HBM eMobility Day

Measurement and optimization in the electrical drive train

Program

9:00 AM – 9:15 AM	**Welcome and brief presentation of the daily schedule and the speakers**
9:15 AM – 10:15 AM	**Identifying mechanical power** ▪ Torque measurement ▪ Rotational speed measurement ▪ High rotational speed, smaller torques. ▪ FlexRange – high resolution/high accuracy and the corresponding applications
10:15 AM – 10:45 AM	**Coffee break**
10:45 AM – 12:15 PM	**Power measurements of electric drive** ▪ From simple engine testing to efficiency measurement – the HBM eDrive package ▪ Overview of performance features as power analyzers and as DAQ ▪ Basic principles of power calculation – cycle detection and formula database ▪ Measurements during dynamic load cycles, during the driving cycle for example ▪ Generating efficiency characteristics in real time ▪ Measurements of more phases and complex systems, such as hybrid drives ▪ Real-time connection to an automation system
12:15 PM – 1:15 PM	**Lunch break**
1:15 PM – 2:45 PM	**Analysis of continuous raw data of electric drives** ▪ Creation of equivalent circuit diagrams ▪ Air gap element ▪ Flux-trajectories ▪ Iron losses and harmonic distortion in current and voltage **Insight into possible analyses of raw data using Perception software** ▪ General explanation of the methods of analysis ▪ Depth of measurement results based on results from a converter-fed synchronous reluctance motor
2:45 PM – 3:15 PM	**Coffee break**
3:15 PM - 4:30 PM	**Practical tips for measurement uncertainty assessment in electric power measurement** ▪ Accuracy and measurement uncertainty – what does it actually mean? ▪ How to correctly interpret data sheets ▪ Measuring device vs. measuring chain ▪ Approaches towards measurement uncertainty with DC and static load ▪ Issues related to dynamic load