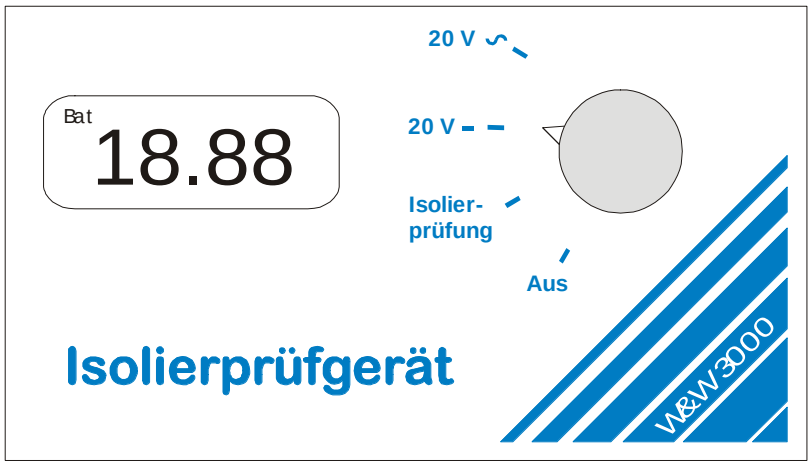
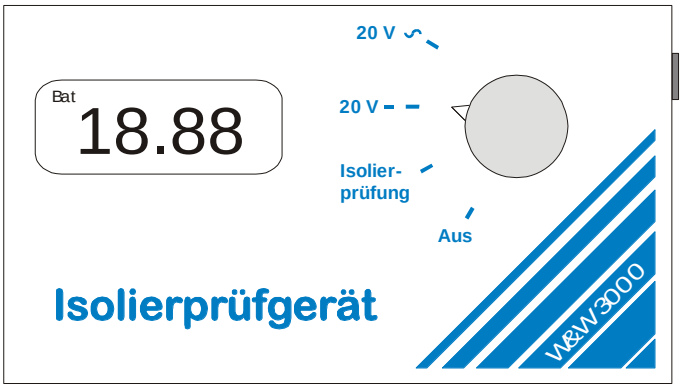
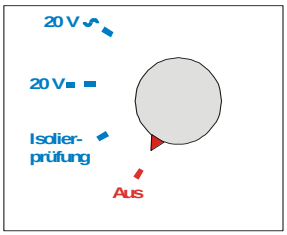
Instruction Manual W&W 3000



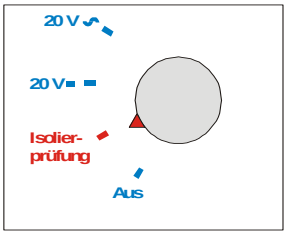


← Push button to turn on the lighting

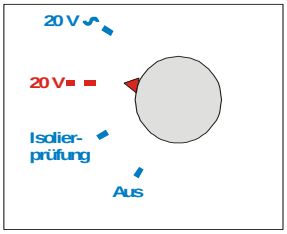
General instructions for use



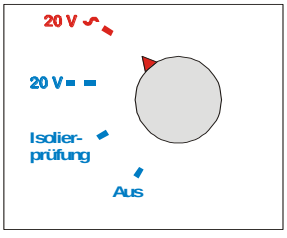
In this position the unit is turned off.



In this position the insulating test can be made.



In this position a direct current voltage measurement up to 20V can be made (accuracy 1%)
If the value is higher than 20V the overflow will be shown (1.)



In this position an alternating voltage measurement up to 20V can be made (accuracy 10% calibrated to 110Hz).
If the value is higher than 20V the overflow will be shown (1.)

If the display shows „Bat“ in the upper left corner, the batteries have to be changed.
(battery voltage 7.2V)

Lighting: The LCD – background lighting can be turned on with the push button located on the side. The additional consumption of electricity is 35mA. The lighting is automatically turned off when the unit is turned off.

Batteries: The battery case is on the backside of the unit. 9V batteries are required (alkali mangan).
The current drain is 14mA. The battery lasts about 12 hours until the voltage drops below 7.2V.
To save energy the unit should be turned off after each measuring.

Types of insulation: The unit is suitable for every type of insulation such as direct current voltage insulation,
alternating voltage insulation and
all others insulation.

Use: The insulation test unit W-W 3000 locates short-circuits of different insulations in either train rail, streetcar rail and turnout-insulations.

Functional-principle The unit sends a high frequency on the insulation circuit and calculates at the same time the signal`s error value by the use of a microprocessor.

Accuracy: The insulation fault can be located within a range of 10cm. The measurement is done fast and easy.

Range: The operating distance depends on the quality of the Earth resistance.
On average the operating distance is about 300m.
There are also problems much longer without insulation measurable, it must then the insulation on the entire length about every 50m measured.

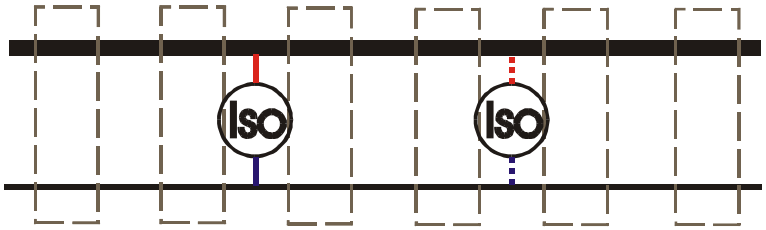
Insulation-test:

First, use voltage metering to find the insulation sector that is defective. Then start with the insulation measurement.

If both probes do not have any contact the unit will show overflow (1.)

Connect the probes at a distance between 2 to 30m to the grounded and insulated rail.

No feeder cables have to be disconnected.



If the value sinks under 7V, connect the probes in a shorter distance.

Measurement values between 2.00 – 4.00 V indicate a located error.
The error is located where the lowest value is shown.

Warning: If there is no short circuit on the insulation sector the unit W&W 3000 will show you a value of about 5-10V depending on the batteries condition. The value does not give you any declaration about the Earth resistance.

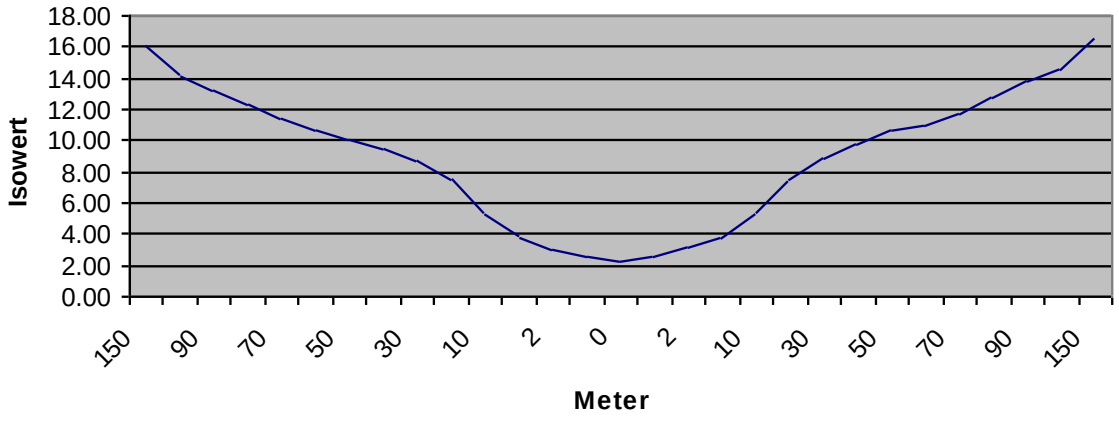
Recommendation: The sleeper (crosstie) showing the lowest value the holding down bolt has to be contacted with the insolated rail.

Advice: The unit can locate a possible short circuit. If there is a configuration because of a low Earth resistance. (e.g. through salting in winter), the Insolation Test Unit will show a high value. With salted rails, an error can not be clearly located.

Furthermore the general terms and conditions of Swisstraintech LLC (GmbH) 2.8.2007 shall be regarded.

Example of a measurement report

Distance to the failure location Meter	Indicated value of insolation
150	16.02
100	14.04
90	13.16
80	12.27
70	11.35
60	10.66
50	10.10
40	9.48
30	8.68
20	7.45
10	5.30
5	3.75
2	3.02
1	2.58
0	2.26
1	2.59
2	3.10
5	3.82
10	5.38
20	7.56
30	8.89
40	9.68
50	10.65
60	10.99
70	11.65
80	12.80
90	13.79
100	14.53
150	16.67



Insulated rail joint – Test:

To get precise information of the insulated rail joint`s condition or quality, a special unit called W&W 5000 was developed.

Indication	Quality of the insulated rail joint	~ value of resistance
10	very good	75 - 450 Ohm
9	very good	47 – 75 Ohm
8	good	30 – 47 Ohm
7	good	22 – 30 Ohm
6	sufficient	15 – 22 Ohm
5	narrow sufficient	10 – 15 Ohm
4	damaged	7 - 10 Ohm
3	damaged	5 - 7 Ohm
2	damaged	2 - 5 Ohm
1	damaged	0 - 2 Ohm