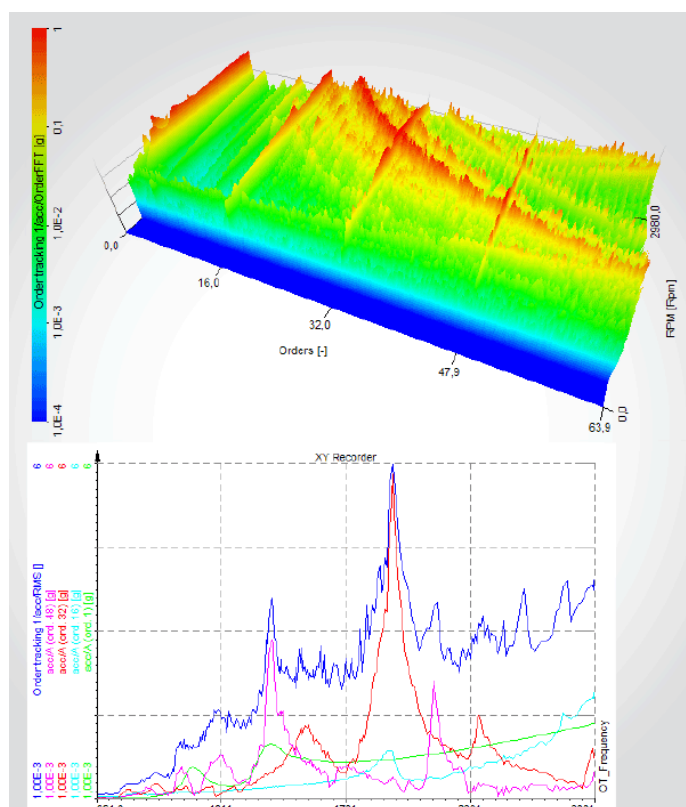# Order tracking

Technical specification, Version: 1.0, Date: 1.2.2016

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Test PC specifications

	S-BOX 2
OS	Windows 7 Ultimate Service Pack 1
CPU	Intel Core i7-3612QE 2.10 GHz
Memory-RAM	4,00 GB
System type	32-bit OS
SSD Space	230 GB
Graphic card	Intel HD Graphics 4000 (64 MB dedicated memory and 1487 MB shared memory)

Order tracking options

Available Order tracking options for real time or post-analysis.

Bandwidth	Frequency bandwidth	Up to 78125 Hz (200 kHz sample rate)
	RPM range	Up to 187500 RPM
Frequency channels	Counter	Encoders, CDM, Tacho (Digital)
	Analog pulses	60-2, 63-2, Tacho (Analog)
	RPM channel	Any frequency channel in Hz, RPM or UPM
	Counter filter	Off, 100 ns, 200 ns, 500 ns, 1 μs, 2 μs, 4 μs and 5 μs
Calculation criteria	Direction	Runup, Coastdown or Both
	RPM range	User defined max and min RPM
	Delta RPM	User defined
Order FFT setup	Order resolution	1, ½, ¼, 1/8, 1/16, 1/32, 1/64
	Maximum order	8, 16, 32, 64, 128 and 256
	Order waterfall vs time overlap	0%, 10%, 25%, 50%, 66%, 75% and 90%
Time FFT setup	FFT lines	128, 256, 512, 1024, 2048, 4096, 8192, 16384
	Update FFT	User selectable update on RPM change or update on selected time
Common properties	Harmonic list	User can select tracked orders
	FFT window	Blackman, Hamming, Hanning, Rectangular, Triangle, Flat top or Exponent down applied to all channels
	Data averaging	Average between classes or none (center of class is taken)
	Update criteria	Always, Only first time or Average

Settings that still allow real time measurement of Order tracking, if selected frequency bandwidth is 5 kHz and only Order FFT is calculated.

Input	Number of input channels	Up to 8
Bandwidth	Frequency bandwidth	5 kHz
	RPM range	Up to 12000 RPM
Calculation criteria	Min Delta RPM	20
	RPM range	User defined from 0 up to 12000 RPM
Order FFT setup	Order resolution	1 ½, ¼ , 1/8, 1/16, 1/32
	Maximum order	Up to 32
	Order waterfall vs time overlap	0%, 10%, 25%, 50%, 66%, 75% and 90%
Common properties	Harmonic list	Up to 20 harmonics can be tracked
	FFT window selection	Blackman, Hamming, Hanning, Rectangular, Triangle, Flat top or Exponent down applied to all channels
	Data averaging	Average between classes or none (center of class is taken)
	Update criteria	Always, Only first time or Average

Settings that still allow real time measurement of Order tracking, if selected frequency bandwidth is 5 kHz and Order and time FFT are calculated.

Input	Number of input channels	Up to 4
Bandwidth	Frequency bandwidth	5 kHz
	RPM range	Up to 12000 RPM
Calculation criteria	Min Delta RPM	50
	RPM range	User defined from 0 up to 12000 RPM
Order FFT setup	Order resolution	1 ½, ¼ , 1/8, 1/16, 1/32
	Maximum order	Up to 32
	Order waterfall vs time overlap	0%, 10%, 25%, 50%, 66%, 75% and 90%
Common properties	Harmonic list	Up to 20 harmonics can be tracked
	FFT window selection	Blackman, Hamming, Hanning, Rectangular, Triangle, Flat top or Exponent down applied to all channels
	Data averaging	Average between classes or none (center of class is taken)
	Update criteria	Always, Only first time or Average
Time FFT setup	FFT lines	128, 256, 512, 1024, 2048, 4096
	Update FFT	User selectable update on RPM change or update on selected time

Settings that still allow real time measurement of Order tracking, if selected frequency bandwidth is 20 kHz and only Order FFT is calculated.

Input	Number of input channels	Up to 8
Bandwidth	Frequency bandwidth	20 kHz
	RPM range	Up to 48000 RPM
Calculation criteria	Min Delta RPM	20
	RPM range	User defined from 0 up to 48000 RPM
Order FFT setup	Order resolution	1 ½, ¼ , 1/8, 1/16, 1/32
	Maximum order	Up to 32
	Order waterfall vs time overlap	0%, 10%, 25%, 50%, 66%, 75% and 90%
Common properties	Harmonic list	Up to 20 harmonics can be tracked
	FFT window selection	Blackman, Hamming, Hanning, Rectangular, Triangle, Flat top or Exponent down applied to all channels
	Data averaging	Average between classes or none (center of class is taken)
	Update criteria	Always, Only first time or Average

Settings that still allow real time measurement of Order tracking, if selected frequency bandwidth is 20 kHz and Order and time FFT are calculated.

Input	Number of input channels	Up to 4
Bandwidth	Frequency bandwidth	20 kHz
	RPM range	Up to 24000 RPM
Calculation criteria	Min Delta RPM	50
	RPM range	User defined from 0 up to 24000 RPM
Order FFT setup	Order resolution	1 ½, ¼ , 1/8, 1/16, 1/32
	Maximum order	Up to 32
	Order waterfall vs time overlap	0%, 10%, 25%, 50%, 66%, 75% and 90%
Common properties	Harmonic list	Up to 20 harmonics can be tracked
	FFT window selection	Blackman, Hamming, Hanning, Rectangular, Triangle, Flat top or Exponent down applied to all channels
	Data averaging	Average between classes or none (center of class is taken)
	Update criteria	Always, Only first time or Average
Time FFT setup	FFT lines	128, 256, 512, 1024, 2048, 4096
	Update FFT	User selectable update on RPM change or update on selected time

Settings that still allow real time measurement of Order tracking, if selected frequency bandwidth is 40 kHz and only Order FFT is calculated.

Input	Number of input channels	Up to 6
Bandwidth	Frequency bandwidth	40 kHz
	RPM range	Up to 60000 RPM
Calculation criteria	Min Delta RPM	20
	RPM range	User defined from 0 up to 60000 RPM
Order FFT setup	Order resolution	1 ½, ¼ , 1/8, 1/16, 1/32
	Maximum order	Up to 32
	Order waterfall vs time overlap	0%, 10%, 25%, 50%, 66%, 75% and 90%
Common properties	Harmonic list	Up to 20 harmonics can be tracked
	FFT window selection	Blackman, Hamming, Hanning, Rectangular, Triangle, Flat top or Exponent down applied to all channels
	Data averaging	Average between classes or none (center of class is taken)
	Update criteria	Always, Only first time or Average

Settings that still allow real time measurement of Order tracking, if selected frequency bandwidth is 40 kHz and Order and time FFT are calculated.

Input	Number of input channels	Up to 4
Bandwidth	Frequency bandwidth	40 kHz
	RPM range	Up to 48000 RPM
Calculation criteria	Min Delta RPM	50
	RPM range	User defined from 0 up to 48000 RPM
Order FFT setup	Order resolution	1 ½, ¼ , 1/8, 1/16, 1/32
	Maximum order	Up to 32
	Order waterfall vs time overlap	0%, 10%, 25%, 50%, 66%, 75% and 90%
Common properties	Harmonic list	Up to 20 harmonics can be tracked
	FFT window selection	Blackman, Hamming, Hanning, Rectangular, Triangle, Flat top or Exponent down applied to all channels
	Data averaging	Average between classes or none (center of class is taken)
	Update criteria	Always, Only first time or Average
Time FFT setup	FFT lines	128, 256, 512, 1024, 2048
	Update FFT	User selectable update on RPM change or update on selected time