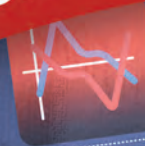


SmartCONTROL

perfect controlling of dies & deformation



Measure



Tool



Report



Memo



Setting



Diagnosis

Control
Mat: brass
0.8 x 15 m

Tool No:
Last main
Maier, Te

Quality
Deform

SmartCONTROL unidor
Vers 01.00.10.10



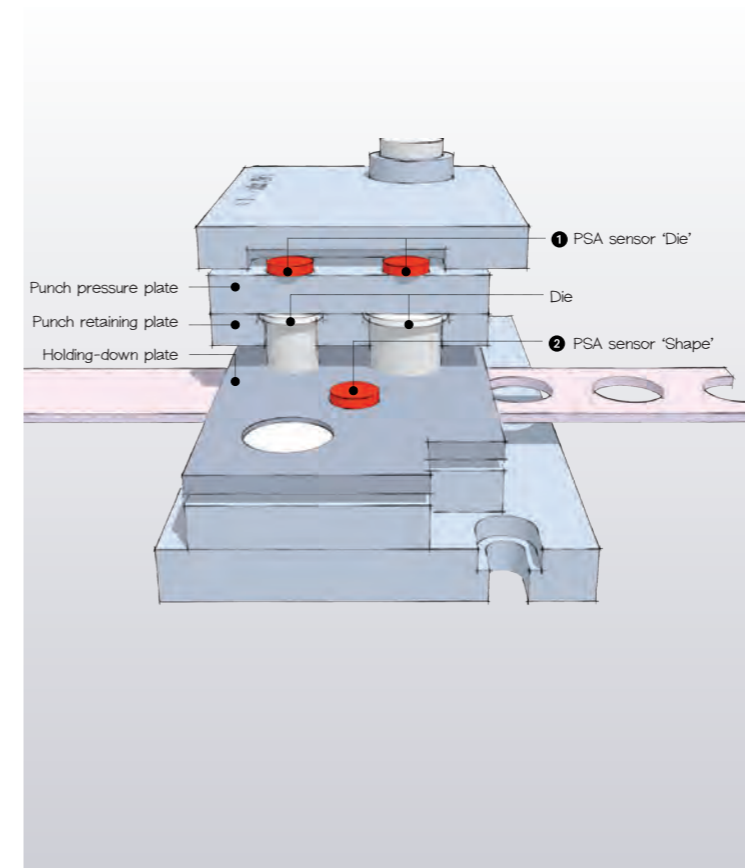
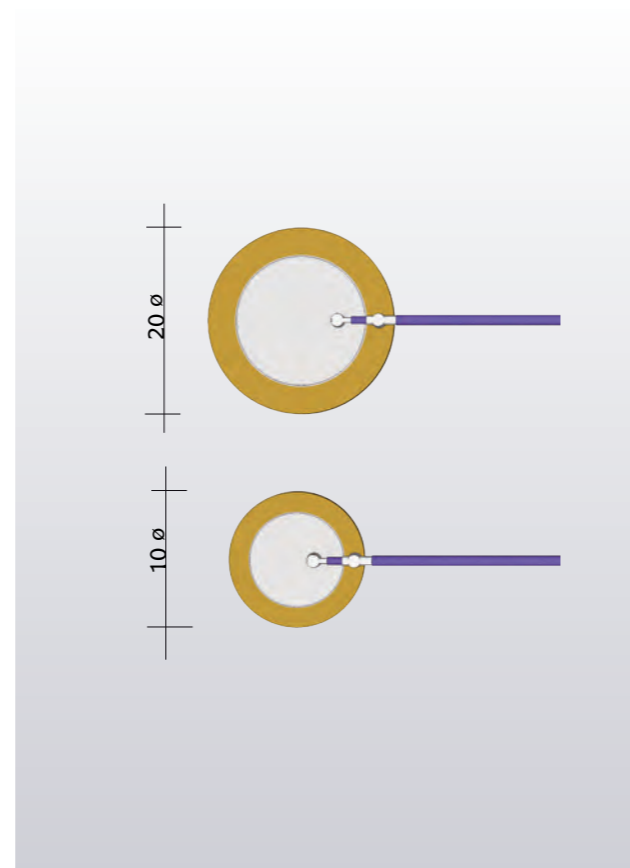
Knowing what is going on

smartCONTROL for punching & deformation combines the latest piezo sensor technology with state of the art PC technology.

The **low cost** combi measuring system is the best decision you can make when it comes to a reliable tool protection and the highest quality of your parts.

smartCONTROL accurately displays the entire die and deformation tool process data, this being just what those responsible in production, every maintenance engineer and every machine operator needs.

smartCONTROL can be especially fast and easily installed due to the fact that it does not need an angular encoder. The comfortable touch operation in combination with an informative navigation emphasise the top class quality of this professional measuring device.



1 the sensors

Piezo sensors are perfect for punching and deformation tools: not only do these sensors distinguish themselves with the lowest price and the smallest fitting dimensions, but also a simple installation and robust handling. You can choose from two sizes and the installation flange which is right for you.

2 the tool

The sensor or sensors are positioned on the holding-down plate of the respective tool for punch control or on the holding-down plate of the respective tool for the deformation control.

Due to the fact that they require very little space, a suitable installation position will always be found for the piezo sensors in each tool, no matter whether it is a new tool or retrofitting.

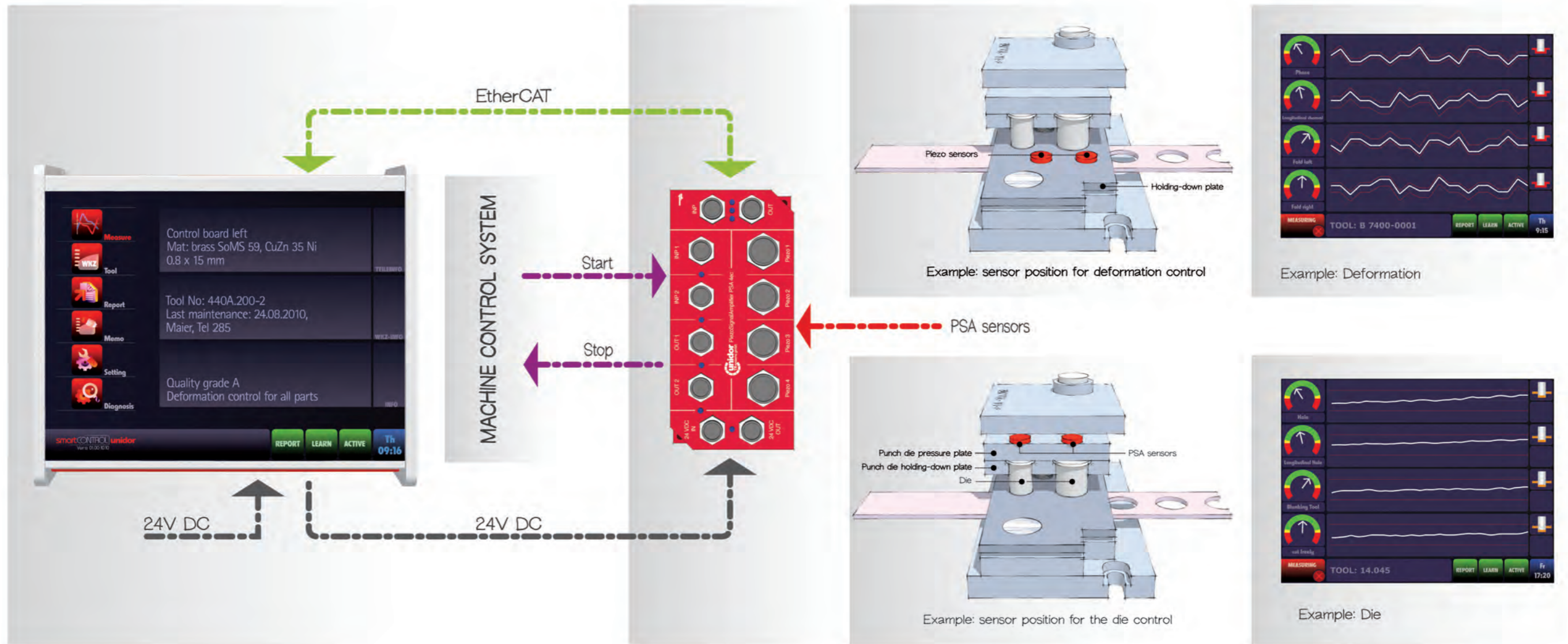
3 the control

smartCONTROL is always the first choice when it comes to the monitoring of dies in tools or the detection of the smallest deformation faults or fractures on material surfaces.

smartCONTROL visualizes, measures and controls all of the sensor signals. Each non-adherence to specified target or threshold values is reported and logged.

smartCONTROL is quickly installed and is ready for use by a simple action.

With **smartCONTROL** you always have everything under control: punching and deformations



smartCONTROL quite easy

smartLINE and PSAs are the basic components of our combi measuring system: smartCONTROL.

Preformed cables ensure a simple but safe installation. All of the piezo sensors can be plugged into the tool in order to facilitate a fast tool change.

The smartLINE/PSA connection is via EtherCAT. This enables max. 12 piezo sensors to be cascaded quickly. The operating voltage (24V DC) is provided via a plug-in power supply or the switch cabinet control voltage.

Everything under control with smartCONTROL

Only a few instructions with a click of the finger suffice and smartLINE organizes and manages, and that entirely automatically with PC support. Analysing, visualizing, reporting, documenting, nothing remains concealed and nothing is left to chance. smartLINE provides accurate data and information, thereby taking the required actions automatically. smartLINE assists you without beaks and thereby relieves you of a great amount of routine work.

With the 100% punching and deformation control, you have a permanent view of the most important process parameters concerning the quality of the parts and the tool life.

Deformations

1 Cuttings or punchings, abrasion tinsel, soiled strips result in marks, sink holes, cracks, scoring, scratches or dents which cause unacceptable deformation, surface and dimension faults. The aim of this measuring device is to detect these quality defects and eject defective parts.

One or more piezo sensors in the holding-down plate detect the force progress of the deformation. smartLINE permanently analyses these signals, visualizes them and then reports even the slightest deformation or surface defects. These result in an ejection of the defective parts or a rapid halting of the machine, according to choice.

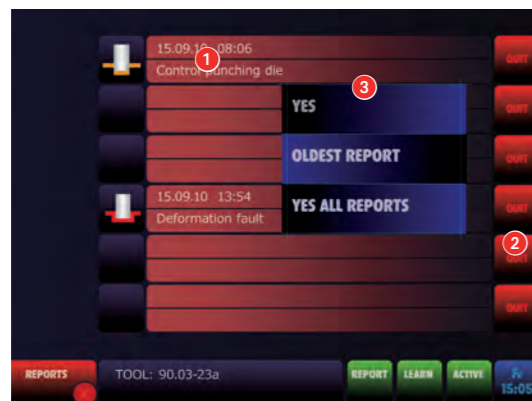
Punching die

2 Die breakage, die breakouts, a blocked punching channel and residues in the die result in an immediate deactivation of the machine. The cutting force, die wear, extraction force and the punching force are indications that maintenance work is necessary.

Piezo sensors in the punching die pressure plate detect the progress of the die force. smartLINE analyses these complex signal structures, permanently visualizes them and then immediately reports any non-adherence to the stipulated threshold values.

A sensor per punching die would be ideal but this is not always possible in the practice for space reasons. A useful alternative would be to allocate a sensor to each of the punching die groups.

The ultra simple navigation



the 'anyone can' navigation

The **smartLINE** touch surface is absolutely predestined for a simple and intuitive navigation. You have **smartCONTROL** under control without any effort whatsoever, in addition to you being provided with the data and information which are important to you. Operating and visualising in modern mobile communication style.

You will find some details of the clever and ergonomic **smartLINE** handling on this page.

START

The start page or homepage (1) displays the most important tool and material information (2). All of the **smartLINE** functions can be directly accessed from the main menu (3) **MEASURING**: display the force progress. **TOOL**: set and manage the tool parameters. **REPORT**: display and manage all of the reports. **MEMO**: display and right customised memos. **SET-UP**: set-up the installation assistant and system parameters (language, date, time, set-up). **DIAGNOSIS**: help system and fault checklist. The function keys (4) can always be accessed, as can the time (5)

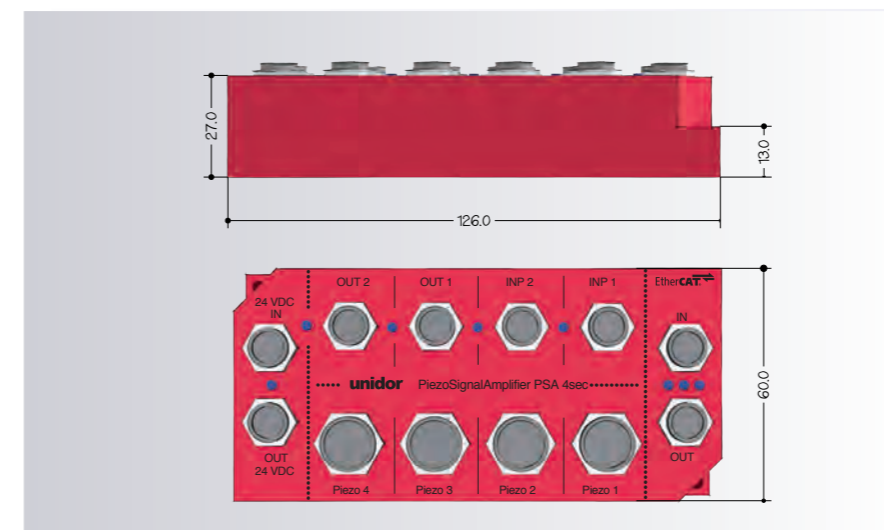
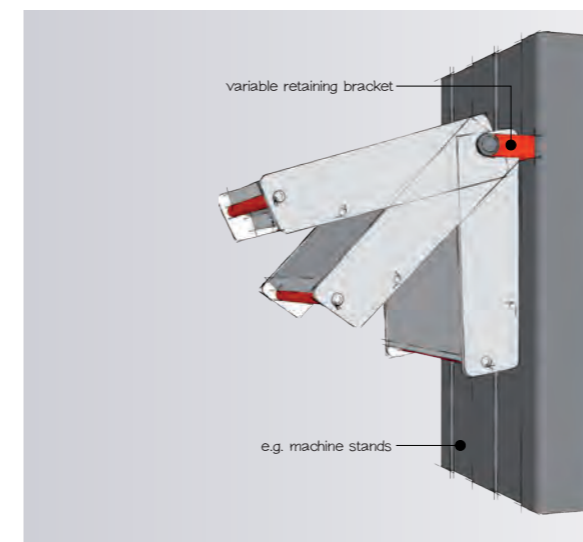
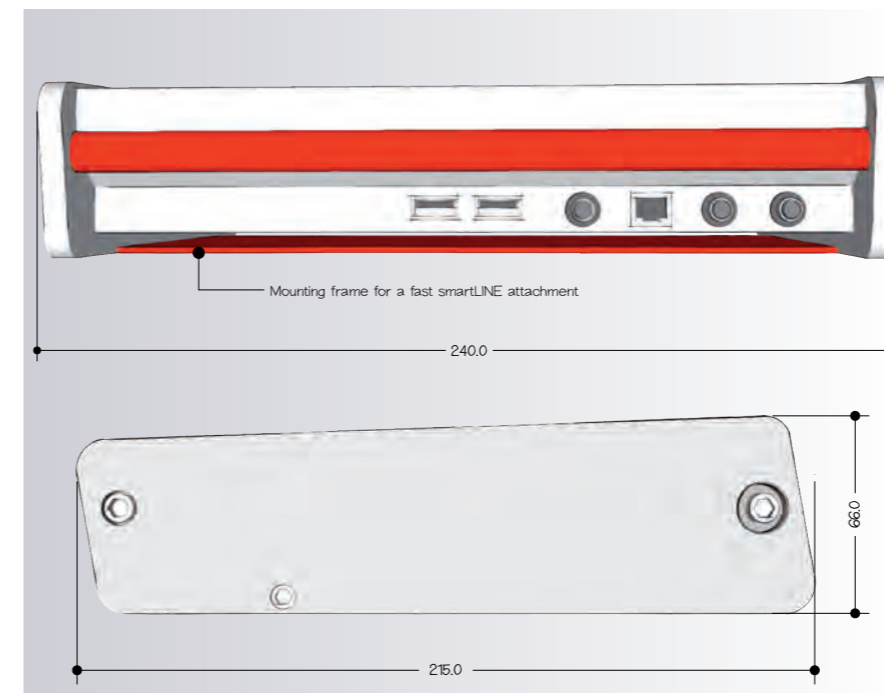
MEASURED VALUES

Each of the measuring channels has an odometer (1) for a fast overview of the situation and a curve display with threshold values (2), which reflects the measuring progress up to then. **smartLINE** can record and display up to 12 measuring channels. More than 4 channels can be selected by each scroll. The Info button (3) show which function is active at that given time. When this is activated, this page is closed and the homepage is opened. The icon (4) provides the information as to which measuring task is allocated to which channel.

REPORTS

smartLINE uses reports to provide information on all important occurrences, malfunctions and special events. Each of the reports (1) is displayed with the date, time, icon and text in the order it is called-up until it is acknowledged (2). **POPUP** menus (3) are temporary, context-related fade-ins of different types and useful navigation elements.

Top design outside. Top technology inside.



smartLINE in a top-design

smartLINE not only offers the non plus ultra in PC technology, but it also captivates with its trend-setting, modern and compact design. **smartLINE** is quickly mounted and has been especially designed for use in a robust industrial environment.

The PC is installed in just a few minutes when you use the enclosed mounting adapter.

Combi mounting bracket

The combi mounting bracket for the **smartLINE** offers you an additional highly variable mounting possibility: this enables the PC to be locked in position in any required position and both horizontally and vertically. A greater flexibility is not possible.

Prozess Signal Amplifier PSA

The use of the PSA close to the tool extends a robust aluminium housing which, together with the high-quality connectors, ensures a safe handling of the sensitive sensor signals, even in a rough industrial environment.

The PSA is quickly mounted with two screws. All of the connections are of a plug-in form. Preformed cables provide for a trouble-free connection.

The smartCONTROL components and important technical data



smartLINE

PC-Board CORE 2 DUO,
 CPU ATOM D510, 1.66 GHz
 internal RAM 1 GByte
 Flash memory 4 GByte
 without mechanical running gear
 Windows embedded-Standard 7
 10.4"-LCD display, 1024 x 768 Pixel
 Touch resistive
 Internal power pack (24V DC)
 EtherNET
 EtherCAT
 2 USB
 Power (IN/OUT)
 all connections can be plugged in
 Anodised aluminium housing including
 mounting adapter
 simplest mounting for table or variable
 wall mounting
 ultra-compact: only 240x215x66mm (W/D/H)
 suitable for rough industrial use



Piezo Signal Amplifier PSA

Power 24VDC (IN/OUT)
 EtherCAT (IN/OUT)
 4 PSA (Input)
 2 Digital-Input (24 VDC)
 2 Digital-Output (24VDC/1A)



Piezo 20

Disk with
 100cm cable + connector



Piezo 10

Disk with
 100cm cable + connector



Plug-in power supply for smartCONTROL
 230V AC, 24V DC/3 A
 with power cable to smartLINE



Power cable

between power supply
 and PSA + smartLINE



PSA cable

between piezo sensor
 and PSA



EtherCAT cable

between smartLINE
 and PSA