

HBK EPT Roadmap

Mitch Marks





8.30



Perception 8.30 (Mid 2022)

- 1. System Integration phase 1
 - EtherCAT distributed clock
 - CAN command structure without continuous output (high effort)
- 2. Harmonic Analysis
 - Expert User mode
- 3. Measurement Uncertainty MVP:
 - Separate Perception CSI sheet
 - Support of GN31xB, GN61xB, T12, T40
- 4. eDrive Creator Enhancements:
 - IEC 61000-4-7 in eGrid
 - Allow modification of created map
 - Allow to change xyz input parameters of Mapping post process and offer "REDO MAP" command
 - Allow to change / select the scaling of the resulting map
- 5. Perception UX:
 - XY display
 - 6 display
 - Auto-scale of y-axis in y(t) display
 - Improve data throughput indication with network capacity





Perception General – Harmonic Analysis for Grid (50, 60Hz)

R D (🙄 Untitled - Perception (Primary) 8.19.21280.1222 — 🗌 🔍				
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nsor	Next experiment name ———	Trace: u_1	u_2	u_3	
S.	Handmessung_ 016	F: 49.23 Hz	49.23 Hz	49.23 Hz	
ş		Order: 0 THD: 78.75 %	78.75 %	78.75 %	
sten		u 1 (49.23 Hz) DC: 14.14 mV	14.14 mA	14.14 mW	
лHе	ldle	E Freq: 0.000 Hz t1: 1.000 s	1.000 s	1.000 s	
alth		Yalue: 10.00 mV t2: 1.200 s	1.200 s	1.200 s	
		u 2 (49 23 Hz)			
Dat	Preview Record Stop Trigger	Ereg: 0.000 Hz	Amplitude (A)	Amplitude (W)	
aSo	Trans	Value: 10.00 mA	10.00 mA	10.00 mW	
urce	Time:	1 181.8 mV	272.7 mA	454.5 mW	
S.	Disk	Erec: 0.000 Hz	142.9 mA	238.1 mW	
ŝ	Rate:	Value: 10.00 m2 3 64.52 mV	96.77 mA	161.3 mW	
atus		Value: 10.00 MVV 4 48.78 mV	73.17 mA	122.0 mW	
	Acquisition setup	5 39.22 mV	58.82 mA	98.04 mW	
Ţ	Start of data recording:	6 32.79 mV	49.18 mA	81.97 mW	
Irdw	Wait for trigger to trigger mer	7 28.17 mV	42.25 mA	70.42 mW	
are		8 24.69 mV	37.04 mA	61.73 mW	
	Pre trigger: 100 ms	9 21.98 mV	32.97 mA	54.95 mW	
Perc	Post trigger: 400 ms				
cepti	Setup	0 1 2 3 4 5 6 7 8 9			
on K		Order			
رة Acqu	isition Status: Idle System Health:	OK	Oynamic Help	Active Recording: Non	ne 🔒



Harmonic Analysis

- Genesis/Perception solution measures quantities in the *time domain*
- Often users are interested in viewing the time signals in the *frequency domain*
- An important application area is the 50Hz/60Hz grid
- Equipment connected to the grid causes grid pollution i.e., the grid voltage/current is no longer a perfect 50Hz/60Hz sine wave
- The IEC 61000-4-7 standard prescribes the frequency domain analysis of grid signals in terms of harmonics (i.e., the strength of spurious frequencies which are multiples of the 50Hz/60Hz fundamental)





Orders in terms of fundamental



Real-time Harmonic Analysis according to IEC 61000-4-7

For Perception

- *Real-time* calculation of IEC 61000-4-7 harmonics based on a new RT-FDB function @HarmonicsIEC61000()
- A new and dedicated Harmonics Display
- Includes further harmonic indicators such as Total Harmonic Distortion (THD), and Partially Weighted Harmonic Distortion (PWHD), all according to IEC 61000-4-7
- Nominal fundamental freq is 50 / 60 Hz ±10%

Integration in the ePower suite

- Solution will be integrated in the ePower suite
 - Dedicated eGrid applications
 - Determining grid pollution in eDrive applications

	The selected optional analyses will be applied to new connectors. The preferences are stored with your workbench and can also be stored and loaded as preferences for new ePower suite setups.
	Optional formulas
	Calculate fundamental RMS
	Calculate φ and cosφ 🥼
	Calculate phasors of fundamental (creates phasor sheet)
	Calculate space vectors for 3phase measurements (creates space vector sheet)
	Harmonic Analysis
A	Order: 9 - Close
	Value: 734.5 mV _1_1H4 (50 Hz) Freq: 450 Hz Value: 734.5 mA)
١V	1 3 5 7 9 11 13 15 17 19 21 23 25 27



Roadmap

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Optical ePower: Phase 1





Optical ePower: Phase 1

- Introduction of satellites:
 - Voltage
 - Current
 - New optical receiver input card for GHS
 - End of 2022
- ▲ Main customer benefits:
 - Eliminate safety and EMC issues
 - EMI immune setup for power measurement





Power Meters



Power Meters (based on GEN2tB only – 3 or 6 ch)

Introduce Power Meters to address new markets, applications, and customer segments.

- HBK Power Meters are based on the same hardware as Power Analyzers; however, they will **not** fully utilize the performance of this hardware.
 - They will be lower cost than Power Analyzers
 - They will be lower in performance than Power Analyzers
- They are used
 - by SIs in entry level test rigs and EoL test rigs
 - by entry level customers
- They use a different, simplified GUI
 - They do not use Perception at all (MVP).
- The main purpose of the Power Meters is to offer:
 - a feature reduced,
 - easier to be used,
 - and less costly alternative

Phase 2: web-based graphical user interface. Target: System integrators / end-customers

Phase 1: Integration via API only, no graphical user interface. Target: System integrators







Enhanced API and CAN control

Perception 8.30 – Q1 2022



System Integration

Make it easy to integrate HBK Power Analyzers into customer systems!

- Enhance the possibilities how to integrate the Genesis HighSpeed system
- Improve the different types of integration
 - Fieldbus (EtherCAT / CAN bus)
 - GEN DAQ API
 - Perception API
- Lay foundation for Power Meters

- ▲ Additional:
 - LabView drivers
 - Python drivers





Perception General



Perception 8.40 (Late 2022)

- 1. SI phase 1
 - Continuous fieldbus output
 - User-defined variable naming
- 2. Optical ePower Phase 1, 2MS/s
 - Satellite Voltage
 - Satellite Current
 - Receiver Board
 - Perception GUI
- 3. eDrive Creator Enhancements
 - Enable ePower with Multiple Mainframes
- 4. Perception UX:
 - Add "cycles" to source for Perception live display triggering
 - Resource usage details



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Thank You



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