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DISOMAT® Tersus weighing terminal

- **A weighing terminal with all the equipment**
- **Clear operator guidance on a graphics-compatible back-lit LCD display**
- **Built-in Ethernet port**
- **4 built-in USB Ports**
- **Connection for industrial fieldbuses**
- **Bluetooth interface (optional)**
- **Built-in legal-for trade memory (optional)**
- **Remote α/n keyboard (optional)**
- **Modular and expandable I/O**
- **Also available with two measuring channels**
- **All components can be replaced without re-verification**

Application

The compact DISOMAT® Tersus weighing terminal is ideal for use in a wide range of weighing applications, regardless of whether you're focusing on operating scales or data processing systems, controlling processes or communicating with systems provided by the customer.
The system has four predefined configurations stored for typical applications that can be easily called up:

These function variants:

- Cargo scales
- Crane scales
- Filling scales
- Discharge Scales

They offer the user a proven scope of functions adapted to each individual application including the option of adapting the weigh terminal to the special requirements of his scale.

You can also get the option of activating its configuration as a road weigh bridge (input/output scale).

Furthermore, you can adapt the functionality of the DISOMAT® Tersus to virtually any weighing job by adapting the links between the logical function blocks.

You can do either this by using the convenient DISOPLAN PC program (a graphic interface) or right on the terminal. This makes it easy and cost-effective to adapt the terminal locally without major programming effort

In the optional two-channel measuring instrument design, the DISOMAT® Tersus can also be used for operating twin-unit road weigh bridges or two-trolley cranes with a separate overload indicator, or more you can simultaneously monitor the levels of two bins. You can even carry out to feeding processes at once

Equipment

The back-lit graphic-compatible QVGA format display (320 x 240 dots) shows the weight constantly, even when operators are making inputs in the seven-line dialogue area of the display or when status information is output.

For instance, this might be information on the progress of Feeding in progress (a bargraph), on the position of the inputs or outputs or help for operating the terminal. A special mode ("the telephone alphabets") can also be used to key in α-characters via keyboard and you also have the option of a remote α/n keyboard to make it more convenient to key in inputs, particularly for frequent texts.

You can add a second independent control terminal at any time with second DISOMAT® Tersus in the 'mirror" – conficuration.

You can use a total of eight binary inputs and 12 binary outputs for control jobs on the scale and DISOMAT® Tersus and even add an analog I/A module (two input / two outputs).

You can adapt the functionality of the inputs/outputs by linking the function blocks to the application's requirements in broad limits while increasing the number of binary inputs/outputs with upgrade modules wherever necessary.
Three serial interfaces enable you to connect peripheral units such as printers and remote displays while connecting up data with the data processing or PLC unit.
You can retrofits another serial interface to fit your needs.
There are coupling modules available that can be retrofitted for coupling the most common industrial fieldbus systems (Profibus, DeviceNet) – and the Ethernet interface (100 M baud) is even standard terminal equipment.

DISOMAT® Tersus has 4 built-in USB ports for connecting up the external keyboard, a legal-for-trade memory and a printer.

The DISOMAT® Tersus measuring equipment has extremely high resolution and outstanding measuring speed featuring great reserves even for the most difficult weighing applications, such as scales with minor load cell utilization, scales whose load sensor is in the hazardous area, and for fast filling processes.
Even extreme temperature demands are no problem for this terminal –it's rated temperature range includes –30 to +60°C

The scale parameters (including the calibration data) are stored in the connecting plug of the load cell cable (dongle). If there is a fault, it can be used to replace any component in the terminal without having to recalibrate or reverify it. The system functions immediately within legal-for-trade specifications (don't forget this also applies to both measuring channels independently in the two-channel design).

Together with its modular design, this keeps downtimes and repair expenditures on the terminal to a minimum.

The available housing designs:

- Table-top housing
- Panel mount
- Stainless steel housing
- Field housing
- 19" mounting frame

They offer the right packaging for practically every environment.

Operation and Settings
The standard DISOMAT operating languages are German and English.

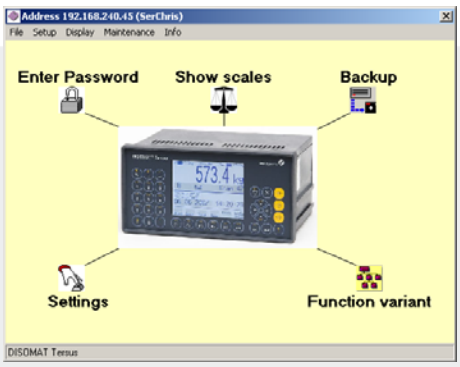
You can easily load other operating languages into the terminal with the PC-supported DISOPLAN parameterising and configuration program (a WINDOWS program)
(The following are available now: Italian, Spanish, French, Polish, Czech, Hungarian and Russian and you get other languages to fit your needs).

Beyond this, **DISOPLAN** enables you to:

- carry out graphic configuration of the function blocks
- set all instrument parameters
- calibrate the scale
- easily format print patterns
- **Here's something new:** recording weight curves
- Reading out the entire terminal configuration (back-up)
- Playing back stored data into a DISOMAT® Tersus (restore) for preparing a replacement terminal on short notice. Together with the dongle idea, this keeps downtimes to a minimum if there is a fault while allowing minimum spare part stocks.

DISOPLAN either communicates with the DISOMAT

- serially
- via Ethernet, or
- via Bluetooth (option)



All parameter and calibration data are stored in the terminal to protect them from power failure. The real-time clock continues to run for at last seven days.

Printing
Variable print pattern formatting allows you to freely lay out your weighing report.

Here's something new:
You can graphically configure the printed vouchers in DISOPLAN (direct preview)
You can print out the following along with weight data:

- Date and time
- Serial no.
- Balance totals
- The number of balanced weighings
- 5 strings with as many as 25 digits
- 3 stored texts with 26 characters each

The arrangement of printing elements is defined in a format and you can store 6 different formats.

They offer the right packaging for virtually every environment. The available housing designs for DISOMAT® Tersus

VTG 20450 table-top terminal
Plastic protection class IP 54
10 cable inlets including supply connections and load cell cables
Weight: 3.7 kg

Panel-mount VEG 20450 terminal
Protection class: front IP54, otherwise IP 20
Plastic
138.5 x 282 mm panel cut-out
Weight: 3.5 kg

19" VNG 20450 sub-rack
with built-in VEG 20450 terminal
Depth 195 mm + 25 mm for service cable
Protection class: front IP 54 otherwise IP 20
Weight: 7.5 kg

VFG 20450 crane/field housing
with built-in VEG 20450 terminal,
Sheet steel,
Protection class: IP 54,
Weight 11 kg
* 230mm incl. the front frame

Stainless steel VKG 20450 housing
Table-top mounting
Protection class: IP 65 (NEMA 4x)
Weight: 5 kg
The VKG 20450 can also be mounted on the wall with the attached holder. (cable outlets below)

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Technical Data:

Display	LCD graph-compatible, 240 x 320 pixels, 120 x 90 mm Weight display 22 mm digit height, 1 Status line and 7 dialog lines per 5 mm digit height
Keyboard	Membrane keyboard with 33 multiple-function keys, 12 of which are configur-able function keys.
Supply voltage	85 - 250VAC, 47 - 63 Hz 24 VDC (18 - 36 VDC)
Power consumption	20 VA max.
Temperature range	Service temperature: -30 to +60°C Verifiable. –30 to +40°C Storage temperature: -40 to +60°C
Input Signal::	0-35 mV
Sensitivity:	0.4 µV / d
Measuring rate:	132 measurements/second
Increment Value::	1, 2 and 5 etc. adjustable from 0.01- 5,000
Unit:	kg, g, t, lb, N, kN
Number of Compo-nents::	Legal-for-trade operation: Max. 8,000 d Multi-range scale 3 x 4,000 d Multi-interval scale 3 x 4,000 d No limits to resolution in non legal-for-trade operation
Taring:	To 100% of the weighing range
Zero setting equipment:	Can be set to a max. 20% Automatic zero point lag 0.5 d/sec, can be switched off
Filter:	Mains-synchronous noise-signal sup-pression Interference signals ≥ 100 dB , Common mode rejection ≥ 110 dB Software filter, filter interval 0-10 sec.
Linearity error	< 0.025 ‰
Zero point stability, TK_0	< 0.4 µV / 10K corresponds to 0,012 ‰ / 10K
Range stability, TK_c	< 0.03 ‰ / 10 K
Accuracy, F_{comb}	< 0.05 ‰ / 10 K
Date/Time:	Real-time clock (RTC), Back-up time at least 7 days
Load cell impedance:	At least 43 Ω (corresponds to 8 x 350 Ω - load cell or > 20 RT load cells à 4,000 Ω) also valid as minimum total impedance for two-channel terminals (such as 2 x 4 x 350 Ω)
Load cell supply:	12 V alternating current supply
Binary Inputs:	8 inputs, indirect coupled, securely iso-lated, 18-36 VDC Auxiliary 24 V supply available for con-trolling the inputs (max. 150 mA).
Binary outputs:	12 outputs, indirectly coupled, securely isolated (relay), passive. Load capacity 24 VDC/VAC max. 500 mA, 90 - 250 VAC max. 300 mA. The refresh rate of the outputs in the 'fast comparator' function is 132 x per second
Serial interfaces:	3 interfaces for a printer, data processing or secondary display S1 and S2 can be changed to - RS 232 - RS 422/485, 4-wire - RS 485, 2-wire - The change can be made using software (no jumpers) S3: RS 232 fixed, using Bluetooth as an option - Max. baud rate for all interfaces: 38,400 baud
Data processing procedures	Siemens 3964R S5 (RK512) Modbus Standard Schenck DDP8672 procedure Schenck DDP8785 poll procedure
Secondary dis-play procedures:::	DTA DDP 8861 DDP 8850
Ethernet Interface	10/100 base-T, full duplex-compatible
USB ports	4 x USB 2.0 host (master)

Options

Second measurement input	e.g. for twin-unit scales
Remote VTT28000 PC swivel keyboard (USB port) for convenient data input.	
Data input via Barcode scanner	On request
Verifiable VMM20450 data memory for weigh data as a substitute for check printer	Memory capacity 128 MB for typically 3 m. weighing operations
VEA20451 analog output / input	2 outputs, 0(4) - 20 mA, load max. 500 Ω Resolution: 10,000 parts Refresh rate: 10/sec 2 inputs 0(4) – 20 mA or 0–10 V Linearity < 0.15 ‰ Zero-point stability < 0.25 ‰ / 10 K Stable range < 0.25 ‰ / 10 K In addition: two binary outputs open collector 24VDC, galvanically free
Interface Expansion VSS 021	1 RS 232 serial interface
Profibus VPB coupling module	Profibus DP protocol Max. baud rate 12 Mbaud
Device Net subassembly VCB	
Bluetooth module for serial interface S3	Class 1 or 2 module, maximum transmission link 100 (15) m
Radio Data transmission	For printing data or data processing connection
I/O upgrade subassem-blies	- Binary inputs/outputs (max. addi-tional 16 inputs or 16 outputs) - Added analog output
The matching safety bar-rier assemblies for con-necting intrinsically safe weighing platforms and operating units in the ATEX 2G category (zone 1)	-
Other options or custom-ised functions for your applications at request	

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