



smart torque®  by HBM

## The new dimension in torque measurement

T12 – The digital measurement system



Torque

Rotational speed

Power

smart torque®  by HBM

# T12 – The complete torque ...in a single transducer



SIEMENS AG

## Your head start with smarttorque®

You are a technology leader and demand optimum performance with regard to accuracy and reliability for your **highly dynamic test benches**.

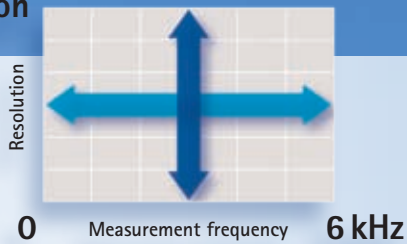
Enhance your competitive advantage now: Rely on the innovative **T12 digital torque transducer**, the new benchmark for accuracy, safety, and flexibility when measuring torque.

The T12 from the "smarttorque®" family is more than just a transducer – it is **an intelligent measurement system**: Perfectly tailored to meet the stringent demands of up-to-date test bench technology, ideal for your dynamic torque measurement applications.



# measurement system ...

1 million



## ● Maximum accuracy

Venture into a new dimension of accuracy with your measurements. A single transducer for all measurement tasks – T12 provides you with a fascinating combination of accuracy and wide dynamic bandwidth.



## ● Maximum safety

Absolute reliability for your measurements. The smart self diagnosis and process monitoring functions of T12 provide full transparency about the quality of your measurements. Benefit from a new safety standard.



CANbus

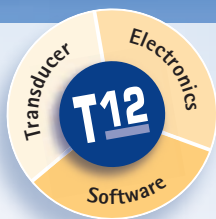


## ● Maximum flexibility

The innovative design of the T12 transducer ensures quick, easy, and flexible integration into your systems – conventionally through analog interfaces (frequency, voltage) or through up-to-date fieldbus systems.

## ● Maximum ease of use

Quick and easy to set up. Save time when mounting and configuring the amplifier, thanks to the modular design, plug and measure, and direct control through the included T12 Assistant software.



## ● Maximum efficiency

T12 bundles transducer, electronics, and software in one system. That spares you the cost of additional components. In daily use, too, T12 ensures low operating costs: Thanks to its non-contacting design, T12 is absolutely maintenance and wear free.



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# The new dimension in

## ... benefit from the advantages of T12:

### T12 provides record performance

**High accuracy, high dynamics, high resolution:  
Only T12 can manage this!**

You need accurate results for your demanding tests. With T12, there finally is a torque transducer that guarantees results of **optimum accuracy** over the **wide measuring frequency range** of 0 Hz through to 6,000 Hz – even up to physical limits.

Measure big and small signal amplitudes without loss of information thanks to its high resolution.

### Easy integration into your system

**High-tech can be so easy and convenient!**

Benefit from the smart design of T12 to save time and be more efficient. The T12 digital torque transducer uses modern **fieldbus systems** (CANopen, PROFIBUS DPV1) for connecting directly to your PLC automation systems.

**Full compatibility** with your existing equipment: T12 provides a frequency and analog output and therefore is also optimally fit for use with conventional technologies.

Regardless of the approach you choose: With T12 you are prepared for future measurement tasks, too, and thus you are assured **full protection** of your investment.



**CAN**bus

**PROFI**  
PROCESS FIELD BUS  
**BUS**



# torque measurement...

## Reliable test results using T12

Can you rely on your test results? T12 tells you immediately

Your demanding customers require that you provide proof of the reliability of your results. For the first time, T12 enables you to verify the quality of your measurements. The **recording of minimum and maximum values** permits you to recognize immediately whether your transducer has been overloaded. The above mentioned and further **monitoring functions** (e.g. temperature recording, self diagnosis, saving of calibration data) allow you to have a closer look into the sensor at any time – and thus ensure the quality of your measurements.

## Highly efficient and economical

**T12: Technologically ahead and at the same time economically efficient**

T12 is first class with regard to accuracy and reliability. In addition, you benefit from increased efficiency and gain more time for your actual measurement tasks.

- \_\_\_ **Save additional costs for separate electronics and software components:**  
With T12 you get a complete measurement system in a single transducer.
- \_\_\_ **Gain time:** Quick and accurate results using TEDS or the direct fieldbus link for connecting the T12 torque transducer in minutes.
- \_\_\_ **Minimize your risks** using the multitude of monitoring functions provided by T12



*T12 with  
protective housing*

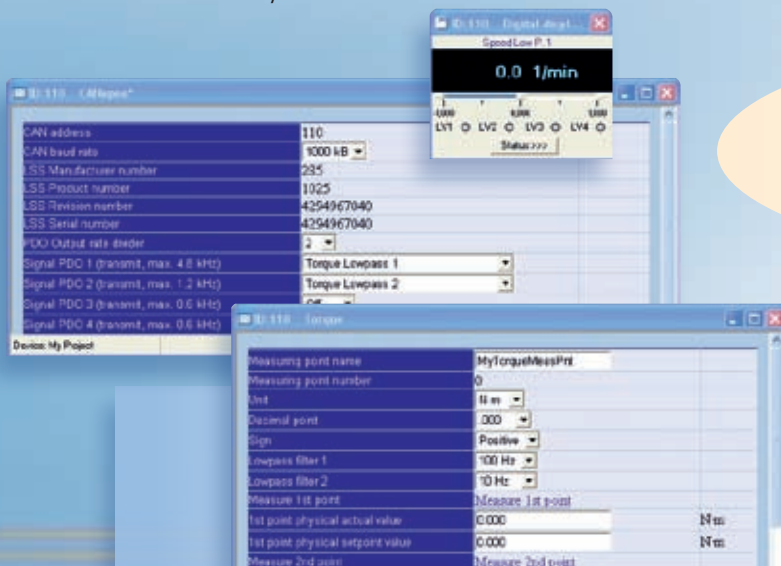
“ T12 sets new standards in torque measurement and ensures high precision and reproducibility of test results with Siemens test benches. ”

Hans Heinrich Kappey, Head of Test Technology Development Area,  
SIEMENS AG, Germany

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# Full control of your ... using the T12 Assistant software

T12 Assistant is a useful tool for setting up and analyzing your measurements. The user friendly PC software provides you with many of functions that enable you to get correct results in a quick and reliable way.



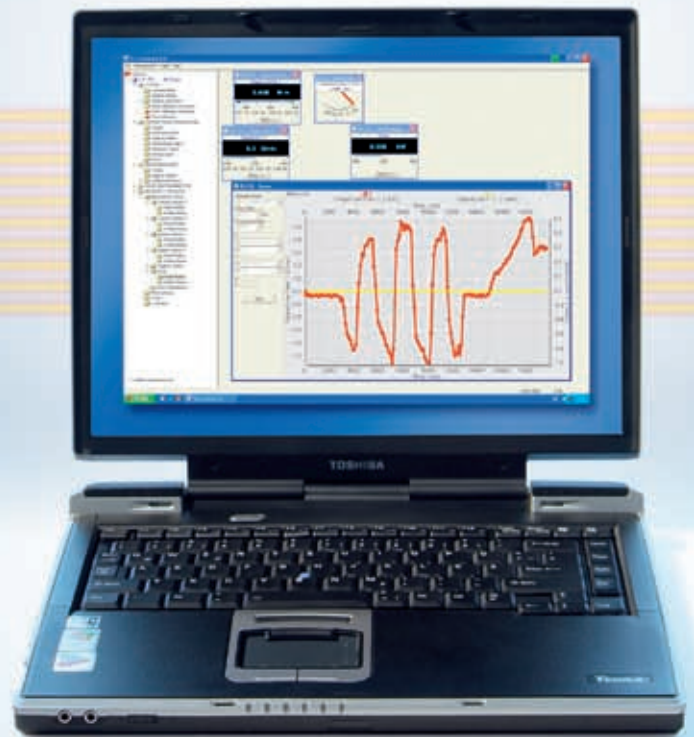
“ The precise and reliable T12 torque transducer enables us to further strengthen our leadership as a service provider in the field of motor and drive train testing. ”

Klaus Burgard, Head of Electrical Engineering/Information Technology,  
APL GmbH, Germany

## ● The quick and reliable way to the right settings

Use T12 Assistant for starting up, maintaining, and calibrating your T12 measurement system. The clearly structured menu tree on the left-hand side of the Assistant window enables you to find all required parameters quickly. It only takes a few steps to make all the required settings.

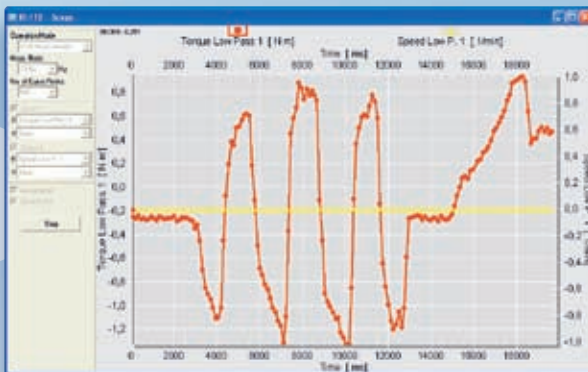
Your settings are safe. A password is required for changing the T12 default settings. Thus your measurement system is protected against inadvertent changes to important settings.



# measurement tasks...

“The outstanding performance features of T12 convinced us right from the start. In daily use we benefit in particular from its easy installation, the digital analysis options and the direct USB connection to the laptop.”

Dr.-Ing. Günter Schäfer, Technical University of Clausthal, Germany



## ● Your test results at a glance

T12 Assistant enables you to get your measurements under control, because it provides many options for evaluation and analysis which allow you to view your test results at a glance.

In addition to all recorded measurement quantities, T12 Assistant also displays computed quantities, for example, power.

Do you want to compare data or compute a spectrum over the recorded values? This is also possible using T12 Assistant. Create any x(y) diagrams, for example, to display torque over angle of rotation.



## ● Full control of your measurement tasks

The variety of monitoring functions of T12 provides important information about the quality of your measurements.

T12 Assistant makes status information available at a glance:

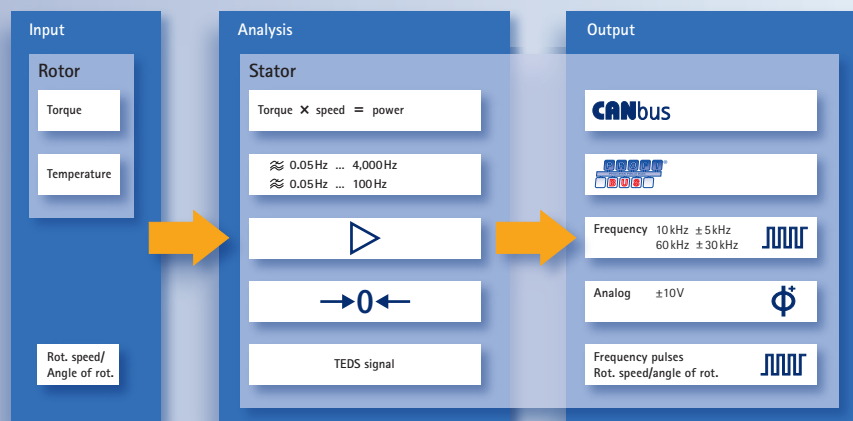
For example, minimum and maximum values with rotational speeds and temperatures or statistics that break down into several steps when the nominal (rated) measuring range up to limit load is exceeded.

...The new dimension in torque measurement

## T12 digital torque transducer

### Special features:

|  |  |
|--|--|
| Nominal (rated) torque                     | 100 N·m, 200 N·m, 500 N·m, 1 kN·m, 2 kN·m, 3 kN·m, 5 kN·m, 10 kN·m |
| Nominal (rated) rotational speed           | up to 18,000 rpm   |
| Measurement frequency range                | 6 kHz (-3 dB)  |
| Digital signal transmission                | up to 4,800 values/s with two measured signals                     |
| Linearity deviation incl. hysteresis       | ±0.01 %  |
| Rel. standard deviation of reproducibility | ±0.01 %  |
| Temperature effect on sensitivity          | ±0.03 % / 10 K   |
| Temperature effect on zero signal          | ±0.01 % / 10 K   |



Acquire and analyze data in a professional way:

Benefit from the variety of signal processing options: With the modern T12 fieldbus connections you are optimally prepared for future measurement tasks.

For more detailed information about smarttorque® on the Internet, please visit...

[www.hbm.com/torque](http://www.hbm.com/torque)

HBM GmbH

[www.hbm.com](http://www.hbm.com)

Email: [info@hbm.com](mailto:info@hbm.com)

Tel. +49 6151 803-0

Fax +49 6151 803-9100

measure and predict with confidence

