Accessories

Current and force measuring device TE1700C

The TE1700C is a portable device for measuring the resistance welding parameters. The use of various types of measurement sensors enables measurement of the welding current, the electrode force, the voltage at the electrodes, the energy, the resistance and the heat flux

Fig. 13-1 *TE700C*

Particularly during the set-up phase, this device offers all information required to configure your individual welding process correctly and optimally. Every technician should therefore have this measuring device to hand for commissioning and service.

Only a measurement reliably ensures that the welding machine or an electrode holder does what meets your requirements. The effects of corrections to the current setting or the air pressure can also be checked immediately.

The colour 5.7" LCD touch screen display ensures precise reading, even under unfavourable conditions.

TE1700C current / force measuring device versions

Designation	Description
TE1700 current with Rogowski belt 1635	Portable current measuring device

Current and force measuring device TE 1700C

Designation	Artikelnr	Description
TE1700C Current	44083	Combinable current, time and force meter with Bluetooth port Current meter version includes: - TE1635 current measuring belt, diameter approx. 160 mm, 150 mV/kA L= 2000mm- Calibration
TE1700C Force	44084	Combinable current, time and force measuring device with Bluetooth portForce measuring device version includes:- TE1675 Force transducer for small electrode distances min. 10 mm Measuring range up to 1,200 daN
TE1700C Current + Force	44074	Combinable current, time and force measuring device with Bluetooth port Current and force measuring device version including:- TE1635 Current measuring belt, diameter approx. 160 mm, 150 mV/kA L= 2000mm- TE1675 Force measuring transducer for small electrode distances min. 10 mm Measuring range up to 1,200 daN- Calibration

Current and force measuring device TE1600

Mobile measurement with know-how. Do you always know how much current your welding machine used to weld the last important order, and does the electrode holder always achieve the desired pressure? With our mobile measuring device TE1600, you always have all data at your disposal.

Fig. 13-2 *TE1600 with Rogowski belt and force measuring probe*

Particularly during the set-up phase, this device offers all information required to configure your individual welding process correctly and optimally. Every technician should therefore have this measuring device to hand for commissioning and service.

Only a measurement reliably ensures that the welding machine or an electrode holder does what meets your requirements. The effects of corrections to the current setting or the air pressure can also be checked immediately.

The large, clear digital display ensures precise reading, even under unfavourable conditions. Battery operation guarantees the necessary freedom of movement and enables you to work in virtually any location.

Your advantage:

The mobile measuring device TE1600 for controller set-up or random samples ensures production quality and documents the correct function of welding systems. It not only reduces costs but also enables you to work more productively in the future.

Current/force measuring device TE1600 versions

Designation	Description
TE1600 current with Rogowski belt 1635	Portable current measuring device
TE1600 force with force measuring probe 1675	Portable force measuring device, max. 1200 daN
TE1600 multi with Rogowski belt and force measuring probe	Portable current / force measuring device Optional measurement of current (1635) and force (1675)

Extensions	Description
Current measuring belt 1635	Rogowski belt for TE1600, open with quick-action lock, diameter approx. 160 mm
Force measuring probe 1673	Manual force measuring probe for TE1600, max. 200 daN, 10 mm
BNC cable	For connecting an oscilloscope to the TE1600, length 1 m

With our mobile measuring device TE1600, you always have all data at your disposal.

Current-/ force measuring device TE1600

Designation	Article no.	Description
TE 1600 Current	19662	Combinable current, time and force measuring device: Current measuring device version including:- TE1635 Current measuring belt, diameter approx. 160 mm, 150 mV/kA L= 2000mm- Calibration
TE 1600 Force	19663	Combinable current, time and force measuring instrument:Version force measuring instrument including:- TE1675 force transducer for small electrode spacing min. 10 mm Measuring range up to 1.200 daN- Calibration
TE 1600 Current + Force	25420	Combinable current, time and force measuring device Current and force measuring device version including:- TE1635 Current measuring belt, diameter approx. 160 mm, 150 mV/kA L= 2000mm- TE1673 Force measuring transducer for small electrode spacing min. 10 mm Measuring range up to 200 daN- Calibration
TE 1600 Current + Force	19664	Combinable current, time and force measuring device Current and force measuring device version including:- TE1635 Current measuring belt, diameter approx. 160 mm, 150 mV/kA L= 2000mm- TE1675 Force measuring transducer for small electrode spacing min. 10 mmMeasuring range up to 1.200 daN- Calibration

TE 1600 extension and spare parts:

Designation	Article no.	Description
TE1673 Force	25419	Force transducer for small electrode spacing min. 10 mm Measuring range up to 200 daN
TE1675 Force	18741	Force transducer for small electrode spacing min. 10 mm Measuring range up to 1,200 daN
TE1662 Force	21675	Force transducer for electrode spacing min. 22 mm Measuring range up to 2.000 daN
TE1663 Force	21382	Force transducer Measuring range up to 10.000 daN
TE1635 Current	25420	Current measuring belt, diameter approx. 160 mm, 150 mV/kA L= 2.000mm

Distance measurement

Fig. 13-3 *Distance sensor*

Fig. 13-4 *Measuring transducer*

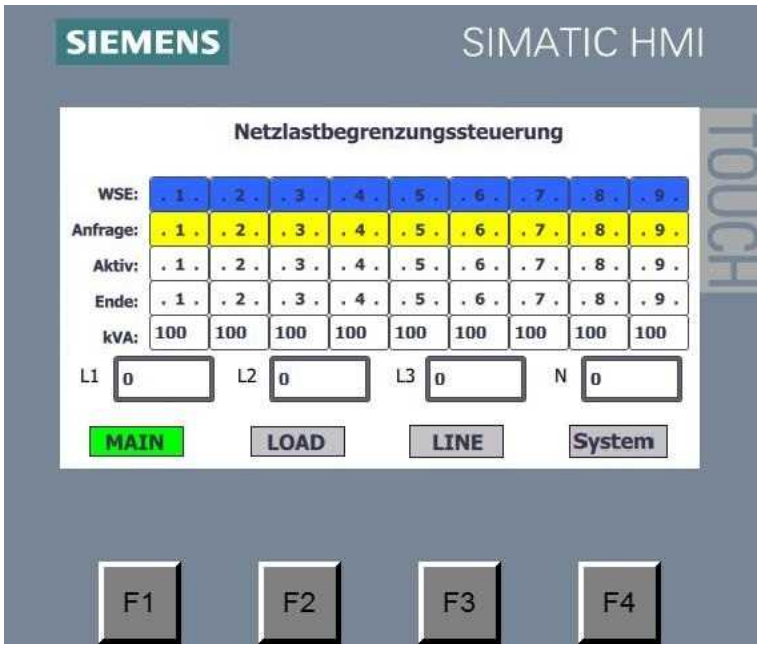
Fig. 13-5 *Distance sensor 100 mm*

Article	Designation	Description
31049	Distance sensor 25 mm	Potentiometric distance sensor 25 mm
39603	Distance sensor 100 mm	Potentiometric distance sensor 100 mm
23107	Distance sensor 150 mm	Potentiometric distance sensor 150 mm With ball joint as link
29854	Measuring transducer MPS100	Measuring transducer for potentiometric sensors, 0-10 V, supply voltage 24 VDC
34314	Measuring transducer MPX101	Measuring transducer for potentiometric sensors, 0-10 V, supply voltage 24 VDC, adjustable range.

Netzlastbegrenzungssteuerung

The mains load limitation control NBS-9 is available from2022 in the UL-ready version and with an English user interface. Mains load limitation controllers are the solution for sites that have a high feed-in requirement due to the number of resistance welding equipment in use. Resistance welding equipment (WSE) requires high power from the mains supply for short periods of time.

If several WSE are connected to one mains supply, the welding processes will overlap in time. The short-time peak loads on the mains supply lead to voltage dips in the supply network, flicker phenomena and higher energy costs. The mains load limitation control (NBS) controls the release of the individual devices. The individual setting options (power, priority, priority time and phase-O PROCON configuration) of each of the 9 possible resistance welding devices ensure that the available mains power is allocated as required. Procon will be pleased to provide further information.



NBS Control

- The following advantages result:
- Reproducible behavior of the network load
- Compliance with the flicker limit values (limit value of the power supply company)
- No deeper voltage dips
- Improved welding quality due to lower voltage dips (operation without regulation, possibly also with constant current regulation)
- Reduction of energy costs (price for peak load of the network - EVU dependent calculation and prices) SIEMENS SIMATICHMI FLOAD NBS control system
- Cost-optimized installation possible (optimization: cable cross-sections, medium voltage transformer, fuses, ...)
- Symmetrical loading of the medium voltage transformer

Transformer switchover

Fig. 13-6 *HWU-3 welding transformer switchover*

Description / application

HWU-3 welding transformer switchover enables the operation of several welding transformers on one MF power unit. For example, this enables the execution of two welding tasks in succession either through the use of two welding cylinders or two separate machines.

Switching to the respective channel is carried out via a 24 VDC voltage. Switchover can be controlled from a PLC.

Technical data

Power input	U – V:	MF: 50 – 690 V -15% + 20%
Output voltage	U1 – V1: U2 – V2:	Power input – 4 V -10% to +20% Load- and temperature-dependent
Maximum input and output current [≤ 10 ms]		1200 A For further output currents, see the characteristic curve of the connected inverter
Supply voltage		24 VDC -10% to +20%, 200 mA
Cooling water requirement		6L

HWC-ETH module

Fig. 13-7 *HWC-ETH external interface converter for rail mounting (TS35)*

The HWC-ETH module is used to connect the HWI24xx inverter series to Ethernet networks. This module is connected directly to an inverter with an EVA or IQR PCB set, and provides an Ethernet socket (RJ-45). The module's delivery scope includes a connection cable.

This cable enables the HWC-ETH module to be supplied and data exchange between the inverter and module. The inverter and HWC-ETH module should be no more than 2 m apart; the enclosed cable is 1.8 m long. This limitation is necessary, as the HWC-ETH module's supply can only be guaranteed over this distance. Using the module within the inverter's control cabinet is recommended. The module's housing requires a connection to the control cabinet's earthing point; a plug connection is available on the rear for this.

Commissioning:

On delivery, the HWC-ETH module is configured with the standard IP address: 192.6.10.95. This address can be changed as desired by the customer via the XPegasus user interface. After configuration, the device is connected to the network, and can be accessed within the network structure with the operating software.

Supported inverter function variants (XPegasus user interface)

Function	Type code	SW version	Note	Restriction
EVA	EVA	9.XX		Connection of the module is only permissible without SA34 and with the enclosed connection cable to the inverter's X3. Interface conversion on systems with Genius, Sinius, analogue and slave functionality is not possible.
IQR	IQR	8.XX		
EVA manual	Manual	8.HX		
IQR manual	IQR manual	8.HX		
EVA-ZP	EVA ZP	8.XX	Pegasus only	
IQR-ZP	IQR ZP	8.XX	Pegasus only	
EVA plus	EVA PLUS	≥ 8.23		

PQS licence

The PQS-Res software licence for data evaluation and analysis is protected with a licence dongle. This is in the form of an SD card, and is inserted into the welding control system on use of the software.

Characteristics of the PQS-Res software, which can be purchased as an option

- Visualisation and logging of the above specified process data
- Extensive signal visualisation options, including comparisons over long periods of time, enable rapid error analysis
- Online monitoring of parameters with immediate error message in the event of process deviations
- Analysis of current process stability
- Long-term data archiving and documentation
- Option of recording or importing external test results
- Operation and data recording can be separated from each other, and can be executed on different PCs

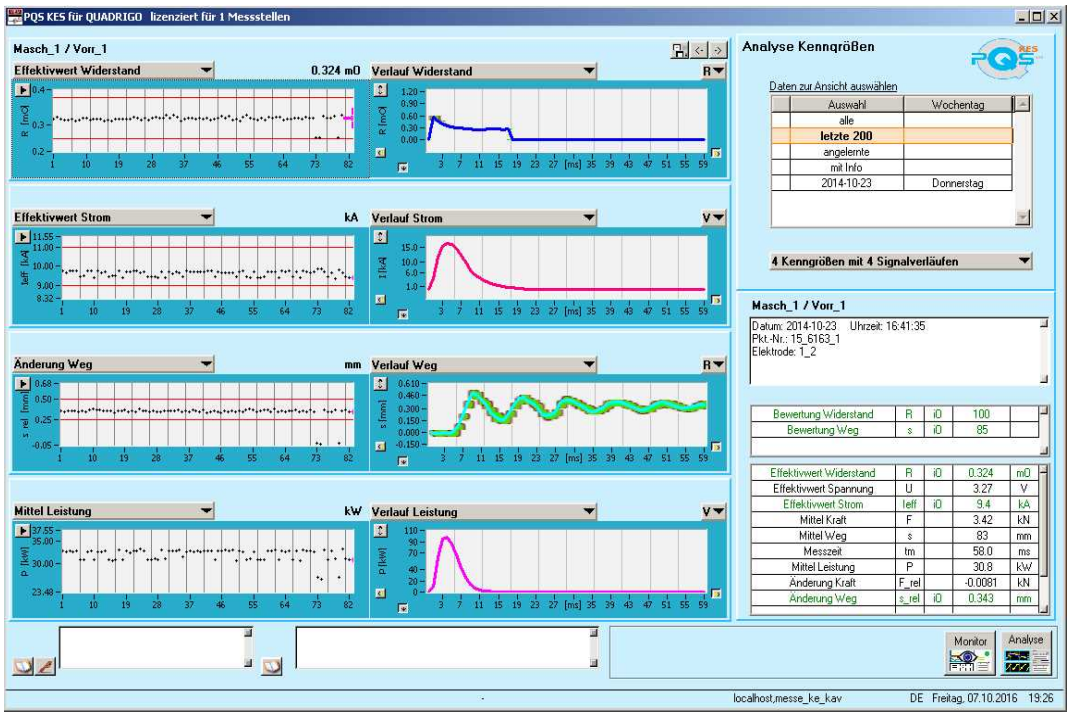


Fig. 13-8 *PQS-Res software parameter analysis window*

QUADRIGO-Master

Fig. 13-9 *QUADRIGO-Master*

The QUADRIGO-Master is an industrial PC for space-saving control cabinet installation for industrial use.

The PQS software package for data recording, but also for operating the overall system, can be installed on the QUADRIGO-Master. Of course, QUADRIGO-Master PCs can also be used for other applications, such as e.g. operating the XPegasus software.

Harms & Wende offers various performance classes depending on requirements. The bandwidth ranges from 1 to 16 measuring points, which can be operated with one master.

If constant use in production is intended, we urgently recommend the variants with integrated UPS and external battery pack

Characteristics of the QUADRIGO-Master

- Temperature range 0 to 45°C, passive cooling
- 24 V supply, UPS integrated, external battery
- Windows 7, Intel i5, 4 GB RAM, 320 GB HDD

QUADRIGO-VISU

Fig. 13-10 *QUADRIGO-VISU-Plus-V002*

The QUADRIGO-VISU is an industrial panel PC with Windows operating system. The PQS software package for system operation and data recording can be installed on the QUADRIGO-VISU. Of course, QUADRIGO-VISU PCs can also be used for other applications, such as e.g. operating the XPegasus software.

QUADRIGO-VISU is available for mounting on a support arm from beneath (19") and as a panel PC for installation in the front of control cabinets (15" and 19").

Depending on version, it offers comfortable touch operation and/or an unbreakable short-stroke keyboard.

The QUADRIGO-VISU is available with an integrated UPS concept for maximum data security. The external battery pack must then be installed in a control cabinet.

Characteristics of the QUADRIGO-VISU

- Dual Ethernet adapter with 2x 100/1000 GB Ethernet
- 1 serial interface RS232 and 4 USB 2.0 ports
- Can be installed in our QUADRIGO box with a QUADRGO measurement module
- UPS preparation including external battery pack

Please refer to the separate HWH-QST product catalogue for detailed descriptions and equipment features of the QUADRIGO modules.