

EC Tightening System with Torque Control – YETC-EA



System wrench controller YETC-EA

According to the German **VDI guideline 2862** for the use of bolting systems in the automotive industry, bolted joints are divided into clear categories. The guideline is also a guide for the selection and use of suitable tightening tools or bolting systems.

The Yokota EC tightening system consists of the **YETC** controller, the **TKa**, **YED** or **YEX** impulse wrench, a solenoid valve for compressed air control and other optional system components.

In order to be able to statistically evaluate and document safety-relevant bolted joints of category A and, of course, to tighten them with the correct pre-tensioning force, Yokota has equipped the impulse wrenches with an integrated measuring transducer. In connection with the YETC device, the **torque** can be controlled, monitored and, of course, protocolled. The **number of pulses**, which is also monitored, serves as a control variable. The exact parameterisation for individual tightening situations (soft – hard) is possible.

The Yokota controller YETC has been specially designed to meet the requirements of a process-safe system. All bolted joints are measured, evaluated,

counted and stored in the control unit and/or workplace computer.

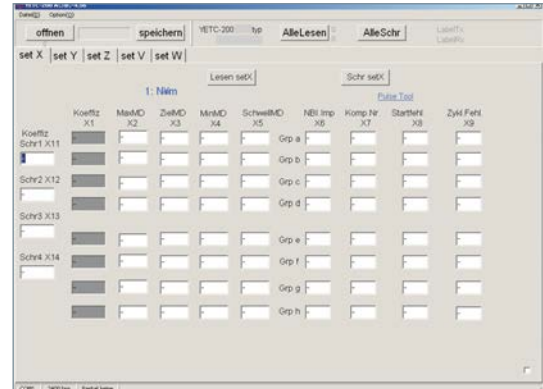
The YETC offers comprehensive programming options for individual adjustment to the bolting parameters. The improved electronics allow even more accurate and faster torque calculations.

The programmable monitoring of bolt groups allows changing from group to group without operating the control device. Control by external signals is also possible, e.g. by socket change box.

Thus, the Yokota controller YETC fully supports the integration into a **Poka-Yoke** system: accept zero faults, produce zero faults, pass on zero faults.

Networkable

The YETC is available in various equipment versions. Several input/output relays also enable a variety of additional uses, such as integration into the production line, signal lights, etc. Thus, the modular and expandable system can be individually configured and installed as required. Optionally, the control unit is also available in a network-compatible version (LAN version).



Parameter setting software

A Yokota software tool is available for each YETC controller, with which the parameter sets can be conveniently managed on the workstation computer or laptop.

The control device and the computer are connected to each other via the serial RS-232 interface using a straight cable. The data exchange takes place in ASCII character code. The YETC functions as a data communication equipment (DCE) and the connected computer as a data terminal equipment (DTE).

EC impulse wrenches

A non-contact **torque sensor** is integrated in the system wrench, which determines the torque generated at the output shaft of the wrench and converts it into an electrical signal. The **strain gauges** mounted on the output shaft of the tool are inductively supplied with a defined measuring current. The output current is also tapped inductively and fed to the control system. There, the system processor calculates the torque from the difference between the input and output current, corresponding to the torsion in the output shaft, and compares this with the programmed parameters (upper and lower torque limit, shut-off value). The torque setting of the impulse wrench is made at the hydraulic pulse unit.



YETC-230EA / -230EA4

- 1-channel control unit; or as a 4-channel control unit for up to four system wrenches in a definable sequence.
- Torque control
- Alternatively as 230EA(4)-L with LAN port

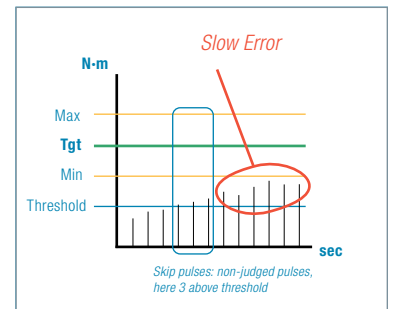
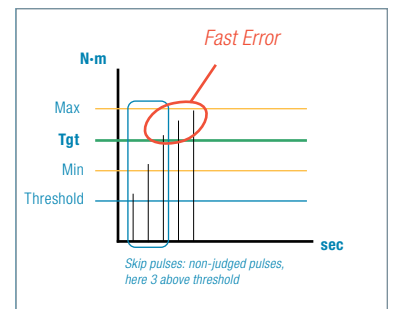
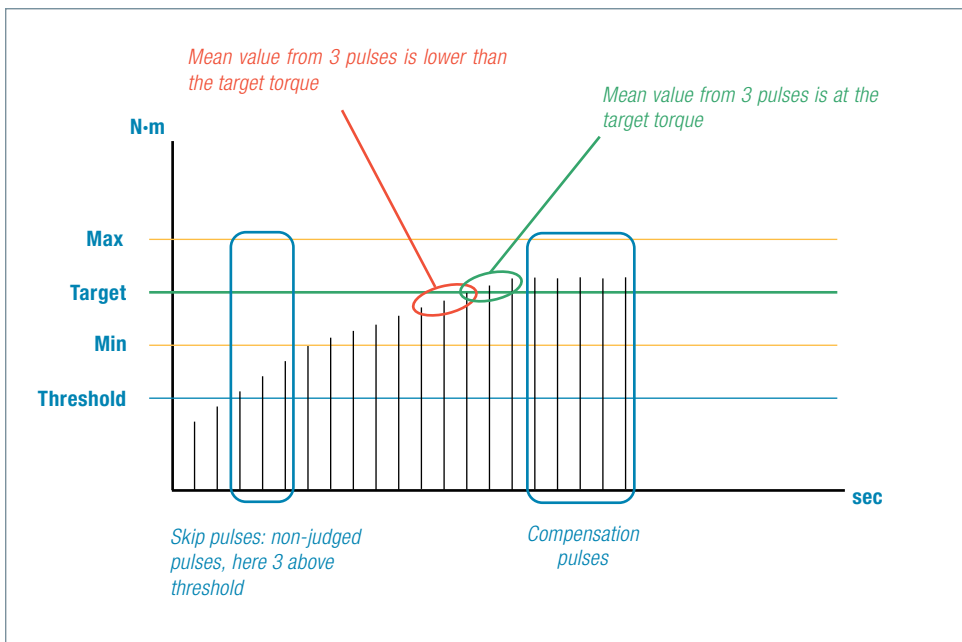


YETC-330EA2

- 2-channel control unit; two system wrenches can be used at the same time
- Torque control
- Alternatively as 330EA2-L with LAN port



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Features & Specifications

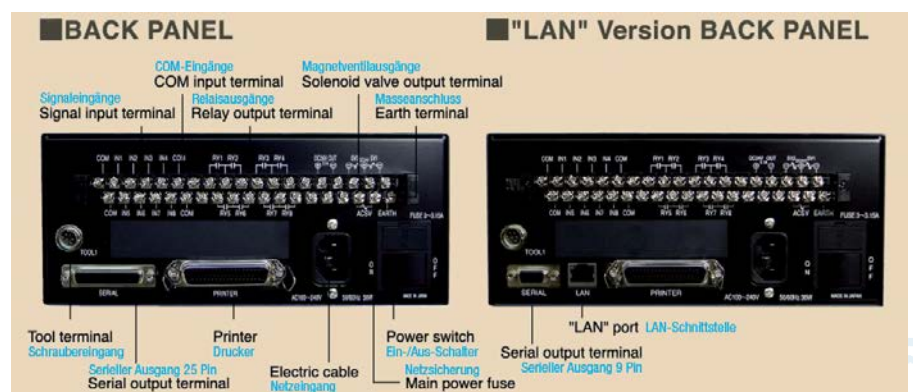
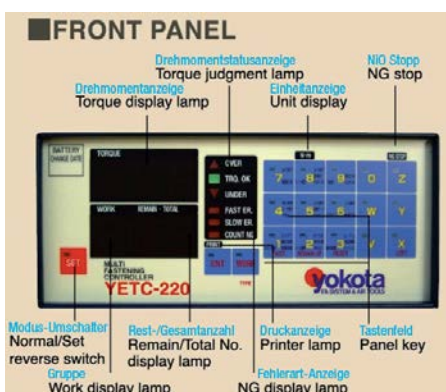
- ▶ YETC-230 as standard as 1-channel control unit; optionally in 4-channel version (EA4) for up to 4 system wrenches with different torque settings and programming (alternate use).
- ▶ YETC-330 in 2-channel version for simultaneous use of 2 impulse wrenches.
- ▶ Easy programming according to the bolting parameters.
- ▶ Improved electronics for even more accurate and faster torque calculations.
- ▶ Torque calculation over several impulses (average value) – ref. to above graph.
- ▶ Programmable number of additional pulses to compensate for settling (for soft joints).
- ▶ Poka-Yoke: error-free tightening.
- ▶ Two-step fastening possible.
- ▶ System impulse wrenches with audible

- ▶ buzzer or silent LED indication.
- ▶ 8 programming groups with different parameters.
- ▶ Printer port (Centronics).
- ▶ RS-232C serial output (DB-25).
- ▶ External shut-off valve.
- ▶ 8 signal inputs, 8 potential-free output relays, allow integration into the production line (PLC), connection of a multi-coloured light signal column („stack light“), etc. (for YETC-330 with 10 inputs / 10 outputs).
- ▶ Bi-directional communication.
- ▶ Automatic group change (sequence programmable).
- ▶ Date/time stamp.
- ▶ Timer function for group bolting.
- ▶ Can be integrated into all production processes.

- ▶ Statistics, process capability factor Cp and Cpk.
- ▶ Ring memory for 10,000 bolting cycles.
- ▶ Dimensions: 230x110x290 mm (WHD)
- ▶ Weight: 4.5 kg
- ▶ Voltage: AC 100V - 240V, 50/60 Hz
- ▶ Energy consumption: 30 W

LAN version

- ▶ Network interface 8P8C (RJ-45).
- ▶ Ethernet 100 BASE-TX/10 BASE-T, autotodetect.
- ▶ Network protocol TCP/IP.
- ▶ 9 pin serial interface RS-232 (instead of 25 pin).
- ▶ YETC-230 optional as 4 channel version (EA4-L).



Further information available 24 / 7 on our website.