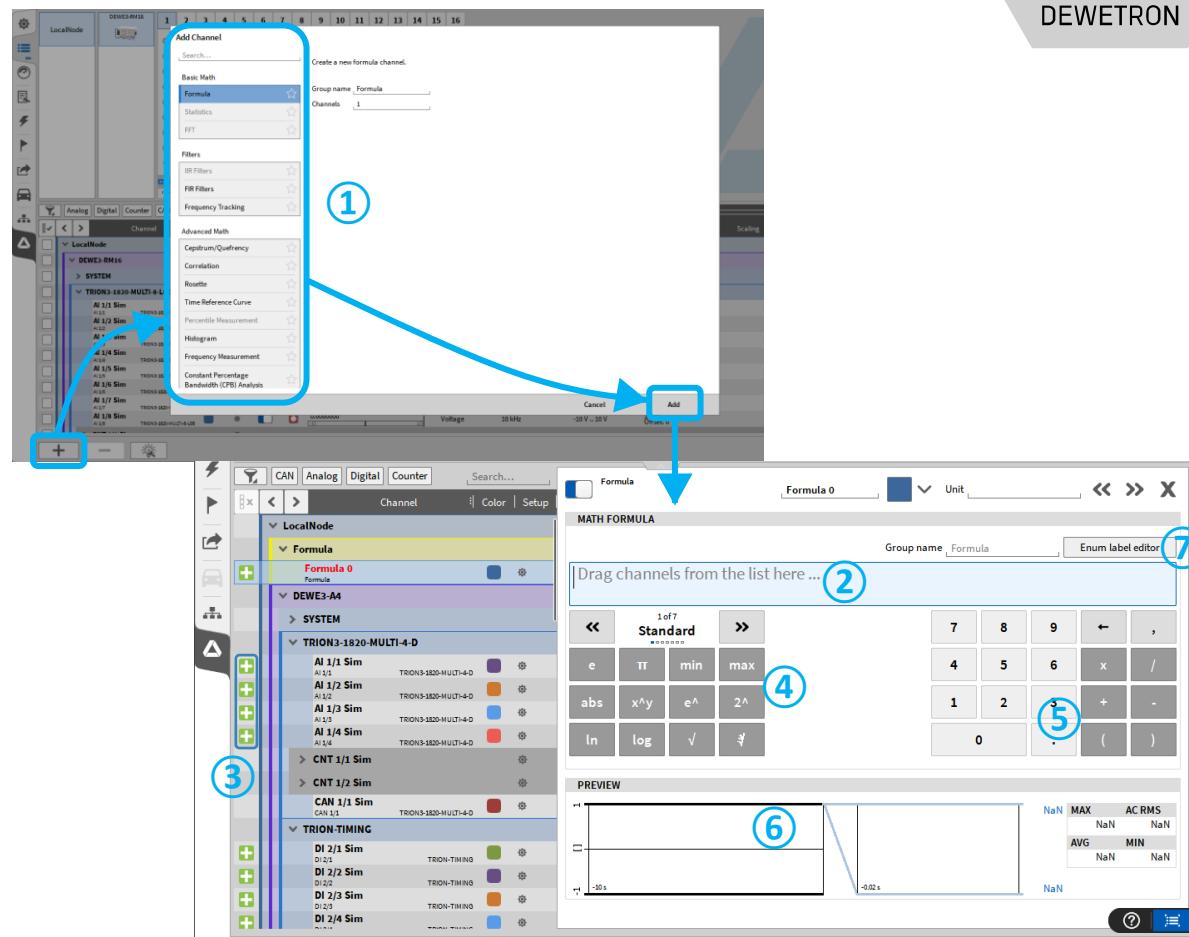


CREATING A FORMULA



DEWETRON

- ① Press the **+** button, select *Formula* and press *Add*
Formula editor will open afterwards
- ② Formula Input field
- ③ Press the **+** button to add a channel to the input field or use drag-and-drop
- ④ Selection of math functions
- ⑤ Numeric pad with basic mathematic operations
- ⑥ Preview of the formula output
- ⑦ Enum label editor
Sets up text labels for specific values



SIMPLE EXAMPLES



DEWETRON

- ① Multiplication of 2 signals
- ② Mean average of 3 signals
- ③ $2\sin(2\pi 1 \cdot \text{time})$
 $+chx/x*0$ required to determine the correct time base

Channels can have different sample rates, thus OXYGEN needs one time reference in each formula

The image displays three screenshots of the OXYGEN software interface, showing the configuration of formulas for the three examples listed on the left.

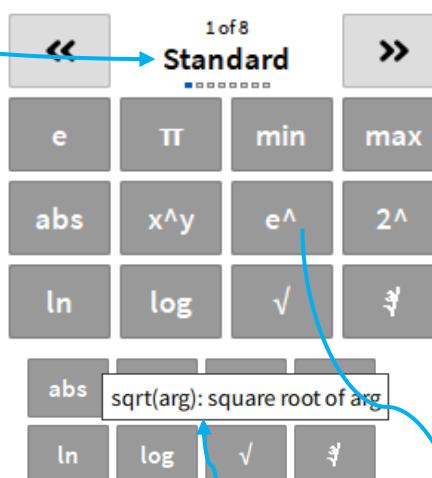
- Example 1 (Top):** The formula is 'AI 1/I1 Sim' * 'AI 1/I2 Sim'. The configuration shows a 'Multiplication' formula node with two 'AI 1/I Sim' channels selected from the 'DEWE2-A4' device. The result is a 'Standard' formula with the value '1'.
- Example 2 (Middle):** The formula is ('AI 1/I1 Sim' + 'AI 1/I2 Sim' + 'AI 1/I3 Sim') / 3. The configuration shows a 'Mean Average' formula node with three 'AI 1/I Sim' channels selected from the 'DEWE2-A4' device. The result is a 'Standard' formula with the value '1'.
- Example 3 (Bottom):** The formula is $2\sin(2\pi 1 \cdot \text{time})$. The configuration shows a '2*sin(2*pi*1*time)' formula node with one 'AI 1/I Sim' channel selected from the 'DEWE2-A4' device. The result is a 'Standard' formula with the value '1'. A note indicates that '+AI 1/I1 Sim'*0 is required to determine the correct time base.

MATHEMATICAL OPERATIONS – STANDARD OPERATIONS



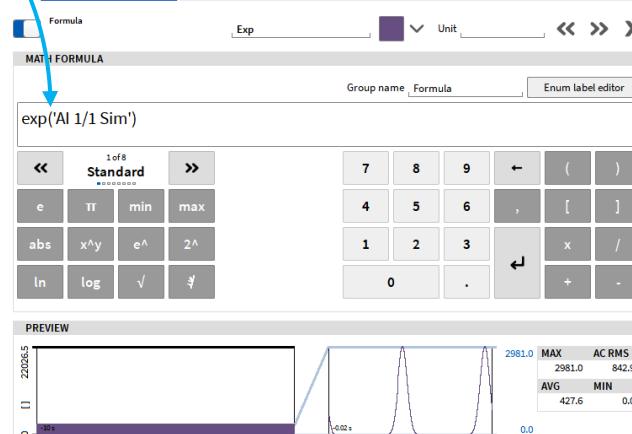
DEWETRON

①	Standard operations
②	Trigonometric operations
③	Logical operations
④	Measurement operations
⑤	Rolling
⑥	Generators
⑦	Misc
⑧	Header



Tool tips pop up when the mouse remains on one operation

Function	Description	Syntax
e	Euler's number	e
π	Constant Pi	pi
min	Minimum of two values	min(x,y)
max	Maximum of two values	max(x,y)
abs	Absolute value	abs(value)
x ^y	Exponential function with arbitrary basis	pow(x,y)
e ^x	Exponential function with basis e	exp(x)
2 ^x	Exponential function with basis 2	exp2(x)
ln	Natural logarithm to basis e	ln(x)
log	Common logarithm to basis 10	log(x)
√	Square root	sqrt(x)
∛	Cube root	cbrt(x)



MATHEMATICAL OPERATIONS – TRIGONOMETRIC



DEWETRON

- ① Standard operations
- ② Trigonometric operations
- ③ Logical operations
- ④ Measurement operations
- ⑤ Rolling
- ⑥ Generators
- ⑦ Misc
- ⑧ Header

2 of 8

Trigonometric

sin asin sinh asinh

cos acos cosh acosh

tan atan tanh atanh

Formula Sin Unit V

MATH FORMULA

Group name Formula

2 * sin(2 * pi * 1 * time) + 'AI 1/1 Sim' * 0

2 of 8

Trigonometric

sin asin sinh asinh

cos acos cosh acosh

tan atan tanh atanh

PREVIEW

MAX 1.51590 V AC RMS 2.00000 V 1.41414 V

AVG -0.00000 V MIN -2.00000 V

1.34137 V

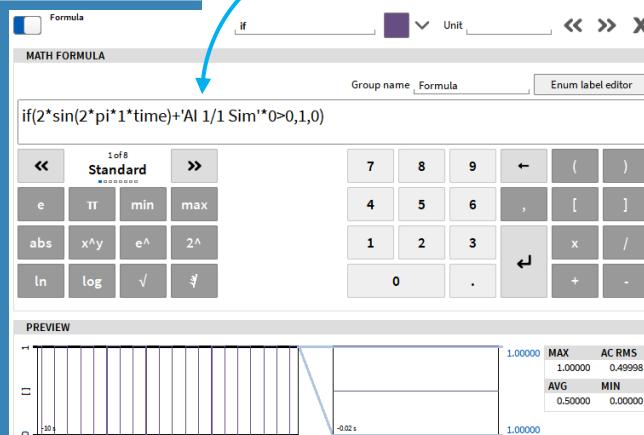
Function	Description	Syntax
sin	Sine	sin(x)
asin	Arc sine	asin(x)
sinh	Hyperbolic sine	sinh(x)
asinh	Arc hyperbolic sine	asinh(x)
cos	Cosine	cos(x)
acos	Arc cosine	acos(x)
cosh	Hyperbolic cosine	cosh(x)
acosh	Arc hyperbolic cosine	acosh(x)
tan	Tangent	tan(x)
atan	Arc tangent	atan(x)
tanh	Hyperbolic tangent	tanh(x)
atanh	Arc hyperbolic tangent	atanh(x)



DEWETRON

MATHEMATICAL OPERATIONS – LOGIC

- ① Standard operations
- ② Trigonometric operations
- ③ Logical operations
- ④ Measurement operations
- ⑤ Rolling
- ⑥ Generators
- ⑦ Misc
- ⑧ Header



Function	Description	Syntax
<	If 'value1' is less than 'value2', the result is 1.0 else 0.0	value1 < value2
≤	If 'value1' is less than or equals 'value2', the result is 1.0 else 0.0	value1 <= value2
>	If 'value1' is greater than 'value2', the result is 1.0 else 0.0	value1 > value2
≥	If 'value1' is greater than or equals 'value2', the result is 1.0 else 0.0	value1 >= value2
=	If 'value1' equals 'value2', the result is 1.0 else 0.0 (Two NaNs do not compare equal)	value1 == value2
≠	If 'value1' is different than 'value2', the result is 1.0 else 0.0	value1 != value2
and	Logic and: value1 != 0.0 and value2 != 0.0 → 1.0 value1 = 0.0 and value2 != 0.0 → 0.0 value1 != 0.0 and value2 = 0.0 → 0.0 value1 = 0.0 and value2 = 0.0 → 0.0	value1 and value2
or	Logic or: value1 != 0.0 or value2 != 0.0 → 1.0 value1 = 0.0 or value2 != 0.0 → 1.0 value1 != 0.0 or value2 = 0.0 → 1.0 value1 = 0.0 or value2 = 0.0 → 0.0	value1 or value2
not	Logic negation: If value = 0.0, the result is 1.0, else 0.0	not value
if	If condition is true, the result is 'true_val', otherwise 'false_val'	if(condition,true_val,false_val)
isnan	If value is NaN, result is 1.0, 0.0 otherwise	isnan(value)

MATHEMATICAL OPERATIONS – MEASUREMENT



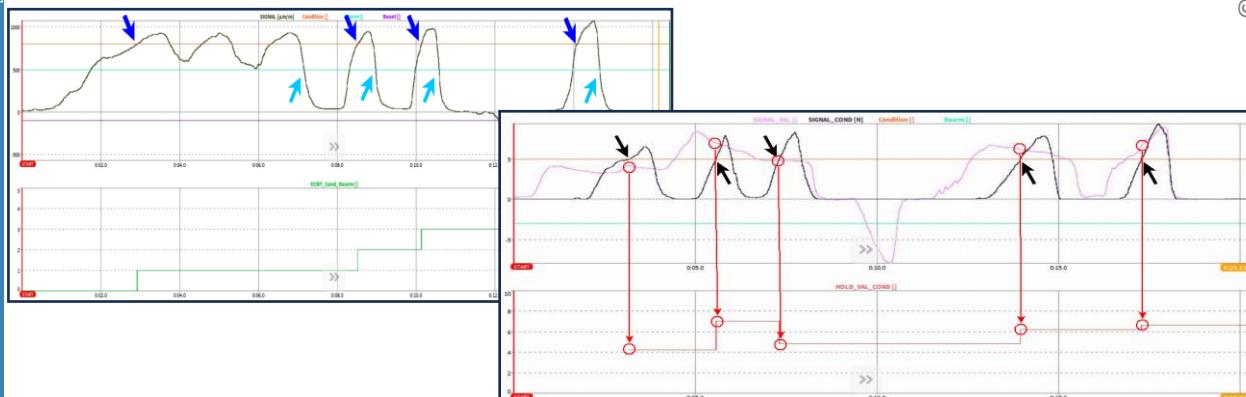
DEWETRON

①	Standard operations
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Measurement

Function	Description	Syntax
ecnt ¹	Count number of edges on condition; condition is mandatory, rearm and reset parameter optional	ecnt(cond,rearm,reset)
hold ²	Hold value at trigger condition; value and condition parameters are mandatory, init and rearm optional	hold(value,cond,init,rearm)
stopwatch ³	Measure the timespan between two conditions in seconds; start and stop condition is both mandatory, reset is optional	stopwatch(start_cond,stop_cond,reset)
measdiff ⁴	Measure the value difference of one channel between two conditions	measdiff(val,cond1,cond2)
period ⁵	Measure the period duration in seconds between consecutive conditions with optional rearm condition	Edge(cond,rearm)
dutycycle ⁶	Measure the dutycycle (from 0 to 1) between consecutive conditions with optional rearm condition	Dutycycle(cond,rearm)
edge ⁷	Generate positive edge on cond with rearm condition	Edge(cond,rearm)



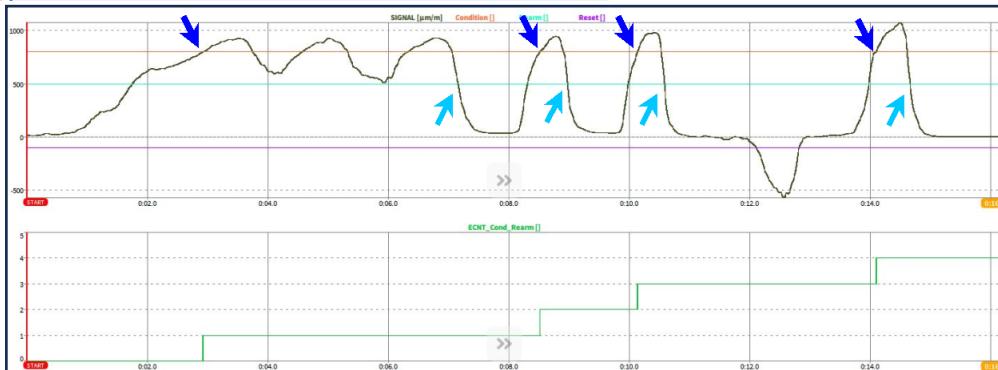
MATHEMATICAL OPERATIONS – MEASUREMENT



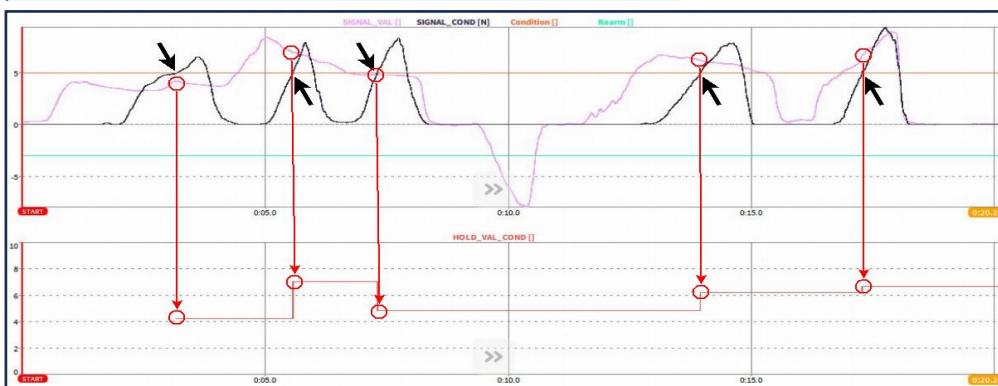
DEWETRON

- ① Standard operations
- ② Trigonometric operations
- ③ Logical operations
- ④ Measurement operations
- ⑤ Rolling
- ⑥ Generators
- ⑦ Misc
- ⑧ Header

`ecnt('SIGNAL'>800,'SIGNAL'<500)`



`hold('SIGNAL_VAL','SIGNAL_COND'>5)`





DEWETRON

MATHEMATICAL OPERATIONS – ROLLING

- ① Standard operations
- ② Trigonometric operations
- ③ Logical operations
- ④ Measurement operations
- ⑤ Rolling
- ⑥ Generators
- ⑦ Misc
- ⑧ Header

The screenshot shows the software interface for selecting mathematical operations. A blue arrow points from the list item '⑤ Rolling' to the 'Rolling' section of the interface.

Function Selection: The 'Rolling' section is highlighted with a blue arrow. It contains the following functions:

- 5 of 8 Rolling (selected)
- rmin
- rmax
- ravg
- rrms
- racrms
- rp2p

Formula Editor: Below the selection, a formula editor is shown with the following details:

- Formula: ravg
- Unit: (dropdown menu)
- MATH FORMULA: ravg('AI 1/1 Sim','reset_signal')>7)
- Group name: Formula
- Enum label editor

Standard Functions: A separate section shows standard mathematical functions:

- 1 of 8 Standard (selected)
- e
- π
- min
- max
- abs
- x^y
- e^x
- 2^x
- ln
- log
- \sqrt{x}
- $\sqrt[3]{x}$

Calculator: A numeric keypad is shown with buttons for 7, 8, 9, 4, 5, 6, 1, 2, 3, 0, ., (,), [,], ., x, /, +, -.

PREVIEW: A waveform plot shows a signal with a period of 0.02s. The plot includes a purple shaded area representing the rolling average window. Below the plot, a table provides summary statistics:

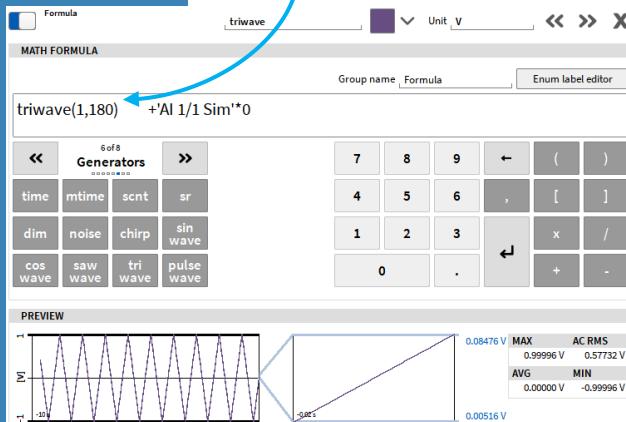
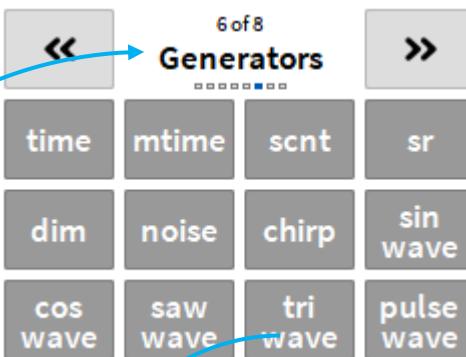
MAX	7.7194 V	AC RMS	3.3173 V
MIN	-0.7556 V	Avg	3.1001 V

MATHEMATICAL OPERATIONS – GENERATORS



DEWETRON

①	Standard operations
②	Trigonometric operations
③	Logical operations
④	Measurement operations
⑤	Rolling
⑥	Generators
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⑧	Header



Function	Description	Syntax
time*	Returns the elapsed time since acquisition (re)start in seconds	time
mtime*	Returns the elapsed time since measurement start in seconds	mtime
scnt*	Counts the number of samples since acquisition (re)start	scnt
sr*	Returns the Sample Rate in Hz	sr
dim	When multiplied to an array channel $x * \text{dim}$, the output shows the current index of the bin. [1,2...n]. For scalar the index is 0.	dim
noise	Creates Noise signal in the range [-x...+x]	noise(x)
chirp	Creates a chirp signal with frequency from f_0 to f_1 within d seconds.	chirp(f_0, f_1, d)
sinwave	Creates a sinus wave with frequency f and optional phase ϕ . By default, a phase shift of 0 rad is applied.	sinwave(f, ϕ)
coswave	Creates a cosines wave with frequency f and optional phase ϕ . By default, a phase shift of 0 rad is applied.	coswave(f, ϕ)
sawwave	Creates a saw wave with frequency f and optional phase ϕ . By default, a phase shift of 0 rad is applied.	sawwave(f, ϕ)
triwave	Creates a triangle wave with frequency f and optional phase ϕ . By default, a phase shift of 0 rad is applied.	triwave(f, ϕ)
pulsewave	Creates a rectangle wave with frequency f , duty cycle d and optional phase ϕ . By default a phase shift of 0 rad is applied.	pulsewave(f, d, ϕ)

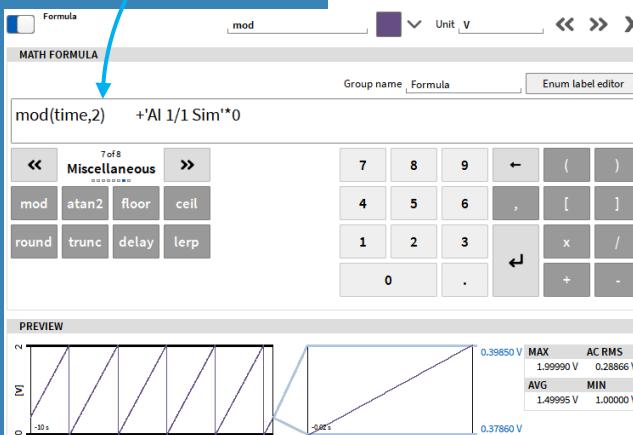
* A channel to which the function refers must be specified, i.e. in the following manner:
'Ref_Ch'*time

MATHEMATICAL OPERATIONS – MISC



DEWETRON

- ① Standard operations
- ② Trigonometric operations
- ③ Logical operations
- ④ Measurement operations
- ⑤ Rolling
- ⑥ Generators
- ⑦ Misc
- ⑧ Header



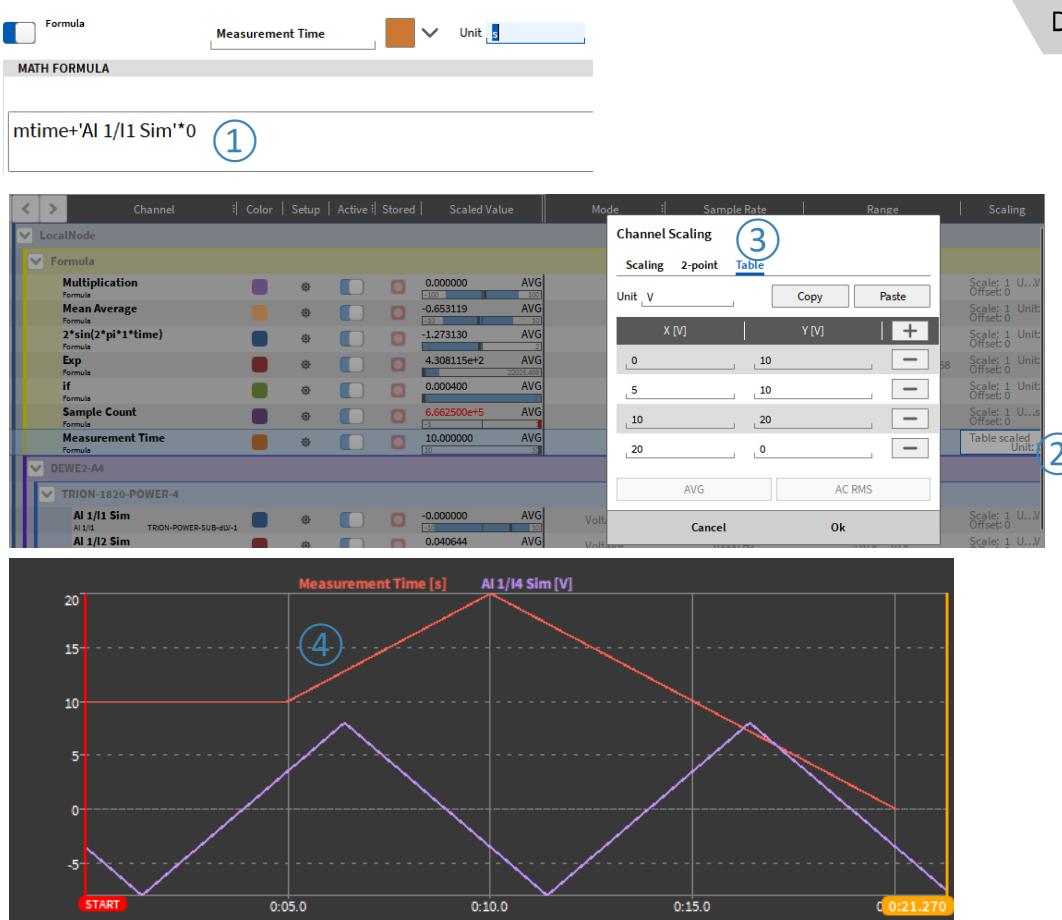
Function	Description	Syntax
mod	Remainder of division x/y, sign of x	mod(x,y)
atan2	Arc tangent of y/x using signs of arguments to determine the correct quadrant	atan2(y,x)
floor	Rounds x towards minus infinity	floor(x)
ceil	Rounds x towards plus infinity	ceil(x)
round	Round to nearest integer	round(x)
trunc	Round x towards zero	trunc(x)
delay	Delay a signal x for N samples with an optional initial value y0 by default 0	delay(x,N,y0)
lerp	Continue a series of values with $lerp(a,b,t)=(1-t)*a+t*b$. This allows you to interpolate or continue the straight line for any t values. An example is the starting value a=10, the second value is 15. lerp equals a for t=0, lerp equals b for t=1. For t values between 0 and 1, interpolation takes place between a and b.	lerp(a,b,t)

MATHEMATICAL OPERATIONS – MEASUREMENT TIME



DEWETRON

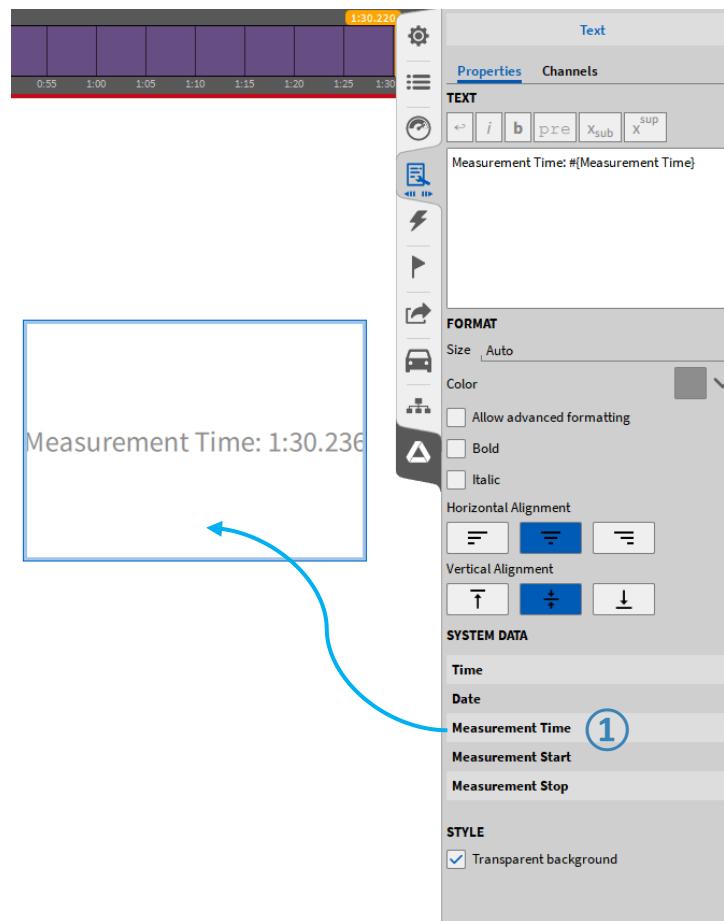
- ① Measurement time function can be used to generate reference curves in time domain. Create a formula determining the measurement time.
- ② Open the scaling options of this channel which are accessible in the Channel List
- ③ The table scaling can be used to define the boundary points of the reference curve
- ④ Can be displayed in a Recorder to check if the channel(s) exceeds the limit or is within the limit



MATHEMATICAL OPERATIONS – MEASUREMENT TIME

①

Measurement time can be easily displayed on the screen as it can be dragged and dropped to a Text instrument directly from its properties



ARRAY MATH FORMULAS



DEWETRON

	Array channels such as Harmonics, FFT or CPB channels can be used in Formulas
①	Basic math operations for arrays with same dimensions supported: + - * /
②	Operations (+ - * /) with constants supported
	Output is always a new array channel with same dimensions

The screenshot shows the DEWETRON Formula editor interface. At the top, there are buttons for 'Formula' (blue), 'Formula 0' (grey), 'Unit' (green), and navigation arrows (left, right, close). Below this is a 'MATH FORMULA' section with two numbered circles: ① above the formula text and ② above the function list. The formula text is '10*'U1_hRMS@3 Phase Motor'/'I1_hRMS@3 Phase Motor'. The function list, labeled '1 of 8 Standard', contains the following functions:
- Row 1: e, π, min, max
- Row 2: abs, x^y, e^x, 2^x
- Row 3: ln, log, √, ∛
To the right of the formula text is a numeric keypad and a set of arithmetic and parentheses keys. Below the formula editor is a 'PREVIEW' section showing a blank white area with a small '1.00000e+10' label at the bottom left.

ARRAY MATH FORMULAS



DEWETRON

Possibility to use

- (3) Standard operators
- (4) Trigonometric operators
- (5) Logic operators

The screenshot shows a software interface for array math formulas. At the top, a formula is displayed: $10 * \log('U1_hRMS@POWER_1PH' / 1)$. Below this, a 'Standard' operator palette is shown with 8 operators: e, π, min, max, abs, x^y , e^x , 2^x , ln, log, \sqrt{x} , and $\sqrt[3]{x}$. A blue arrow points from the formula to this palette, and a blue circle with the number 3 is placed to its right.

Below the standard operators, another formula is shown: $'U1_hRMS@POWER_1PH' / 'I1_hRMS@POWER_1PH' * \cos('I1_hPHI@POWER_1PH')$. To its right is a 'Trigonometric' operator palette with 8 operators: sin, asin, sinh, asinh, cos, acos, cosh, and acosh. A blue arrow points from the formula to this palette, and a blue circle with the number 4 is placed to its right.

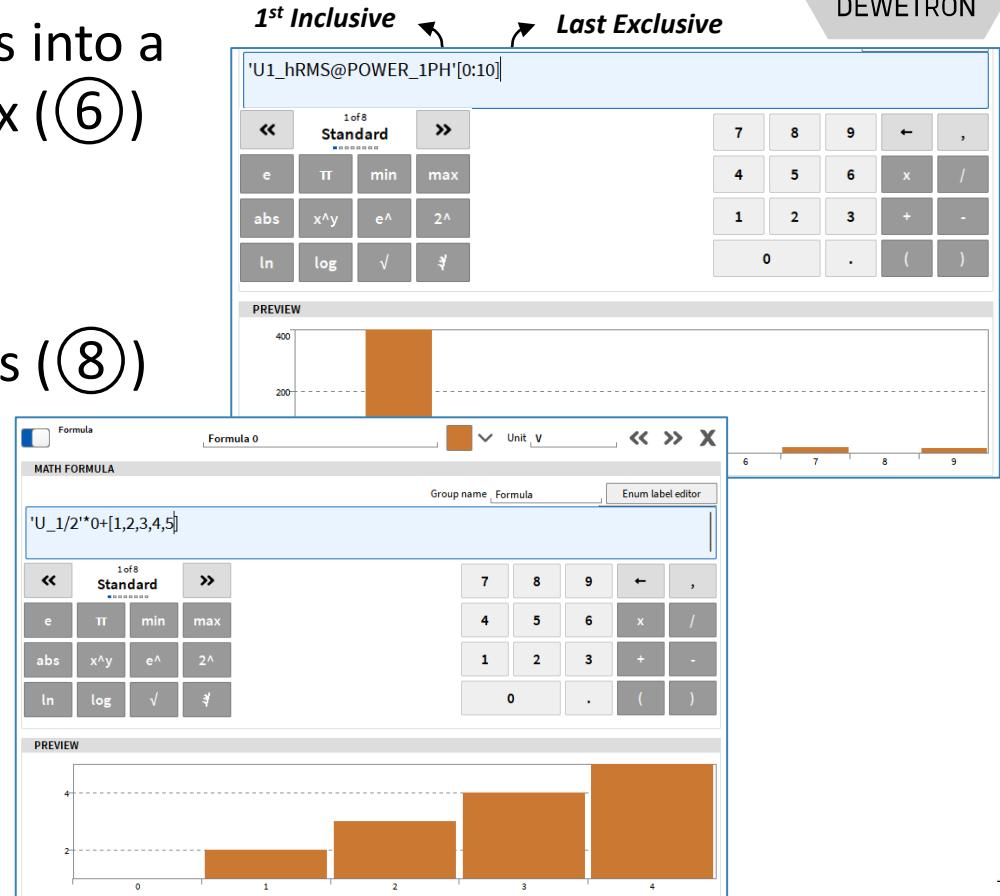
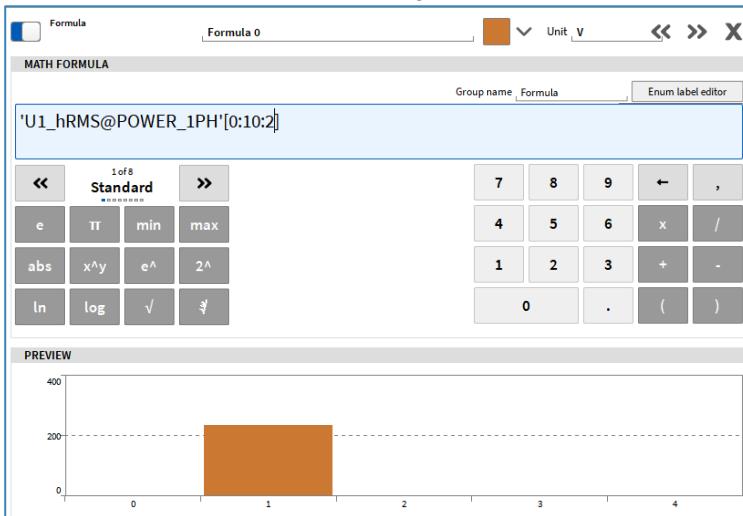
At the bottom, a third formula is shown: $'U1_hRMS@POWER_3PH' \text{ and } 'U2_hRMS@POWER_3PH'$. To its right is a 'Logic' operator palette with 8 operators: <, ≤, >, ≥, =, ≠, and, or, not, if, and isnan. A blue arrow points from the formula to this palette, and a blue circle with the number 5 is placed to its right.

ARRAY MATH FORMULAS



DEWETRON

- > Extraction of adjacent elements into a new array in C++ / Python syntax (⑥)
 - > First element of array is always 0!
 - > Optional step size definition (⑦)
- > Creation of arrays with constants (⑧)

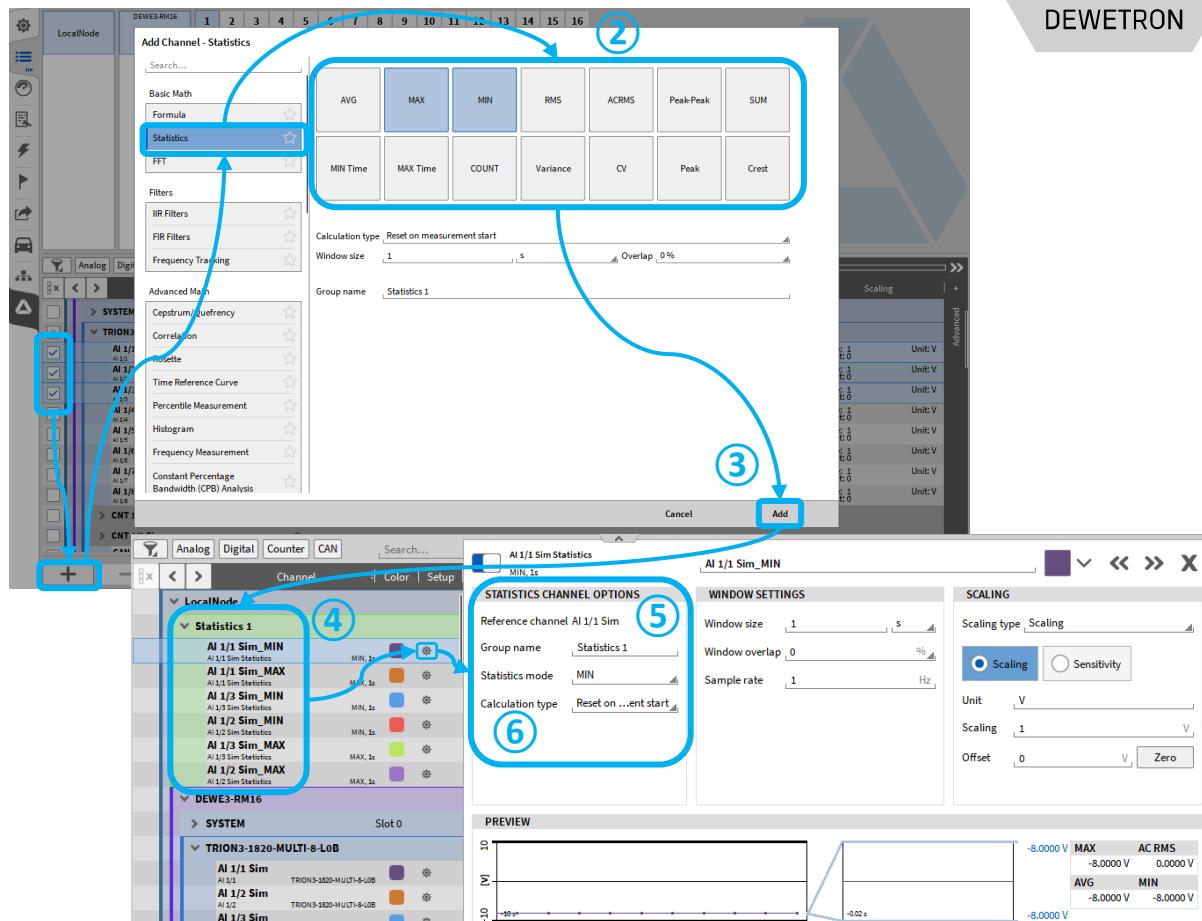


CREATING STATISTICS



DEWETRON

- ① Select one or several channels by checking their check boxes and press the **+** button
- ② Select **Statistics**, choose the proper calculations (several can be selected) and the desired time window
- ③ Press **Add** afterwards to create these channels
- ④ A separate output channel for each reference channel and calculation is created
- ⑤ Changes can still be applied by entering the settings of the desired channel via the *Gear* button
- ⑥ Select if calculation (starting at acquisition start) shall be reset at recording start



CALCULATION REMARKS



DEWETRON

Calculation remarks can be seen on the right hand side

If rolling (overall) statistics, i.e. maximum value during the measurement are required, refer to the functions in the table below which are available in the formula setup

These formulas are reset at measurement start

Additionally, user defined reset events can be defined, i.e. ch1 decreases 0

racrms and *rp2p* are not available in the menu but can be typed into the formula editor manually

$$AVG = \frac{1}{N} \sum_{i=1}^N SignalLevel_i$$

$$MIN = MIN\{SignalLevel_i\}$$

$$MAX = MAX\{SignalLevel_i\}$$

$$ACRMS = \sqrt{\frac{1}{N} \sum_{i=1}^N (SignalLevel_i - AVG)^2}$$

$$RMS = \sqrt{\frac{1}{N} \sum_{i=1}^N (SignalLevel_i)^2} = \sqrt{AVG^2 + ACRMS^2}$$

$i = 1 \dots N$

$N = \text{Sample Rate of Input Channel} * \text{Window Size}$

rmin	Measure rolling overall minimum of a channel during a measurement with optional reset condition	rmin(value,reset)
rmax	Measure rolling overall maximum of a channel during a measurement with optional reset condition	rmax(value,reset)
ravg	Measure rolling overall average of a channel during a measurement with optional reset condition	ravg(value,reset)
rrms	Measure rolling overall RMS of a channel during a measurement with optional reset condition	rrms(value,reset)
rsum	Measure rolling overall sum of a channel during a measurement with optional reset condition	rsum(value,reset)
racrms	Measure rolling overall ACRMS of a channel during a measurement with optional reset condition; Not included in the selection and must be typed manually	racrms(value,reset)
rp2p	Measure rolling overall Peak-to-Peak of a channel during a measurement with optional reset condition; Not included in the selection and must be typed manually	Rp2p(value,reset)



DEWETRON

FURTHER STATISTICS (AVAILABLE SINCE R6.1)

- > *Peak-Peak*: Calculates the peak-peak value
- > *SUM*: Calculates the sum
- > *MIN Time*: Determines the time, where the minimum of the signal was reached
- > *MAX Time*: Determines the time, where the maximum of the signal was reached
- > *COUNT*: Counts the number of samples in one measurement block
- > *Variance*: Calculates the variance (squared ACRMS value)
- > *Coefficient of Variance (CV)*: Calculates the Coefficient of variance (division of ACRMS and AVG)
- > *Peak*: Calculates the peak value
- > *Crest*: Calculates the crest factor (division of the MAX and RMS value)

Add Channel - Statistics

Search...

Basic Math

- Formula
- Statistics**
- FFT

Filters

- IIR Filters
- FIR Filters
- Frequency Tracking

Advanced Math

- Cepstrum/Quefrency
- Correlation
- Rosette
- Time Reference Curve
- Percentile Measurement
- Histogram
- Frequency Measurement

AVG	MAX	MIN	RMS	ACRMS	Peak-Peak	SUM
MIN Time	MAX Time	COUNT	Variance	CV	Peak	Crest

Calculation type

Window size

Group name

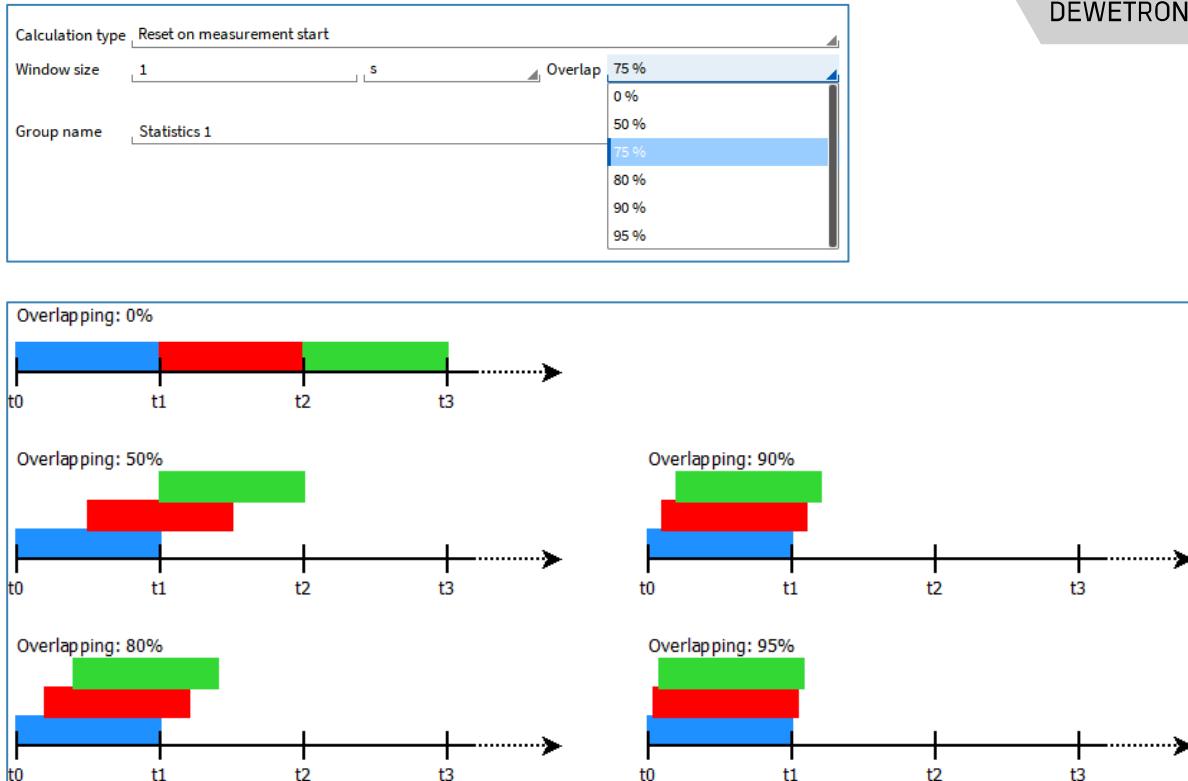


DEWETRON

OVERLAPPING STATISTICS (AVAILABLE SINCE R6.1)

> Overlapping Window size

- > 0 % (behaviour until now)
- > 50 %
- > 75 %
- > 80 %
- > 90 %
- > 95 %

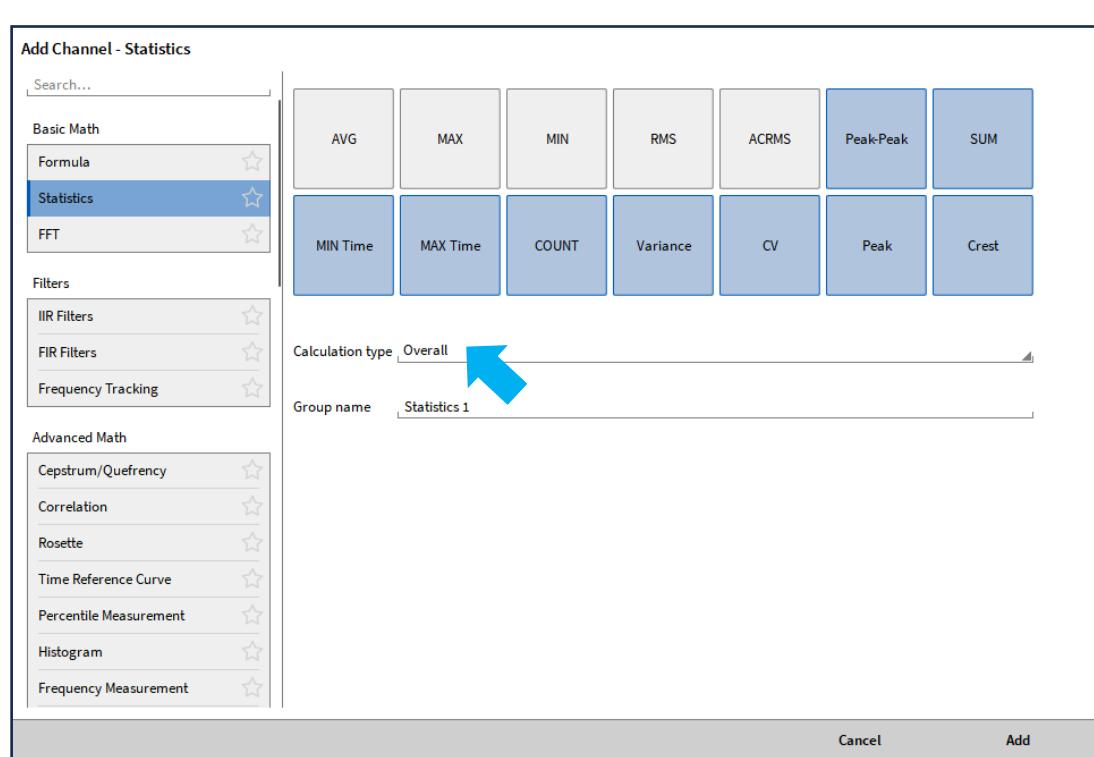




DEWETRON

OVERALL STATISTICS (AVAILABLE SINCE R6.1)

- > Outputs one overall value from recording start to recording end
→ Reset on measurement start
- > No time history included

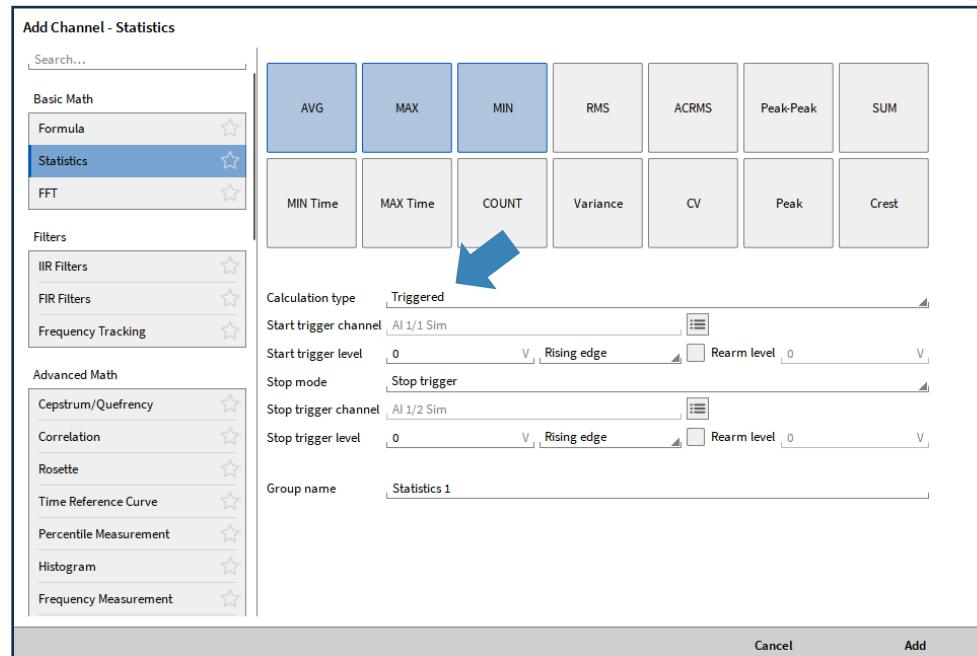




DEWETRON

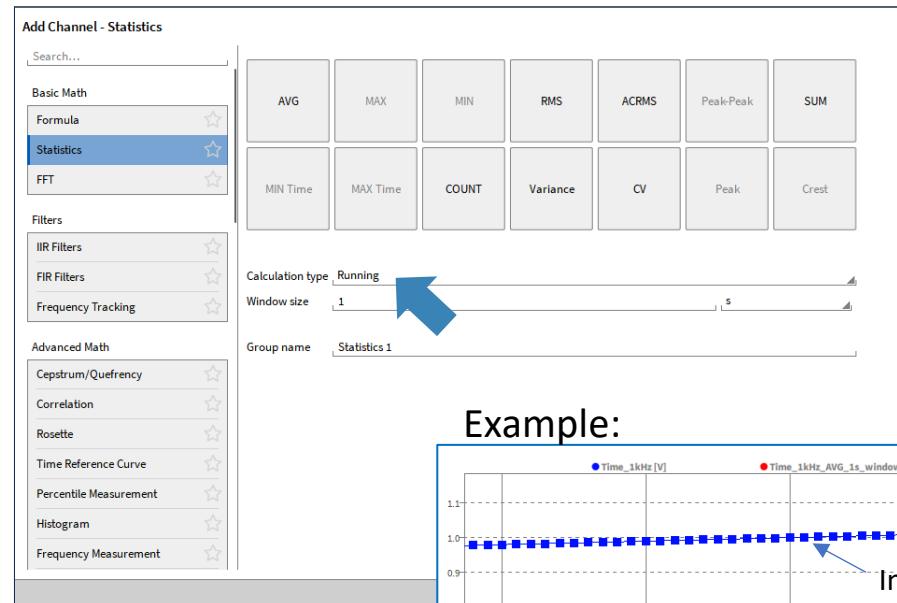
TRIGGERED STATISTICS (AVAILABLE SINCE R6.2)

- > Begins statistics calculation on trigger
- > Trigger event can be on rising or falling edge
- > Stop modes:
 - Retrigger
 - Duration
 - Stop trigger

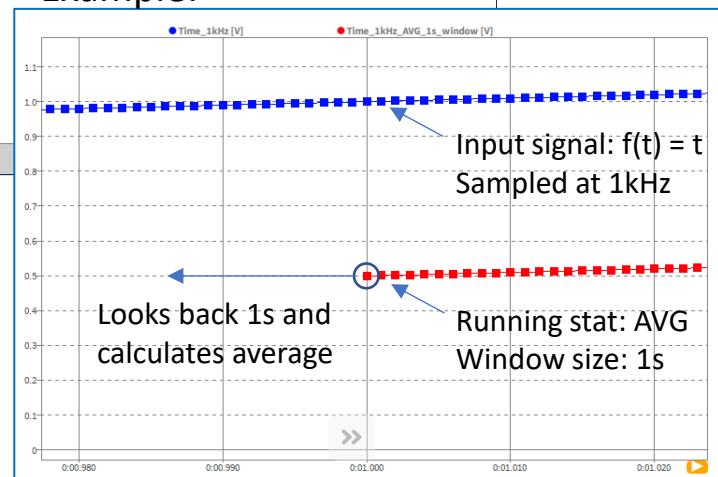


RUNNING STATISTICS (AVAILABLE SINCE R6.2)

- > Inherits sample rate of input channel
- > Looks back the window size on each new sample
- > Calculates statistic for this „look back“-window



Example:



ARRAY MATH STATISTICS



DEWETRON

- > Arrays can be assigned to Statistics
- > Output is always a new array channel with same dimensions

Channel Color Setup

LocalNode

Statistics 1

- U1_hRMS@POWER_3PH_AVG
- U1_hRMS@POWER_3PH_RMS
- U1_hRMS@POWER_3PH_ACRMS
- U1_hRMS@POWER_3PH_MIN
- U1_hRMS@POWER_3PH_MAX

STATISTICS CHANNEL OPTIONS

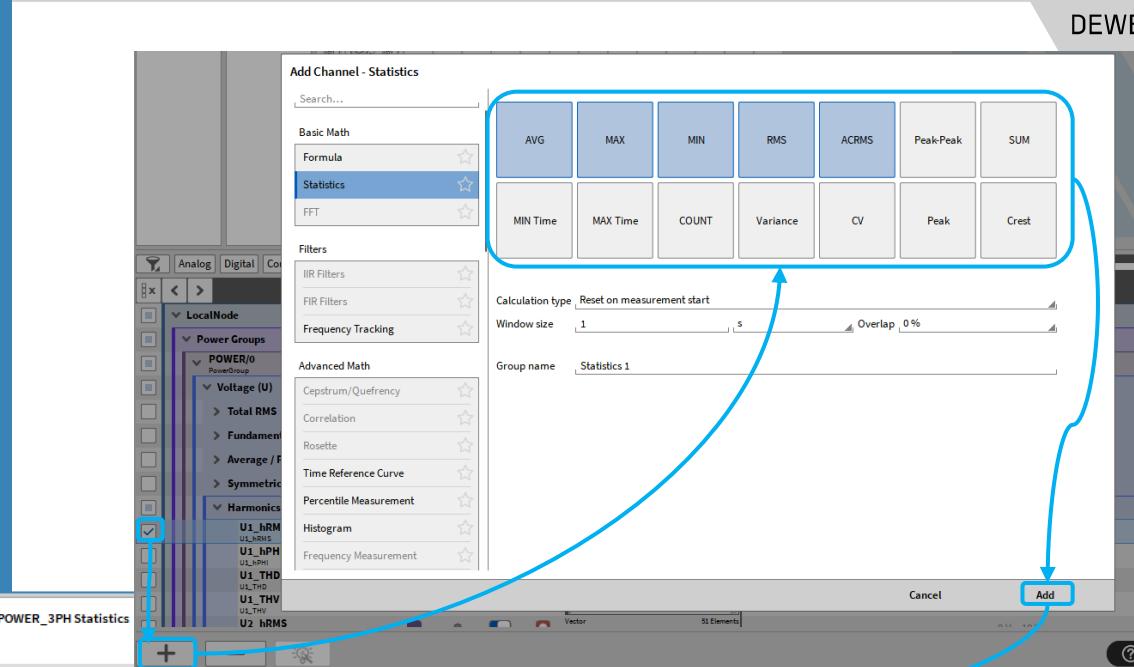
Reference channel U1_hRMS@POWER_3PH

Statistics mode Average

Window size 1 5

Sample rate 1 Hz

Calculation type Reset on measurement start

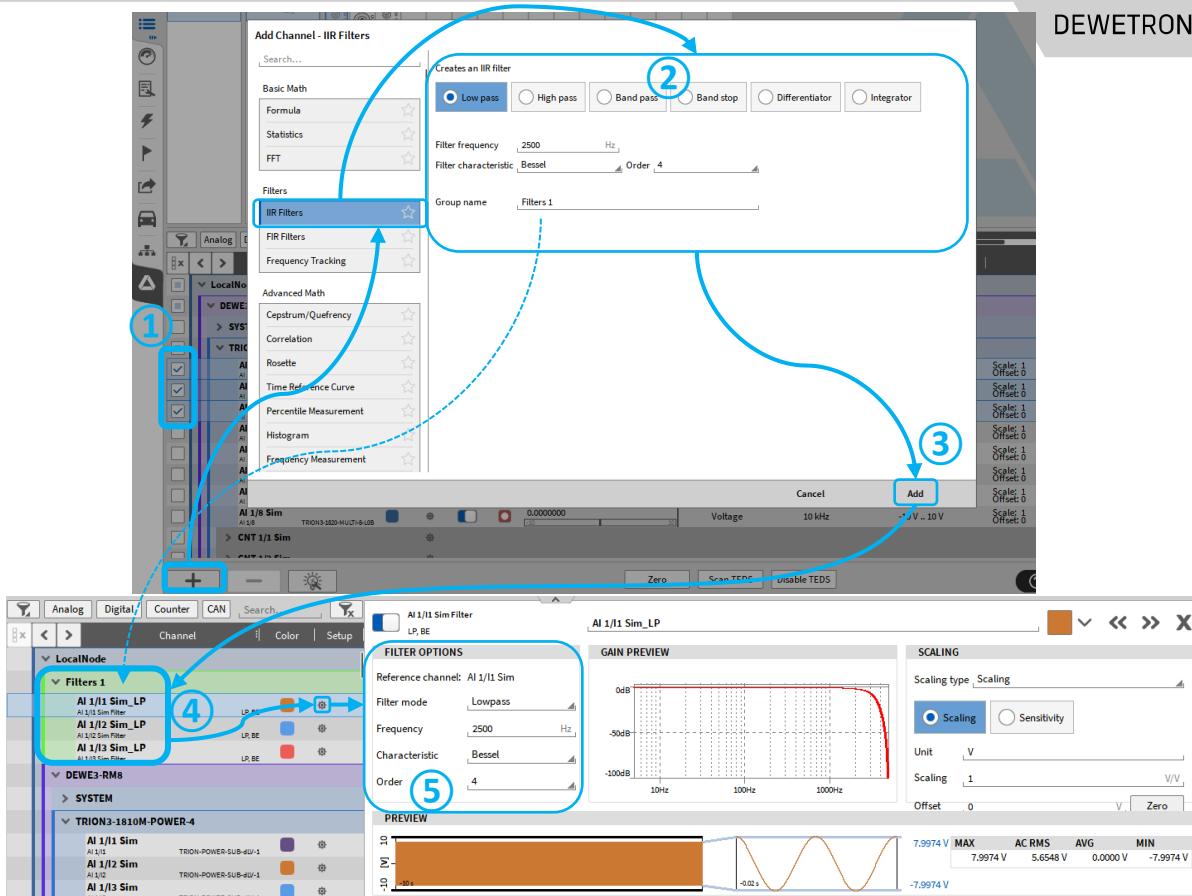


CREATING IIR-FILTERS



DEWETRON

- ① Select one or several channels to be filtered by checking their check boxes and press the **+** button
- ② Select *Filters*, choose the proper one and its settings
- ③ Press *Add* afterwards to create these channels
- ④ A separate output channel for each filtered reference channel is created
- ⑤ Changes can still be applied by entering the settings of the desired channel via the *Gear* button

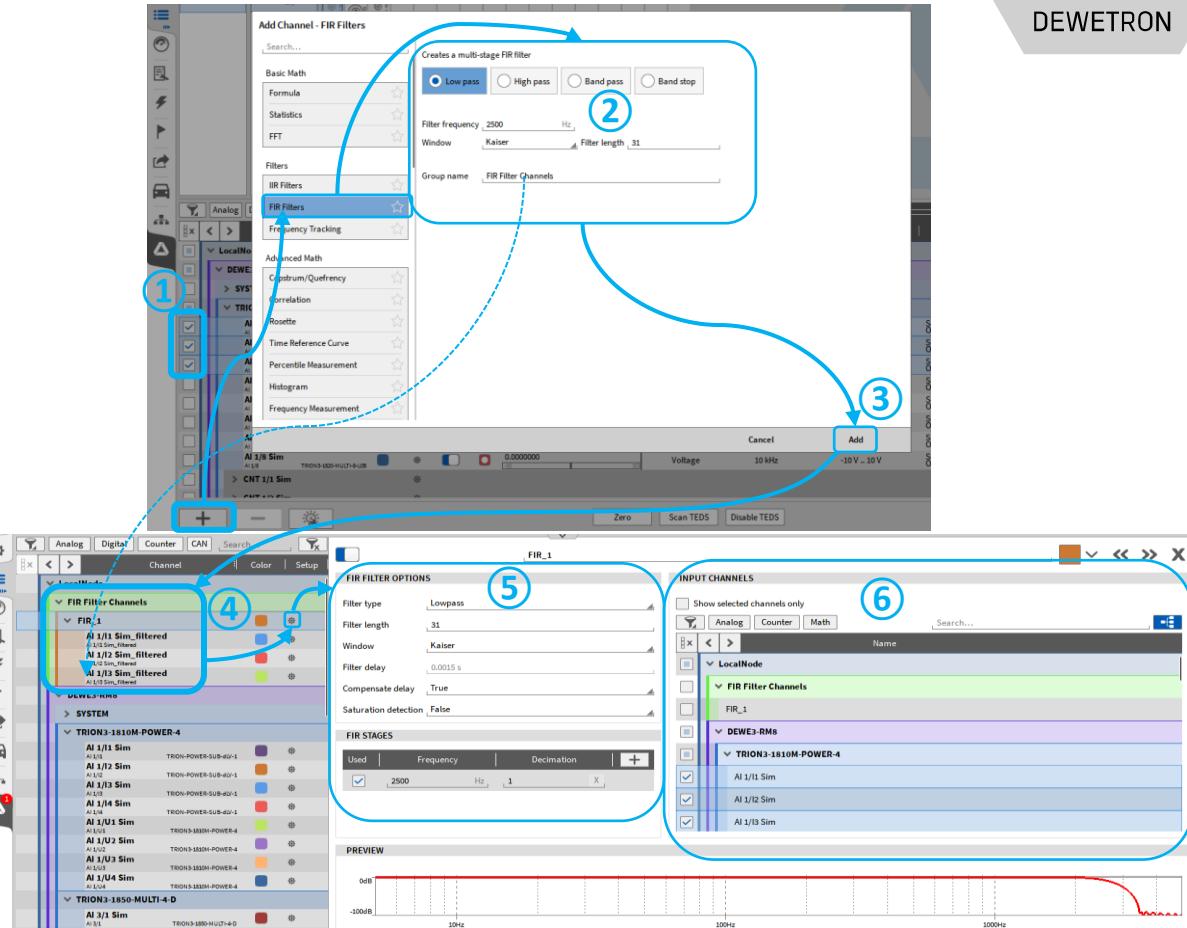


CREATING FIR-FILTERS



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- ① Select one or several channels to be filtered by checking their check boxes and press the **+** button
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- ④ A separate output channel for each filtered reference channel is created
- ⑤ Changes can still be applied by entering the settings of the desired channel via the *Gear* button
- ⑥ Additional channels can be added or deselected



FILTER SETTINGS



DEWETRON

Available Filters:

- > Lowpass
- > Highpass
- > Bandpass
- > Bandstop
- > Integrator (Single or Double)
- > Differentiator (Single or Double)

- > Lowpass & Highpass:
 - > $f_{C\ max} = \frac{f_s}{2} - 50\ Hz$
 - > Bessel, Butterworth, Chebyshev I and Chebyshev II characteristic
 - > 2nd, 4th, 6th, 8th or 10th order
- > Bandpass & Bandstop
 - > $f_l = 0 \dots f_h - 1\ Hz$
 - > $f_h = f_l + 1\ Hz \dots \frac{f_s}{2} - 50\ Hz$
 - > Bessel, Butterworth, Chebyshev I and Chebyshev II characteristic
 - > 2nd, 4th, 6th, 8th or 10th order
- > Integrator & Differentiator
 - > Single or Double Integration/Differentiation
 - > Enable low (Integrator) or high (Differentiator) frequency component filtering
 - > $f_{C\ max} = \frac{f_s}{2} - 50\ Hz$
 - > Bessel or Butterworth characteristic
 - > 2nd, 4th, 6th, 8th or 10th order
- > Why filter frequency components during Integration / Differentiation or not?
 - > → Integration of a velocity:
 - > With filtering enabled (no DC components), this calculation determines only the distance travelled from one data sample to the next one
 - > With filtering disabled (DC components included), this calculation determines the entire travelled distance as the determined distance from one data sample to the next is summed up

OFFLINE MATH – ADDING CALCULATIONS TO THE DATA FILE



DEWETRON

- ① Basic Math, Filters, Advanced Math and optional Calculations can be created offline
- ② Offline created channels are marked with a green *Stored* button
- ③ Any changes to a data file can be stored with the *Store* button

The screenshot shows the DEWETRON software interface. On the left, the 'Add Channel' dialog is open, listing various calculation types: Basic Math (Formula, Statistics, FFT), Filters (IIR Filters, FIR Filters, Frequency Tracking), Advanced Math (Cepstrum/Querency, Correlation, Rosette, Time Reference Curve, Percentile Measurement, Histogram, Frequency Measurement, Constant Percentage Bandwidth (CPB) Analysis, Array Statistics), and Optional Calculations (Power Group, Order Analysis, Swept Sine Analysis, Psophometer, Sound Level, Modal Test, Tape Sensor, Shock Response Spectrum, Resolver, Matrix Sampler). Each item has a star icon to its right. On the right, the main workspace shows a list of channels. A green 'Stored' button is circled in blue (1) next to a 'Statistics 1' channel. Another green 'Stored' button is circled in blue (2) next to a 'DEWE3-A4' channel. A blue circle (3) points to the 'Remarks' section below. A blue circle (4) points to a toolbar button with a '+' sign, which is used for adding new calculations. The workspace also shows a play button, sync button, date/time, and various control icons at the bottom.

①

②

③

④

Remarks:

- > Possibility to edit settings of software channels in *.dmd-files. Function must be activated once after opening *.dmd-file (④)
- > All existing channels and calculations created with + button can be edited if source channels are stored
- > It is also possible to edit the settings of hardware channels, but only the name and the unit.
- > Please keep in mind that the results of an offline calculated channel can differ from an online calculated channel, i.e. filters as they are oscillating at the beginning