

white bream

LHW Simulator



White Bream Oud-Beijerland The Netherlands https://whitebream.com		
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Project:	M103	 * M 1 0 3 R P 0 0 6 *
Status:	Draft	

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I Preface

I.1 Disclaimer

White Bream products are not authorized for use in or in connection with surgical implants, or as critical components in any medical, nuclear, or aircraft or other transportation devices or systems where failure to perform can reasonably be expected to cause significant injury to the user, without the express written approval of an executive officer of White Bream. Such use is at buyer's sole risk, and buyer is responsible for verification and validation of the suitability of products incorporated in any such devices or systems. Buyer agrees that White Bream is not liable, in whole or in part, for any claim or damage arising from such use and shall have no obligation to warranty such products. Buyer agrees to indemnify, defend and hold White Bream harmless from and against any and all claims, damages, losses, costs, expenses and liabilities arising out of or in connection with buyer's use of White Bream products in such applications to the extent buyer has not obtained the express written approval of an executive officer of White Bream.

I.2 Trademarks & copyrights

Throughout this manual, the trade names and trademarks of various companies and products may have been used, and no such uses are intended to convey endorsement of or other affiliations with this manual or product. Any brand names or product names used within this manual are trademarks or registered trademarks of their respective holders.

I.3 Warranty

This product is warranted to be in good working order for a period of two years from the date of purchase. Should this product fail to be in good working order at any time during this period, we will, at our option, replace or repair it at no additional charge except as set forth in the following terms. This warranty does not apply to products damaged by misuse, modifications, accident or disaster.

I.4 Liability

White Bream assumes no liability for any damages, lost profits, lost savings or any other incidental or consequential damage resulting from the use of, misuse of, or inability to use this product. White Bream will not be liable for any claim made by any other related party.

1.5 Technical support

White Bream technicians and engineers are committed to providing the best possible technical support for our customers so that our products can be easily used and implemented. We request that you first visit our website at whitebream.com for the latest documentation, utilities and drivers, which have been made available to assist you. If you still require assistance after visiting our website then contact our technical support department by email at support@whitebream.com.



Warning

Warning messages in the manual may contain important information against product malfunction or safety information for the (end-)user.



Caution

Notices regarding proper use of the product and to warn the user about how to prevent damage to hardware or loss of data.



Anti-static Precautions

The internals of the product are made of static sensitive components. When disassembling the product, it is strongly recommended to use an anti-static bench mat and wrist strap. If this is not possible, at least make sure you always touch an exposed metal part, such as the shield of an connector, each time before you touch anything else inside.



ROHS - WEEE

White Bream products are manufactured using lead-free components and assembly processes. Please dispose of products according local waste regulations.

2 Description

Linear heatwire temperature detectors in automatic fire detection & alarm system use a couple of resistors in order to detect short circuit and open circuit conditions. This results in an acceptable range for an idle circuit or sensor and another range for activated circuits. This LHW simulator allows for easy switching between those resistance values.

Additionally, it can operate with 'hard' input voltages up to 24V for limited duration (1 minute) and is protected against inadvertent application of mains voltages. This protection resets automatically.

Wires are connected via spring loaded binding posts.

2.1 Functionality

- Six resistor values, tolerance $\pm 1\%$:
 1. 'Activated' values 100Ω and $1.5k\Omega$
 2. 'Normal' values $8k\Omega$ and $12k\Omega$
 3. Open circuit value $24k\Omega$
 4. Short circuit value 50Ω
- Spring-lock binding posts
- Input voltage $\leq 24VDC$, ≥ 1 min
- Protected against $240VAC$, ≥ 1 min
- Handheld enclosure $110 \times 66 \times 41$ mm

2.2 Protection

The device is protected against continuous application of 24Vdc voltages. A current of $\sim 0.5A$ is passes for roughly about one minute before the polyfuse intercepts and limits the current to a much lower level.

The device is also protected against inadvertent application of 240Vac mains voltage.

Allow for a 5 minute cool down period when either protection had been triggered.

2.3 Cautions



IEC 61010-1 requires the installer to check wiring for suitable ratings.

3 Operation

**ENSURE ALARM PANEL IS IN A LOCKOUT STATE
BEFORE DOING WORK ON ATTACHED CIRCUITRY!**

Connect the LHW Simulator to the alarm panel input port to be tested.

The panel should report circuit status according the switched resistance value on the LHW Simulator.

4 Specifications

4.1 Electronic

Parameter	Min	Typ	Max	Unit
Nominal input voltage		±3	±18	V
Peak input voltage operating		±24		V
Peak input voltage non-operating		240		Vac
Resistors				
Short circuit *	49.5	50.0	50.5	Ω
Alarm, min *	99.0	100	101	Ω
Alarm, max	1.49	1.50	1.52	kΩ
Idle, min	7.92	8.00	8.08	kΩ
Idle, max	11.9	12.0	12.1	kΩ
Open circuit	23.8	24.0	24.2	kΩ

Tolerance applicable at ambient temperature and more than 1 hour post protection engaged. Strongly affected by polyfuse over current protection element.

4.2 Connections

#	Name	Description	Signal
1	LOOP		
2	LOOP		

4.3 Environmental

Parameter	Min	Max	Unit
Operating temperature range	0	+40	°C
Short-term temperature range	-40	+85	°C
Non-operating temperature range	-40	+85	°C
Humidity	10	90	%RH
Ingress Protection	IP4X		

4.4 Dimensions

<TBA>

5 Maintenance & support

5.1 Repairs

The device has been designed to enable relative easy repair of protection components such as fuses, surge resistors and transient suppressors. As well as battery and connections. However, non-authorized repair is very likely to void our warranty!

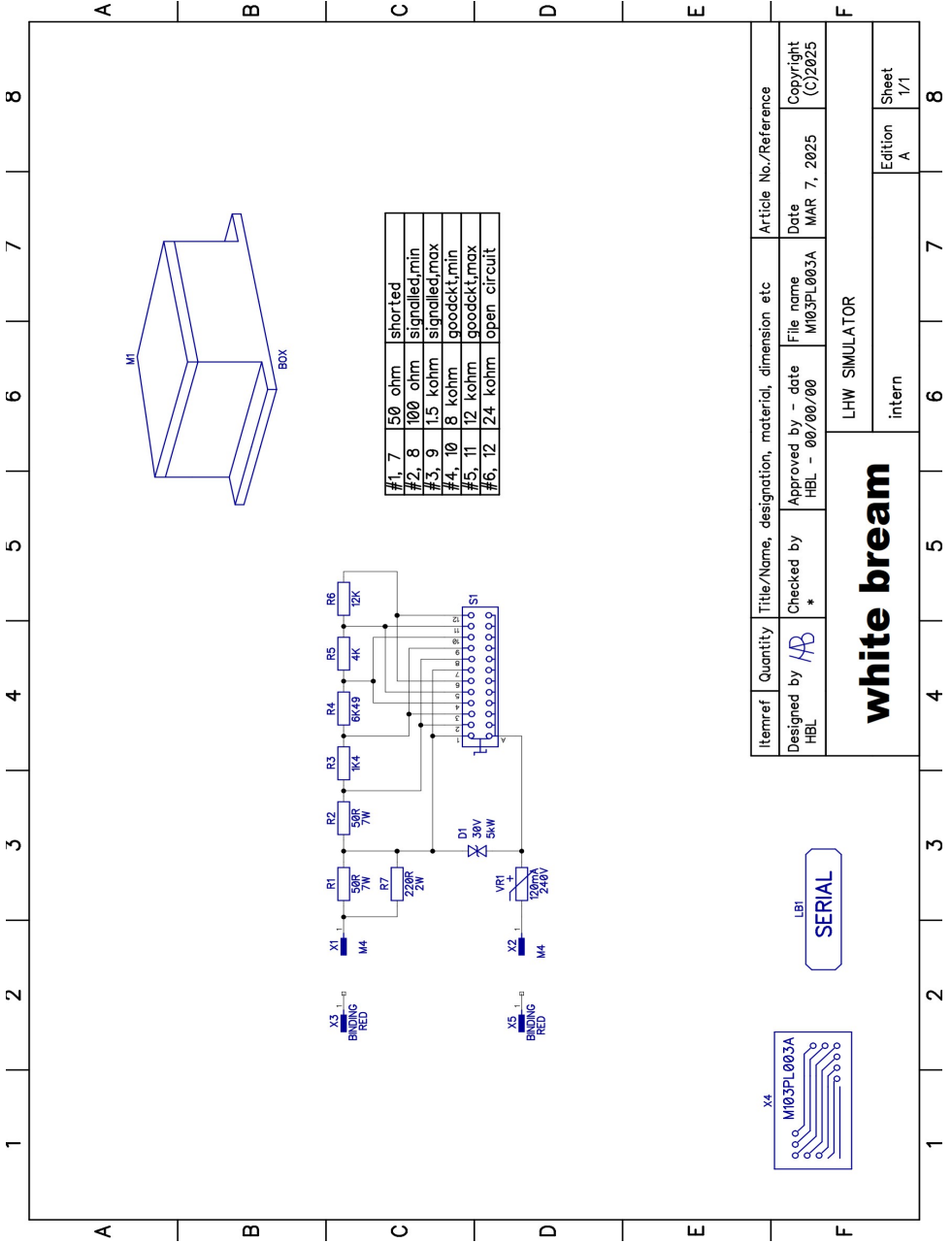
In case of doubt, please contact technical support.

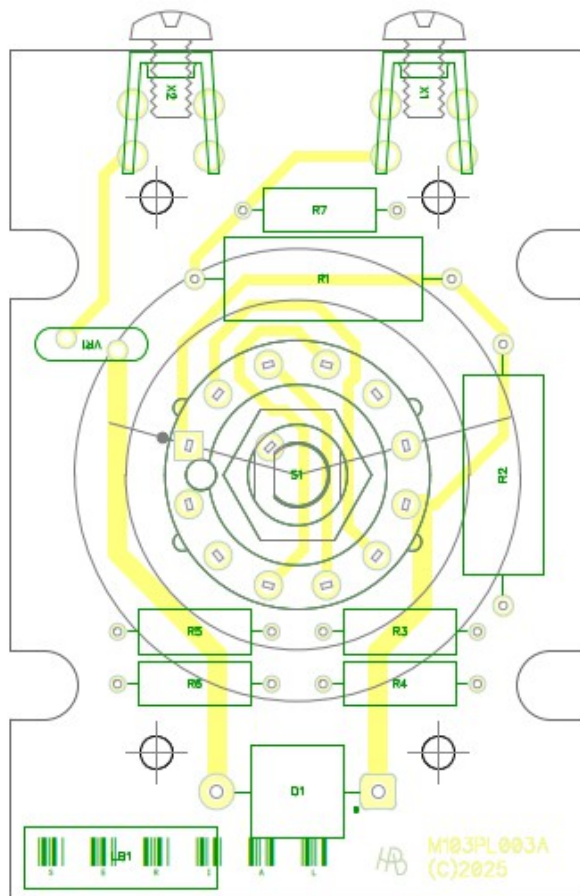
5.2 Schematic

Next page shows the schematic of the LHW Simulator.

5.3 Silkscreen

The page after that shows the PCB layout.
(Not to scale.)





6 Ordering information

Partno	Description	Revision
77-103-030	LHW Simulator	A, Mar 7, 2025

6.1 Hardware revision info

Rev	Date	Changes
A	Mar 7, 2025	First production release

7 Document revisions

7.1 Rev 1.0 (Mar 11, 2025)

Ref	Description
-	Initial version

Annex A: Declaration of Conformity for CE

The manufacturer hereby declares that this product is in accordance with the requirements of directive 2014/35/EU regarding low voltage equipment (LVD), directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS) and directive 2012/19/EU on waste electrical and electronic equipment (WEEE).

Requirements of directive 2014/30/EU regarding electromagnetic compatibility (EMC) are not applicable because the product is an inherently benign equipment.

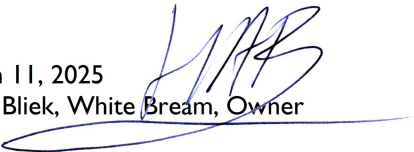
Manufacturer, facility: White Bream
L.J. Costerstraat 13d
3261 LH, Oud-Beijerland
The Netherlands

Product: LHW Simulator

Models: 77-103-03X

CE & RoHS Marking:  

March 11, 2025
Henk Blik, White Bream, Owner



This product has been found in conformity with directive 2014/35/EU (LVD) by testing and verification with the following standards:

- **EN 61010-1:2010/C1:2011** Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1: General requirements
- **EN 61010-2-201:2017** Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 2-201: Particular requirements for control equipment

This product has been found in conformity with directive 2011/65/EU (RoHS) by testing and verification with the following standards:

- **EN 63000:2018** Technical documentation for the assessment of electrical and electronic products with respect to the restriction of hazardous substances

Annex B: Declaration of Conformity for UKCA

The manufacturer hereby declares that this product is in accordance with the requirements of UK SI 2016 No. 1101 "Electrical Equipment (Safety) Regulations 2016", and UK SI 2012 No. 3032 "The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012".

Requirements of UK SI 2016 No. 1091 "Electromagnetic Compatibility Regulations 2016", are not applicable because the product is an inherently benign equipment.

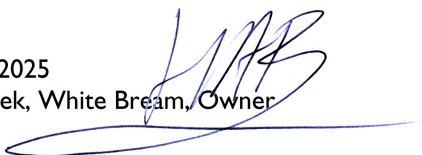
Manufacturer, facility: White Bream
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UKCA Marking: The UKCA marking consists of the letters 'UK' stacked above 'CA' in a bold, sans-serif font. To the right of this text is a crossed-out wheeled bin symbol, which is a standard icon for 'no incineration' or 'recycling'.

Mar 11, 2025
Henk Bliet, White Bream, Owner

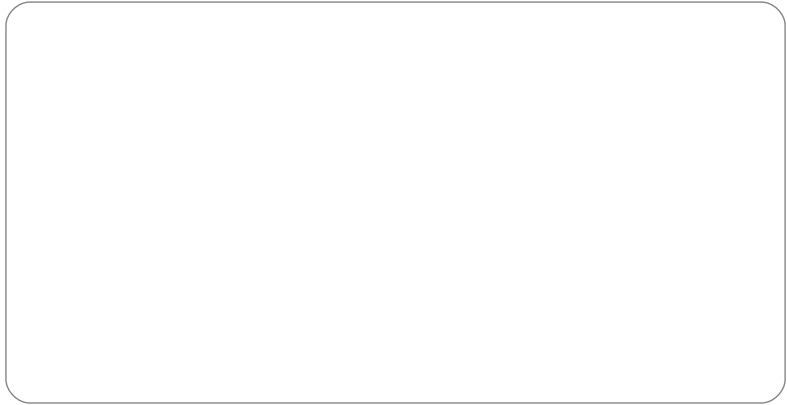
A handwritten signature in blue ink, appearing to read 'H. Bliet', is written over the printed name 'Henk Bliet, White Bream, Owner'. The signature is stylized and includes a long horizontal flourish at the bottom.

Annex C: Declaration of Conformity for FCC

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna
- Increase the separation between the equipment and receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help



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