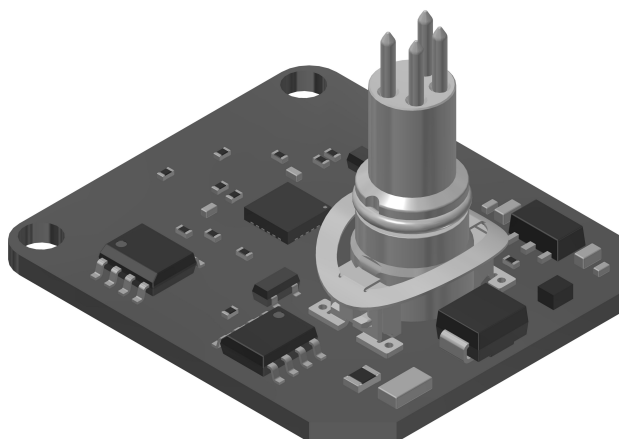


Circuit board for HLU LE-X (E)

Product documentation



Ambient temperature:	-10 to 60 °C
Protection class (in the installed state):	up to IP 67



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Table of Contents

1	Overview of circuit board HLU LE-X (E)	4
2	Parameters	5
2.1	General data.....	5
2.2	Electrical data.....	6
3	Dimensions	7
4	Installation, operation and maintenance information	8
4.1	Electrical connection.....	8

1 Overview of circuit board HLU LE-X (E)

Spare part for hydraulic locking units of type: HLU LE-X (E) in amusement rides.

Features and benefits

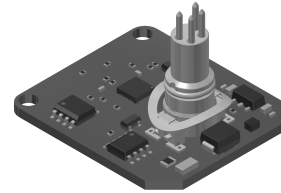
- Monitoring of cylinder leaktightness
- For evaluation and recording sensor data

Intended applications

- Amusement rides (e.g. roller coasters)

Order

- Order number: 014-3021-0
- Delivery time: on request



2 Parameters

2.1 General data

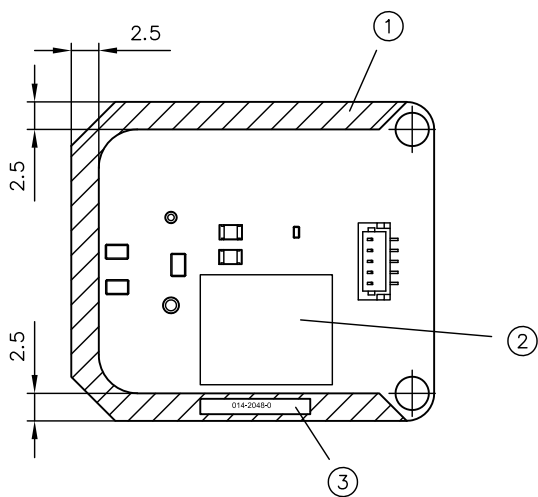
Conformity / applicable directives and standards	<ul style="list-style-type: none"> Declaration of incorporation according to Machinery Directive 2006/42/EC 	
	1907/2006/EC	REACH regulations
	2014/30/EU	EMC Directive
	UL approval	UL reference E516301
	2011/65/EU	RoHS directive
	IEC / EN 61000-4-2	ESD discharge
	IEC / EN 61000-6-4	EMC emissions
	IEC / EN 61326-1	General requirements
	IEC / EN 60068-2-27	Shock resistance
	IEC / EN 60068-2-6	Vibration resistance
	DIN EN 61131-2	Programmable controllers - Part 2: Equipment requirements and tests
	DIN EN 60664-1	Insulation coordination for equipment within low-voltage systems - Part 1: Principles, requirements and tests
	DIN EN 61140	Protection against electric shock - Common aspects for systems and equipment
	DIN EN 60529	Protection classes provided by the housing
Designation	Circuit board HLU1 (E) with software	
Design	Printed circuit board (PCB)	
Material	Composite plastic with copper tracks	
Attachment	Screw-on circuit boards Holes R: 2.5 mm (see Chapter 3.1)	
Tightening torque	9 ± 1 Nm	
Line connection	M8 plug connection	
Temperatures	Ambient conditions: -10 ... +60 °C	
Weight	= 0.05 kg	

2.2 Electrical data

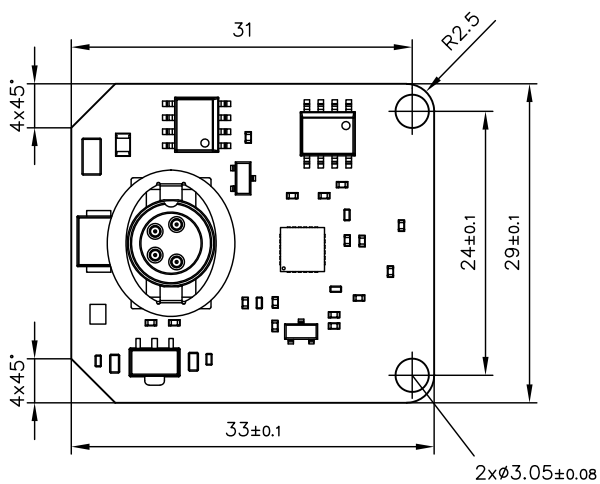
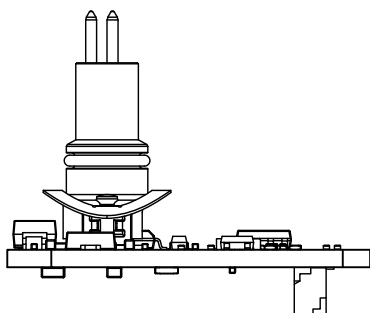
Actuation type	None
Connection type	M8 plug connection
Nominal voltage	24 V DC
Tolerance	+/- 10 % (residual ripple < 100 mV)
Nominal current	< 50 mA (w/o external switching load)
Voltage type	DC
Residual voltage at the switch output	< 2.5 V DC
Type of switch output (DIN EN 61131-2)	PNP short-circuit-proof - type 3 (24V DC)
Switching time	T_{ON} and T_{OFF} < 500 μ s
Duty cycle	100 %
Insulation (EN 60 664-1)	None
Polarity reversal protection	up to max. 30 V DC (integral)
Protection class (DIN EN 61140)	Protection class III / protection by low voltage
Protection classes (DIN EN 60529)	up to IP 67 in the installed state (coating for protection against environmental influences)
Coding E, PE	PE at HLU LE-X (E)

3 Dimensions

All dimensions in mm, subject to change.



- 1 Contact area in the electronics enclosure. Labelling is not permissible in this area
- 2 Adhesive label showing the following data:
 - Software version: X.Y.Z
 - Date of production: DD.MM.YYYY
- 3 HAWE material number



4

Installation, operation and maintenance information

Available for this product: assembly instructions with notes on

- intended use,
- operating and maintenance,
- Assembly information



DAMAGE

Assembly instructions for hydraulic locking unit HLU LE-X (E)

Screw fastenings on the cover and the earth cable must be visually checked as specified in the assembly instructions.

4.1 Electrical connection

M8 PIN allocation	PIN	Description	Specification
PIN side view 	1	Supply voltage	U = 24 V DC
	2	Digital input	
	3	GND	
	4	Digital output, maximum switching current	I _{max} = 50 mA (ohmic, inductive, lamp load)

Switch logic

Operating modes for leaktightness evaluation	Specification
Maintenance measurement: Parameter set 1	Digital input: DI = High
Quick measurement: Parameter set 2	Digital input: DI = Low

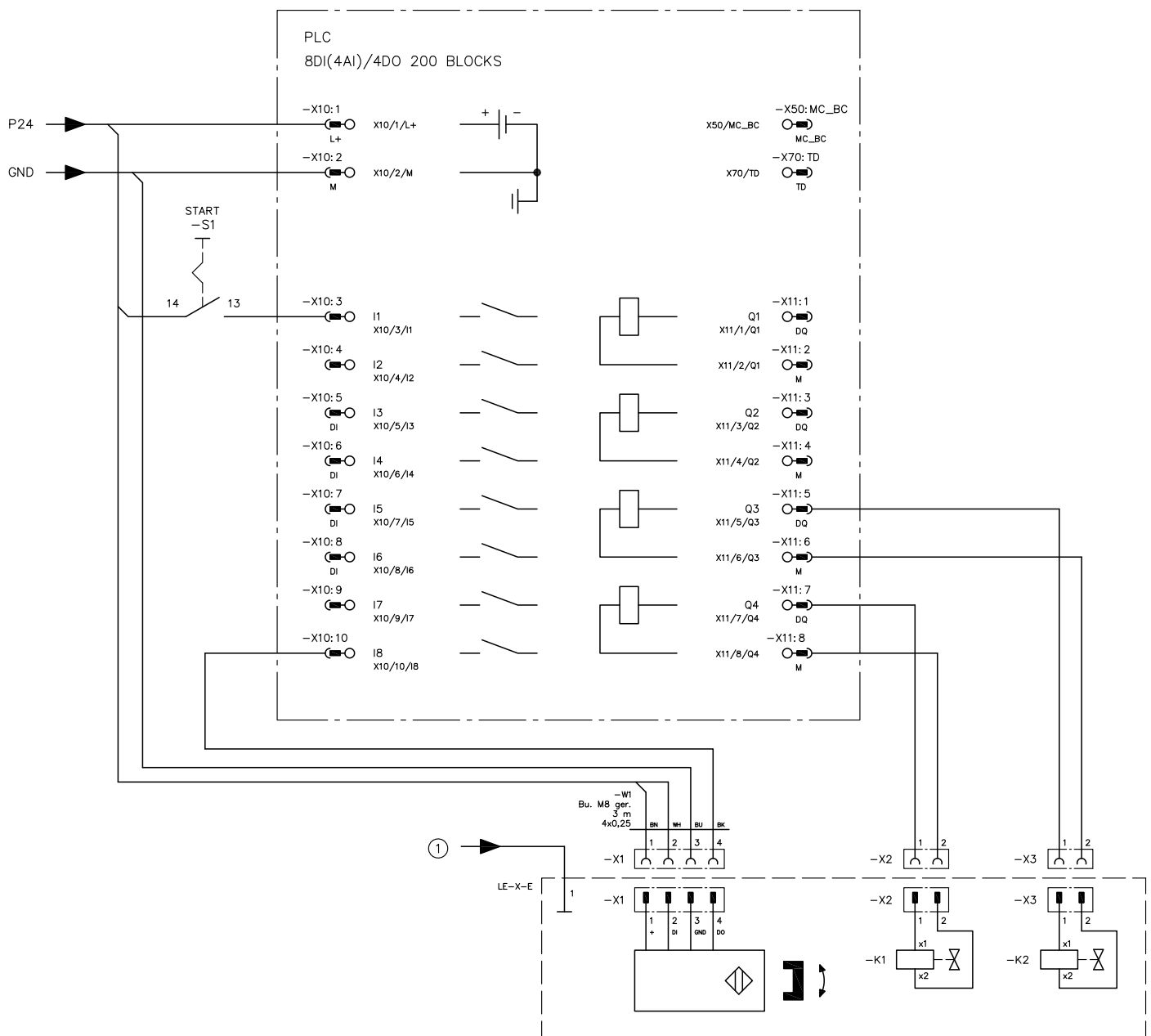
Decentralised control and process sequence software



DAMAGE

The central control unit is not part of the HAWE scope of delivery. Integration and control as the responsibility of the system operator.

Circuit example



1 Earth

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