Technical Manual

Sorter SRT 800.xx
and SRT 810.xx
with Electronic Coin Selector
EMP 800 v4 series

Table of Contents

0. Safety Precautions

You are advised to observe the safety information during operation, maintenance and repairing of electronic coin selectors of the EMP 800 series and the sorter SRT 800 series. Failure to do so may result in warranty and other claims being excluded.

Whilst every care has been taken in the preparation of information contained in this manual, *w*h Münzprüfer will not be liable for any consequential loss or damage howsoever caused.

The Company would be very grateful if any accidental inaccuracies could be pointed out to us with any other constructive criticism which might lead to a better understanding.

1. Introduction

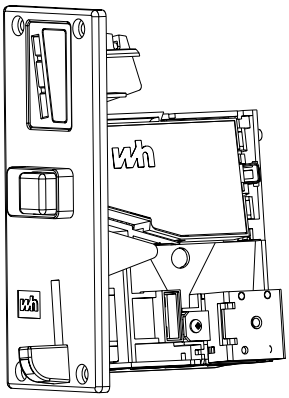
This manual highlights the technical possibilities of the 2-way or 3-way sorter SRT 8x0.xx together with the electronic coin selector EMP 8x0 v4. Please refer to the separate technical manual for the EMP 800 for further details on the coin selector.

2. Choice of Coin Selector

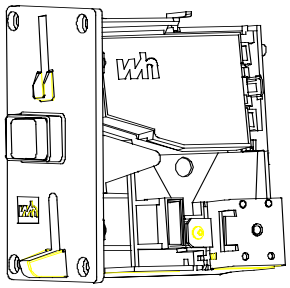
The sorter can be combined with one of the four variants of coin selector:

- EMP 800.00 – with standard frontplate – 155 x 63 mm *or*
- EMP 850.00 – with steel frontplate – 117 x 60 mm *or*
- EMP 890.00 – with mini frontplate – 114,7 x 62,7 mm *or*
- EMP 820.00 – chassis version

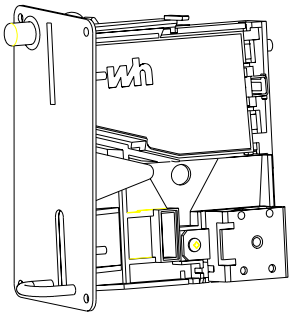
Note: The dimensions of the chassis version are altered due to the required installation adapter for the sorter SRT 800. The coin selector becomes 2.5 mm wider. The diameter of the right connecting studs is increased to 8 mm.



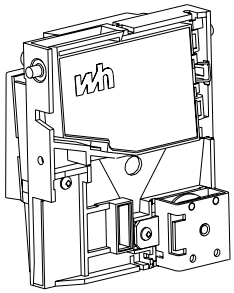
EMP 800



EMP 890



EMP 850



EMP 820

Figure 1: Choice of Coin Selector

3. Sorting

You may choose between the following three alternatives:

1. The coin sorting is controlled via the coin selector and cannot be altered by the machine controller. The coin selector requires option /X (control of external sorting flaps).

2. The coin sorting is controlled via the coin selector. An additional feature allows the hopper coins to be redirected to the cashbox (when hopper is full). The coin selector requires options /O (single coin blocking via parallel output lines) and /X (control of external sorting flaps). When using sorter versions SRT 810.2 or SRT 810.3 option /O is not necessary for redirecting the coin.

3. The coin sorting is carried out exclusively by the machine controller. The coin selector gives upon receipt of a true coin a preceding coin signal via the parallel connector to the machine controller. The machine controller then decides how the coin is to be sorted and thus controls the sorter flaps in the sorter. The coin selector requires option /S (preceding coin output signal).

4. Number of Sorting Paths

You may choose between a 2-way or 3-way sorter:

- SRT 800.2 (Sorter Paths 0 und 1)
- SRT 800.3 (Sorter Paths 0, 1 and 2)

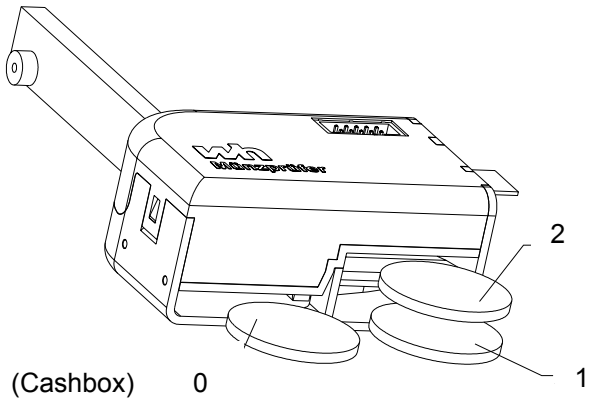


Figure 2: Sorter Paths SRT 800

5. Order Options SRT 800

Taking the coin selector options /O, /S and /X into consideration, you may order the following versions of the sorter SRT 800 :

- SRT 800.2S 2 way sorter , solenoid control via host machine
- SRT 800.3S 3 way sorter , solenoid control via host machine
- SRT 800.2X 2 way sorter , solenoid control via coin selector
- SRT 800.3X 3 way sorter , solenoid control via coin selector
- SRT 810.2X 2 way sorter, with redirection of coin to cash box, solenoid control via coin selector
- SRT 810.3X 3 way sorter, with redirection of coin to cash box, solenoid control via coin selector

6. Dimensions

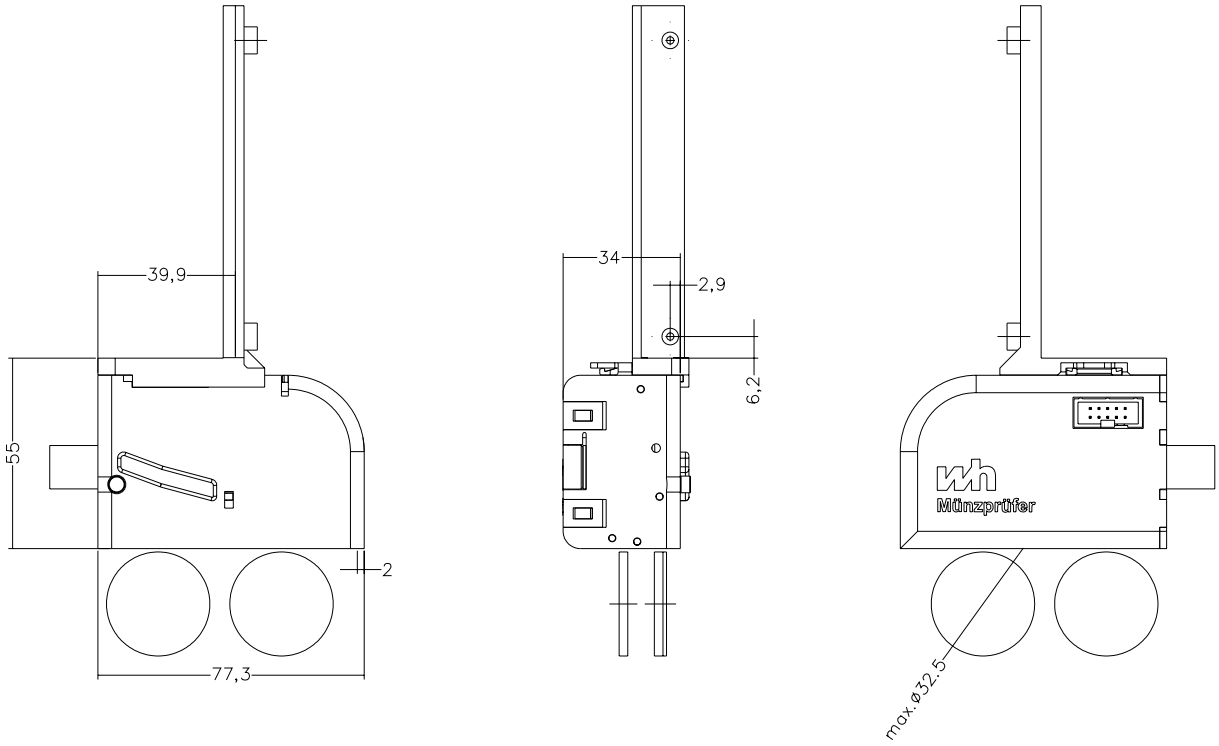


Figure 3: Dimensions of SRT 800 and SRT 810

7. Coin Selector Options

7.1. Control of External Sorting Flaps (Option /X)

The coin selector requires option /X in order to control the solenoid sorter flaps. Via three additional output lines (note – the sorter requires just two – see Figure 4), the control signals of the microprocessor are passed through a protective resistor of 330 Ω each and a 3-pin JST connector (B 3B-ZR). The control transistors and protective diodes are situated on the sorter PCB – as well as the corresponding cable to connect the sorter outputs of the coin selector.

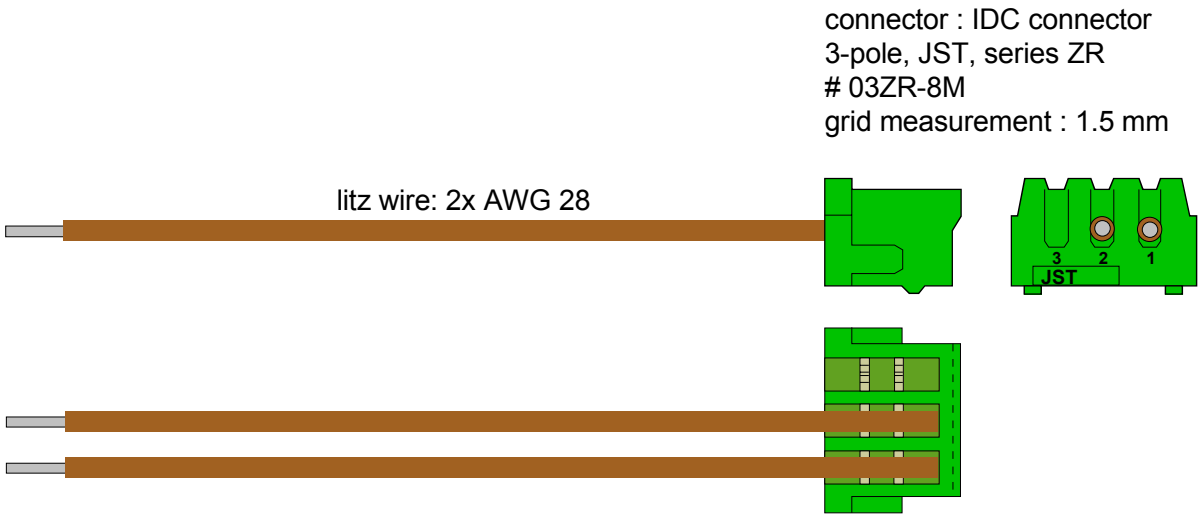


Figure 4: Pin Layout for Sorter Signals of the SRT 800, cable length approx. 100 mm

A HIGH signal of 5 V is required to control the sorter solenoids. Activating Pin 1 of the 3 pin connector sorts the coin into path 1. Activating Pin 2 sorts the coin into sorter path 2. If neither pins are activated, the coin is sorted to path 0 (cashbox). The sorting numbers 0, 1 and 2 correspond directly to the sorting paths used in our programming software wheasy.

Sorter Path	Pin 1	Pin 2
0	0	0
1	1	0
2	1	1

7.2 Sorting to Cashbox

7.2.1 Coin selector with option /O

The coin selector requires the option /O for this feature. Pulling the corresponding output to LOW activates this feature. The coin(s) to be rerouted to cashbox must be programmed twice into the coin selector. The first programming has the sorter path as 1 or 2 (which can then be inhibited), the second sorter path is 0 (cashbox – only active when the corresponding coin channel is inhibited).

> *Note*: A token programmed via the teach mode must also be programmed twice into the coin selector. Channel 15 has the sorter path as 1 or 2 (which can then be inhibited), channel 16 is 0 (cashbox – only active when the corresponding coin channel is inhibited).

The output signals 5 (pin 3) and 6 (pin 4) are used for the coin / token that is to be rerouted to the cashbox from sorter path 1 or 2. The machine controller pulls the line to ground (0 V). When output 5 is pulled to ground, the coin / token from sorter path 1 is redirected to the cashbox When output 6 is pulled to ground, the coin / token from sorter path 2 is redirected to the cashbox.

> *Note*: When using this feature with a 3-way sorter, only four coin output lines may be used (instead of six). When using this feature with a 2-way sorter, only five coin output lines may be used (instead of six).

7.2.2 Sorter SRT 810

With the SRT 810 redirecting of coins to the cash box is controlled via the sorter. Coins from sorting path 1 are redirected to the cash box, when pin 4 of the 10-pole connector is drawn to ground via the machine controller. Coins from sorting path 2 are redirected to the cash box, when pin 5 of the 10-pole connector is drawn to ground.

The EMP 8x0.00 normally signals the coin output signal 6 on pin 4 and the reject signal on pin 5. Both signals are not available with the SRT 810.xx.

7.3. Preceding Coin Output Signal (Option /S)

The coin selector requires option /S for his feature. This option preceding coin output signal means that the coin selector is programmed so that an output signal is given immediately after the true coin has been identified. This preceding coin output signal is much shorter in length than the standard output signal. This allows the machine controller to control the sorter solenoids in time for the coin to be correctly sorted.

This preceding coin output signal pulses before the coin selector magnet is activated. The signal has a maximum width of 10 ms if the coin selector is blocked (from accepting coins) via the general blocking input. The coin selector will only accept the coin if the general blocking signal is changed to “accept coin” during this 10 ms interval. The coin selector will release the normal coin acceptance signal (credit pulse) once the coin has passed the coin light barrier

The machine controller has approx. 10 ms to operate the sorter upon receipt of the preceding coin output signal (see Figure 4 for cable layout). The sorter solenoid locking time is 100 ms (calculated from when the real output signal is given). Once the real output signal begins the general blocking should be activated to avoid wrong sorting of coins entered quickly afterwards. Once the solenoid magnets return to their idle state the general blocking may be released.

Note: The current for the control signal must be limited to 10 mA. If the control voltage is 5 volt DC then a series resistance of 300 Ohm is adequate. If the control voltage is 12 volt DC then a series resistance of 820 Ohm is required.

8. Explanation of Coin Selector Label

The label highlights all necessary information – coins / tokens programmed with assigned DIP switches and output lines:

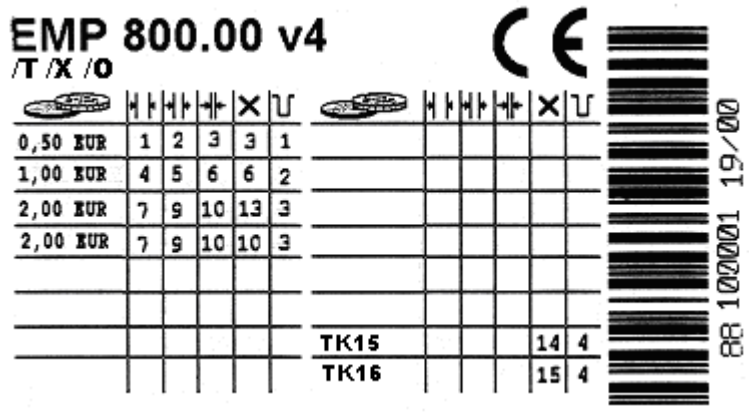


Figure 5: Coin Selector Label

At the top is printed the exact type of coin selector. In this example it is the EMP 800.00 v4.

The next row shows the coin selector options separated by a dash "/".

/T Teach mode
/X Control for External Sorting Flaps
/O Sorting to Cashbox

Along the right margin are the serial number and the week and year of manufacture. The same information is contained in the bar code

The remaining space on the label is devoted to the specification of the programmed coins. These specifications are in the form of a table. The columns have the following meaning:

 Coin Type (Value and Currency)

Teach mode channels are marked with TKn. „n" = number of blocking switch, which has to be used to activate the teach mode for this channel

 Blocking switch for the broad channel

 Blocking switch for the narrow channel

 Blocking switch for the very narrow channel

 Blocking switch for a coin type or coin group (currency)

 Output line

The output line is specified directly for the EMP 8x0.00 v4, which is a number between 1 and 6. The output line combination is given in the hexadecimal equivalent for binary code in the EMP 8xx.04 v4. Unfortunately, we are unable to show the sorting paths on the label. In the above example, 0.50 € and die 1.- € coins are sorted to the cashbox, the 2.- € coins to sorter path 1 and the tokens taught via

Teach Mode to sorter path 2. The 2,- € coins and tokens can be redirected to the cashbox to placing coin output lines to ground on lines 5 and 6 respectively.

9. Connecting Diagram

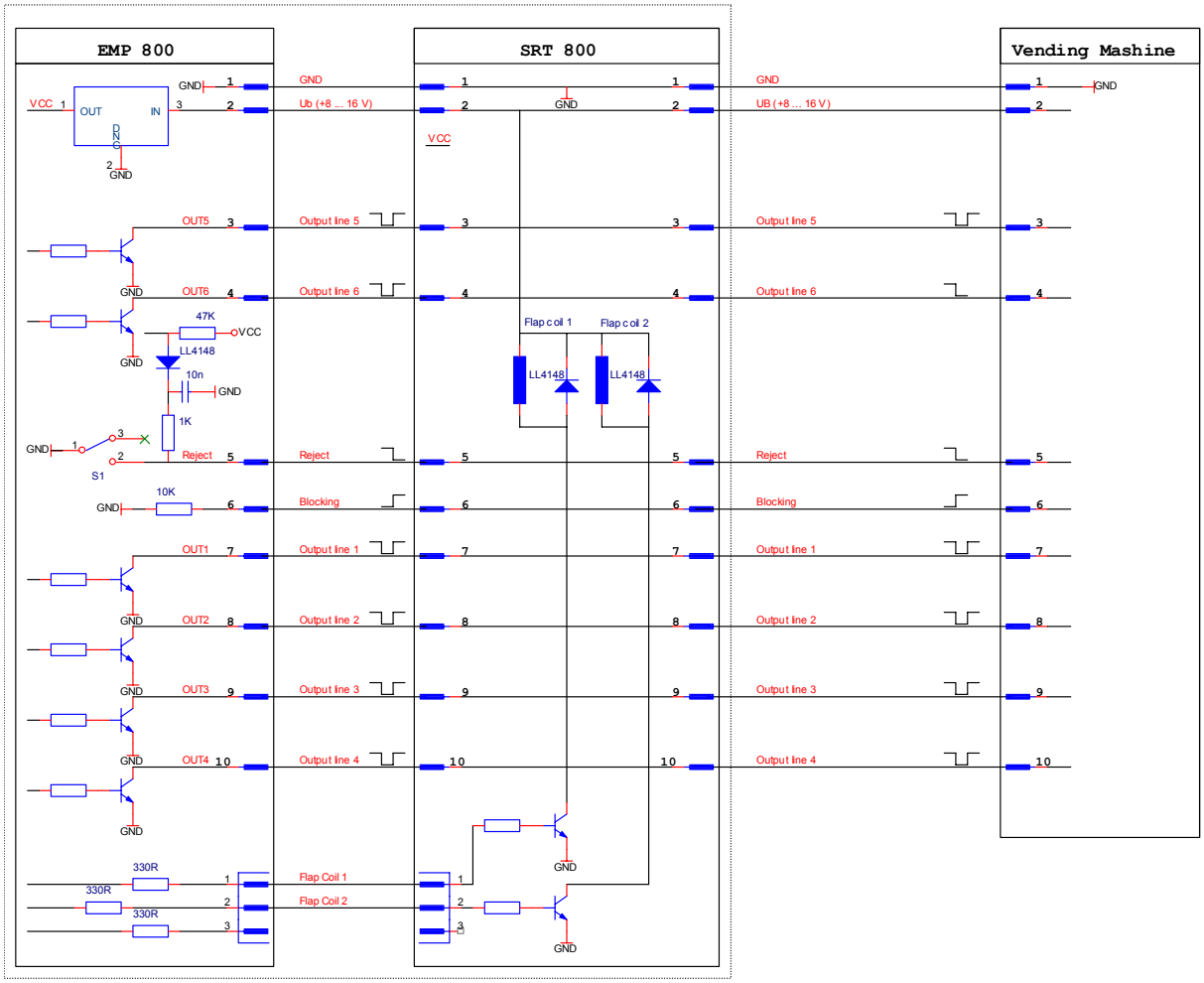


Figure 6: Connecting Diagram for the EMP 8x0.00 v4 and SRT 800

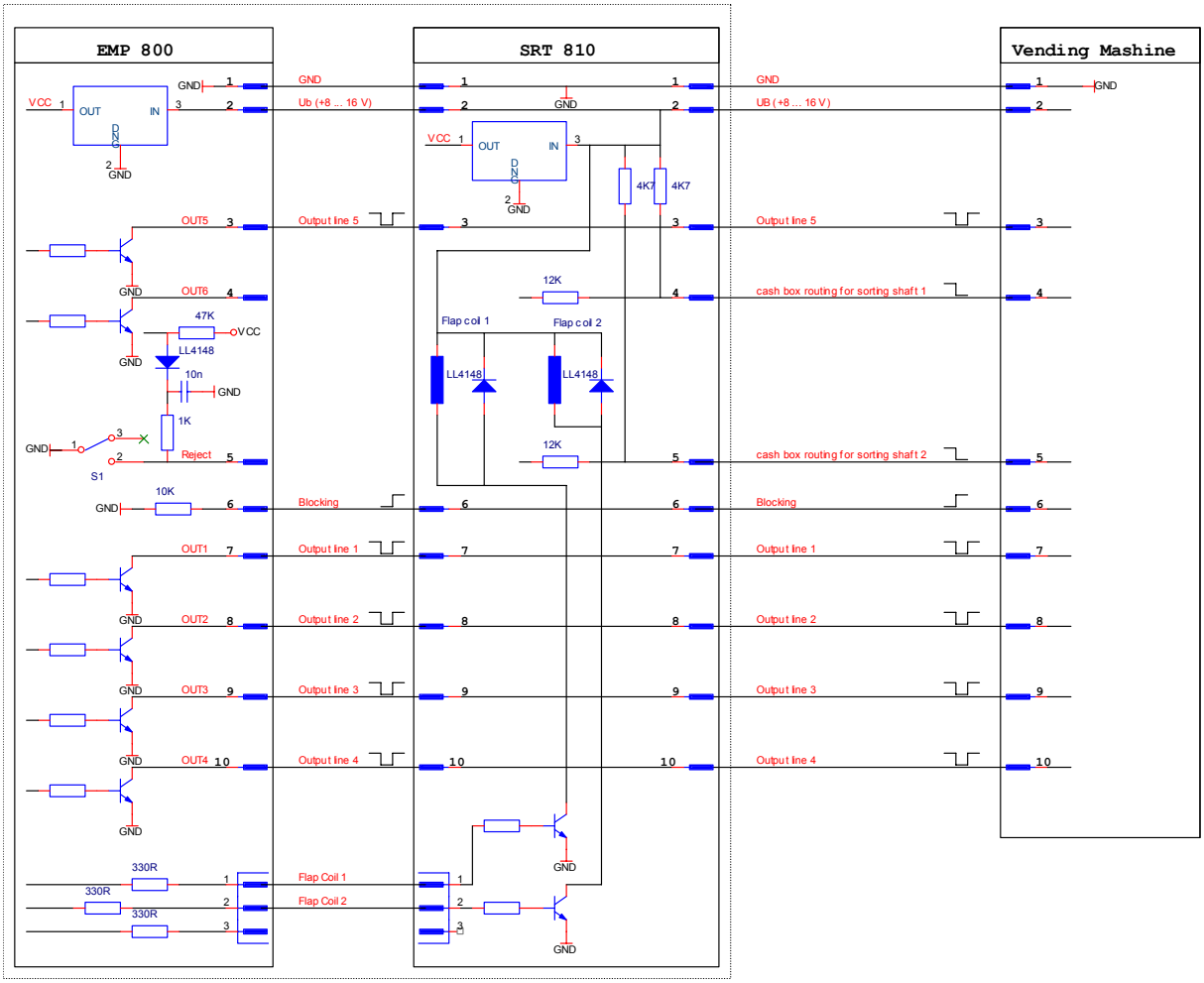


Figure 7: Connecting Diagram for the EMP 8x0.00 v4 and SRT 810

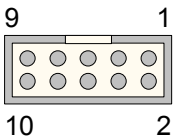


Figure 8: 10-pin connector for the EMP 8x0.00 v4

10. Conformity Agreement

Conformity Agreement

according to EN 45 014

Supplier Name: wh Münzprüfer Berlin GmbH

Address: Teltower Damm 276, 14167 Berlin

Declares via sole responsibility and based on examination that

Product Name: Sorter for Coin Selectors

Product Description: SRT 8x0

complies with the following laws, norms, safety regulations and guidelines:

-89/336/EWG	EMC Guideline
IEC 61000-6-1:1997	Electromagnetic compatibility
EN 61000-6-1:2001	Electromagnetic compatibility
DIN EN 61000-6-1:08/2002	EMC Part 6-1: Specific Basic Norm noise and disturbance immunity in living areas, work and business areas.

Date: 10.02.2003

Signatures:

Ch. Trenner
Managing Director

B. Weickmann
Development Manager