peiseler
Peiseler test systems

DB-PRINT with additional operating features

The **DB-Print** test system enables performing general acceleration and brake tests on vehicles. In addition, audio signals permit performing unassisted („one man“) repetitive brake tests. The test results are shown on a display unit and on a tape produced by an integrated printer. Four print-out languages (to be selected by the user) are available . Modular equipment design and compactness ensure minimum conversion time. Data on distance travelled is obtained by a Peiseler fifth wheel with motion transducer or by non-contact sensors.
A real-time clock unit is used for recording the exact time of measurement.
Apart from test results within the settable test window, additional test values are available for measurements made before and after this test window - providing an overview of the entire test.

Modes of operation

- **Acceleration testing**

  On completion of measurement, display of one of the following two lines can be selected

Speed at end of test	Total distance	Acceleration (v²/2s)
Speed window (v_1 - v_2)	Distance in window	Time in window

At the end of the test, the following will be printed:

- **Time of measurement** (Date/Time)
- **Test overview:** Speed at start and end of test, distance travelled, duration of test, mean acceleration (calculated by v/t)
- **Test window :** Speed values recorded before, within and after the test window range. Time, distance travelled, acceleraton figures recorded before, within, afte the test window range.

- **Brake testing**

  For brake testing, start and stop can be actived in different ways

  - Manually (by pressing the start and stop key)
  - Automatically by external signal (e.g. by brake pedal switch, stop light or optically triggered brake light switch)
  - Automatically, within selectable low/high speed limits of a test window (v_1 und v_2)

At the end of each test, the following will be shown, using two switchable display levels

Speed when braking starts	Total stopping distance	Deceleration (v^2 /2s)
Test window range (v_1 - v_2)	Distance travelled within test window	MFDD [1)]

[1)] *The **M**ean **F**ully **D**eveloped **D**eceleration (MFDD) is calculated within a test window between two speed limits. These speeds can be set as a percentage of the speed actually measured when braking is initiated, e.g. between 80% and 10% of the speed at braking start - complying with guideline ECE-R13, Series 08.*

After having finished braking, the following will be printed:

- **Time of measurement** (date / time)
- **Test overview:** Speed at start and end of braking, total brake path (stopping distance), total time, mean deceleration calculated over the total distance travelled during the test (per v^2/2s)
- **Test window** between preset speeds or between speeds set as a percentage of speed at test start, speed values recorded before, within, after the test window range.
  Time, distance travelled, acceleration figures before, within, after the test window range.
  --- Mean acceleration (MFDD) within the test window between speeds v_1 and v_2 ---

- ## Combined acceleration / deceleration(braking) mode

  This mode of operation allows performing an acceleration test and a brake test without any interruption. Before starting, both the acceleration and the brake test window have to be properly set (for instance: acceleration between 0 and 100 km/h and brake test between 80 and 20 km/h). Upon reaching 100 km/h, an audible signal is generated, measurement is terminated and acceleration test data are printed. At the same time the equipment is switched over to braking mode while waiting for the brake test start signal. Therefore, when the car comes to a standstill, test data on acceleration and braking are available. The displayed and printed data are identical with those indicated under the previously mentioned **Acceleration** and **Brake test.**

- ## Series of brake tests

  This mode of operation allows automatic collection of data generated during an uninterrupted sequence of brake tests (ECE-R13). The equipment follows the driver's actions while guiding him throughout the test sequence by using intuitively understandable audio signals. This allows a single unassisted driver to perform repititive brake tests. Prior to starting measurement, the following parameters are entered: test cycle time, cycle number and admissible maximum braking time within the test window between v_1 and v_2.
  In addition to data collection, the following functions are performed:
  - Monitoring suitable test speed before braking is actually started.
  - Time control and chronometer function: For indicating to driver when to start next braking test.
  - Go/No-Go-signal after each single brake test to enable the driver to interrupt the test series, if needed.

  During/after the series of brake tests the following is printed:
  - time measured for each single braking cycle
  - after each braking cycle: all data as listed under **Brake Testing**
  - at the end of the brake test series: summarized results in a table of all single results and mean values

Calibration mode

This mode calculates the exact calibration factor suitable for the motion transducer actually used.
This is accomplished by driving the car over a track of any known length (≥10m). The correct calibration factor is entered and saved automatically.

SETUP mode

This operating mode allows presetting all test variables, including operating mode, calibration factor, length of calibration track, high and low speed level of the test window, etc.

- **Remote control**
  Via the integrated RS-232 interface and by using ASCII commands all functions can be executed (for full equipment control, data read-out through RS-232, etc.)
- **Analogue output for speed**
  Output: 0 .. 10 VDC corresponding to 0 - 250 km/h at fifth wheel, optophysical isolation.
- **TTL-Out**
  Output: Distance-travelled pulses, TTL voltage level, optophysical isolation.
- **Software DBSSI**
  Interface software for spreadsheet program EXCEL - controlling DB-Print through RS232 interface,reading test data and filing these on a connected on-board laptop.

• Technical specifications

LCD-display:	alphanumeric, 20 digits, 9.4 mm character height, backlighting
Printer:	high speed thermo-ridge printer, 58 mm tape width
Power supply:	10,5... 30V VDC (with opto- radarsensor 14-30V), polarity reversal protection
Current consumption at 12V:	mean value 1.5 A, peak during printing: 6 A
Output supply voltage:	12V (stabilized) max. 3 A for non-contact sensors
Box dimensions:	22.4 x 14.6 x 5.9 cm (LxDxH)
Weight:	approx. 1.6 kg

• Scope of supply

DB-Print Part Number: 2400
Display unit with built-in printer + set of cables in aluminum portable case

• Available accessories and auxiliary equipment

- **Thermal paper rolls 58mm,** 20 rolls in package, Part Number 2919
- **Motion transducer MT500/e SR** (standard transducer converting rotational movement into 500 pulses/revolution) to be screwed onto a Peiseler fifth wheel.
  Output and input socket matching cable connecting to all Peiseler test equipments
- **Connecting cable** MT....SR <---> DB-Print 5 m, 10 m or 20 m length
- **BLS B**rake**l**ight **s**ensor (optical sensor triggering bake test)
- **Peiseler Fifth Wheel** e.g. fifth wheel 28"
  Various devices are available for attachment to a vehicle e.g. to trailer hitch or license plate holes or by using suction cups. Also available: test wheels for rail vehicles)
- **Motion transducer MT..../e Kfz ..** for attachment to e.g. car wheels
  e.g. MT1000/e-Kfz-RS generating 1000 pulses/revolution (approx. 500 pulses/m on car wheel) with tube attached to car fender.
- For mounting such transducers onto a non-driven car wheel an adaptable attachment system is available: The **Peiseler Plate** (for wheels with 3, 4, 5, 6 lug nuts) and chucks fitting over nut of various dimensions of the test car's wheel.
- **Optical / Radar / GPS Sensors**
  For non-contact measurement of distance and speed. When ordered together with a DB-Print equipment the system is supplied with a set of appropriate cables.

Subject to technical changes.

Printing samples

Date: 13.03.06 Time: 08:26:49

No: 8 acceleration
Start 0.0 km/h Stop 103.8 km/h
Total elapsed time ..... 14.27 s
Distance travelled ..... 215.23 m
Average acceleration (v²/2s) 1.93 m/s²

Result before window 0.0 -> 30.0 km/h
Time ..... 3.82 s
Distance travelled ..... 10.29 m
Average acceleration (v/t) .. 2.18 m/s²

Result within window 30.0 -> 100.0 km/h
Time ..... 8.66 s
Distance travelled ..... 153.61 m
Average acceleration (v/t) .. 2.24 m/s²

Result after window 100.0 -> 103.8 km/h
Time ..... 1.80 s
Distance travelled ..... 51.32 m
Average acceleration (v/t) .. 8.59 m/s²

No: 6 braking
Start 50.1 km/h Stop 0.0 km/h
Total elapsed time ..... 2.53 s
Distance travelled ..... 14.43 m
Average deceleration (v²/2s) - 6.71 m/s²

Result before window 50.1 -> 40.0 km/h
Time ..... 0.44 s
Distance travelled ..... 5.43 m
Average deceleration (v²/2s) - 6.47 m/s²

Result within window 40.0 -> 20.0 km/h
Time ..... 0.86 s
Distance travelled ..... 6.87 m
Average deceleration (v²/2s) - 6.74 m/s²

Result after window 20.0 -> 0.0 km/h
Time ..... 1.23 s
Distance travelled ..... 2.12 m
Average deceleration (v²/2s) - 7.25 m/s²

The test window speed limits can also be set as a percentage of the speed registered when braking starts

SETUP:

0 Calibration factor 1.0000
1 Lenght of ref. track .... 100.0 m
2 Acceleration window v1 ... 30.0 km/h
3 Acceleration window v2 ... 100.0 km/h
4 Braking window v1 ..... 40.0 km/h
5 Braking window v2 ..... 20.0 km/h
6 Braking window v1 ..... 80 %
7 Braking window v2 ..... 10 %
8 Brake window limits in % ..... Yes
9 Automatic stop brake test 0.0 km/h
10 Upper beep signal at ..... 50.0 km/h
11 Lower beep signal at ..... 10.0 km/h
12 Audible support tones ..... On
13 No of cycles autorepeat 3
14 Selected cycle time ..... 30.0 s
15 Max. braking time (window) 2.00 s
16 Printer ..... On
17 Language for Printer English
18 Operating mode ..... Acceleration
19 Braking: Print before window On
20 Braking: Print after window On
21 Accel.: Print before window On
22 Accel.: Print after window On

No: 5/ 1 braking autorepeat
Start 47.1 km/h Stop 0.0 km/h
Total elapsed time ..... 2.65 s
Distance travelled ..... 16.15 m
Average deceleration (v²/2s) - 5.30 m/s²

Result within window 40.0 -> 20.0 km/h
Time ..... 0.88 s
Distance travelled ..... 7.42 m
Average deceleration (v²/2s) - 6.24 m/s²

No: 5/ 2 braking autorepeat
Start 46.8 km/h Stop 0.0 km/h
Total elapsed time ..... 2.73 s
Distance travelled ..... 17.38 m
Average deceleration (v²/2s) - 4.88 m/s²

Result within window 40.0 -> 20.0 km/h
Time ..... 0.73 s
Distance travelled ..... 6.07 m
Average deceleration (v²/2s) - 7.62 m/s²

No: 5/ 3 braking autorepeat
Start 46.3 km/h Stop 0.0 km/h
Total elapsed time ..... 3.17 s
Distance travelled ..... 21.63 m
Average deceleration (v²/2s) - 3.82 m/s²

Result within window 40.0 -> 20.0 km/h
Time ..... 0.83 s
Distance travelled ..... 6.93 m
Average deceleration (v²/2s) - 6.68 m/s²

No: 5 Summary

run No: #	start speed km/h	window time s	av dec. m/s²	cycle time s
1	47.1	0.88	-6.24	0.0
2	46.8	0.73	-7.62	10.9
3	46.3	0.83	-6.68	0.0
Average	46.7	0.81	-6.85	

Date: 13.03.06 Time: 09:21:22

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