hhb ELECTRONIC

Measuring Technology for your Safety on Machines

safetyman DT2
Stop Time Meter

- ✓ Stop Time Measurement
- ✓ Determination of Safety Distances
- ✓ Velocity Measurement

The Stop Time Meter Safetyman DT2 is a mobile, battery powered measuring device of state of art. It allows fast and easy measurements on various types of machines without any electrical connection. Automaticaly the measuring results are converted into the required safety distances according EN / ISO 13855.

Functions

- stop time and distance measuring
- selection of protective devices
- safety distances according EN/ISO 13855
- evaluation of highest velocity
- input of machine numbers
- memory for all measuring protocols
- machinery management
- velocity measurement
- rpm recording
- multi-lingual operation
  and much more...

safetyman DT2

Principle

The stopping performance is measured on machines which are equipped with active opto-electronic protective devices. Light curtains, laser scanner as well as two hand controls allow an unobstracted access to the hazard area of the machine.They only ensure a protection if there is a sufficient safety distance between protective device and hazard area. It may not be possible to reach the hazard area earlier than the machine has stopped. The safety distance is determined by measuring the stopping time and formulas out of EN/ISO standards.

The measuring system **Safetyman DT2** is composed of the measuring device, a travel sensor and an actuator.
During the measuring the travel sensor records the motion of the machine, the actuator releases directly the protective device and initiates a machine stop signal. The stopping time to the standstill is measured and the correct safety distance according to the valid standards (EN/ISO 13855) will be displayed.
At construction and production time of the machine this measurements are important for dimensioning the correct safety distance. During the lifetime of the machine, for example because of wear out at the brakes, the stopping time can vary. A regular measurement is necessary.

···· *Stopping time measurement*····· *mobile* ····· *practical* ···· *on all kinds of machines* ····

The Safetyman DT2 is most likely for mobile use. The measuring device and the complete accessories are hosted in a sturdy carrying case with special interieur.

All information on type and specifications of protective device are requested by the measuring device in an easy-to-use menu. Settings for measuring allows to adapt the device to various kinds of machines.
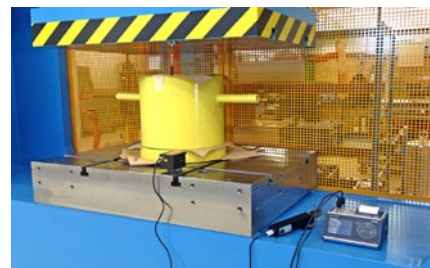
The travel sensor (cable transducer) can be fixed on the machine simply by magnets. It records the machine motion. For rotary motion there are wheel encoders available.

······*fast and easy* ······*no electrical connection to machine control necessary* ······

The actuator (Auto-Hand) will be prepared for releasing the protective device - totally without any electrical connection to the machine. Light curtains, laser scanners, two hand controls or other devices - no matter what, the Auto-Hand is able to trigger it.


The machine can now be started. When reaching the pre-adjusted triggering position (highest speed) the actuator releases automatically the protective device and the stopping time is evaluated by the measuring device.

Stopping time, stopping distance and the calculated safety distance are displayed by the measuring device. A measuring protocol containing all data is generated, automatically stored and printed. Later on all data can be transferred and processed on a PC.

Fields of Application
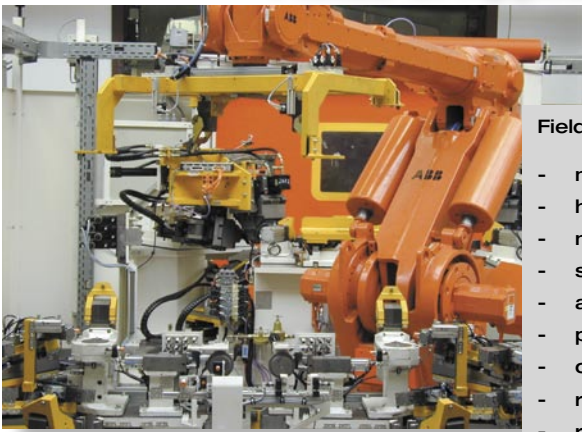
Fields of application

- mechanical presses
- hydraulic presses
- metal-forming machines
- stamping machines
- assembly lines
- press brakes
- cutting machines
- robots
- rotary-cycle machines
- coils
- processing centres
- conveyer belts

PC Software

The new PC software rests on a powerful data base and organizes machine pools, machines, measuring protocols. Any documents (e.g. images, films, risk analysis, inspection protocols) which you like to link to a certain machine can be added. As a result anything is put perfectly in order and you have a fast overlook.

Of course the PC software manages the complete data transfer to the measuring device DT2 such as machine pools, machines, protocols and settings.

A comfortable graphic tool allows the analysis of the time and brake behavior of your machine.
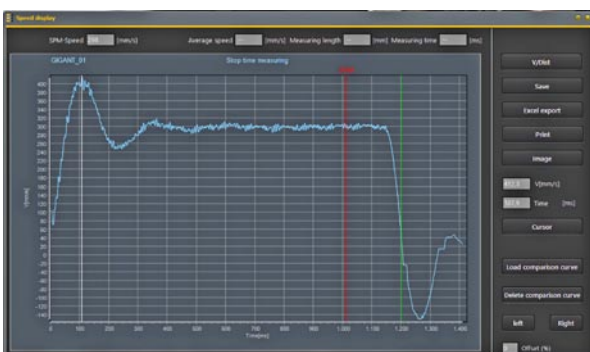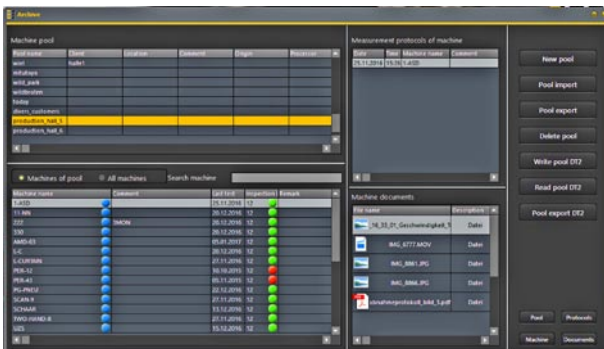
Funktionen	professional	base
- Reading measuring protocols from DT2	✓	✓
- Protocols open / save	✓	✓
- Automatic assignation of protocols to machines	✓	—
- Sorting protocols according to name or time	✓	—
- Save protocols as image	✓	✓
- Insert protocols in Excel formulars	✓	—
- Customers logo on protocols	✓	✓
- Achiv and data base	✓	—
- Organization of machine pools, machines and protocols	✓	✓
- Assigning various documents (all formats) to machines	✓	—
- Organization of inspection intervals	✓	—
- Transfer of machine pools to DT2	✓	✓
- Copying and moving machines	✓	✓
- Settings for DT2 - creating and managing	✓	—
- Standard settings for DT2 - creating and managing	✓	—
- Full text search of machines and protocols	✓	—
- Search of machines in pools	✓	—
- Reading velocity data from DT2	✓	✓
- Graphical representation of velocity curves	✓	✓
- Grafic with zoom funktion	✓	✓
- Representation of velocity curve over distance or time	✓	✓
- Comparison curves	✓	—
- 2 cursor function (time / distance calculation)	✓	—
- Analysis of reaction times control and breaks	✓	—
- Screen shot	✓	✓
- Firmware Update	✓	✓

Technical Data

Measuring Device Safetyman DT2

Power Supply:	12 V, 1000mA
Battery :	Lithium Ions 2300 mAh
Operating time:	ca. 20 h
Charging time:	ca. 3 h
Weight:	1,45 kg
Dimensions (W x H x L):	170 x 158 x 100 mm
Display:	3,5 Inch, full colour, 320 x 240 dots
Key board:	buttons Duraswitch A, B, C, ESC
LEDs:	white, orange, blue
Interfaces:	sensor, actuator, power supply
	USB, LAN, Jtag, diagnosis
Processor:	Cortex ARM 7, 32 Bit
Memory:	RAM 4MB, Flash 500 MB

Measuring Device

Printer

Printer

(integrated in measuring device)

Printing unit:	thermal
Characters:	24 / line
Paper width:	57 mm
Supply voltage:	5V DC (from measuring device)
Weight:	0.2 kg

Cable Transducer

Sensors

Cable transducer:

Cable length:	1,25 m / 2 m / 3 m* / 4,5 m* / 6 m*
Resolution:	0,125 mm
Mounting:	magnets
Dimensions (W x H x L):	60 x 60 x 90 / 80 x 80 x 101* mm
Weight:	0,7 kg / 1,2* kg

Wheel Encoder

Photo Sensor

Other sensors

- Wheel encoder
  (for rotary motions and endless linear motions)
- Reflex optical sensor for fast rotary motions
  (e.g. processing centres, circular saws, rpm recording)

Actuators

Auto-Hand

(Triggering device for light curtains, scanners and two-hand controls)

Stroke:	15 mm
Supply voltage:	approx. 7.0V DC (measuring device)
Dimensions (W x H x L):	220 x 35 x 35 mm
Weight:	0.3 kg

Auto-Hand

Relay Unit

Relay unit

(For electrical connection to the machine control)

Supply voltage:	approx. 7V DC (measuring device)
Contact:	break contact 230V, 5A
Dimensions (W x H x L):	50 x 25 x 100 mm
Weight:	0.2 kg

Carrying case

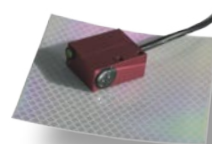|	
Dimensions (W x H x L):	460 x 350 x 160 mm
	(larger depends on incl. equipment)
Weight:	from 8 kg on
	(depends on included equipment)

Carrying Case