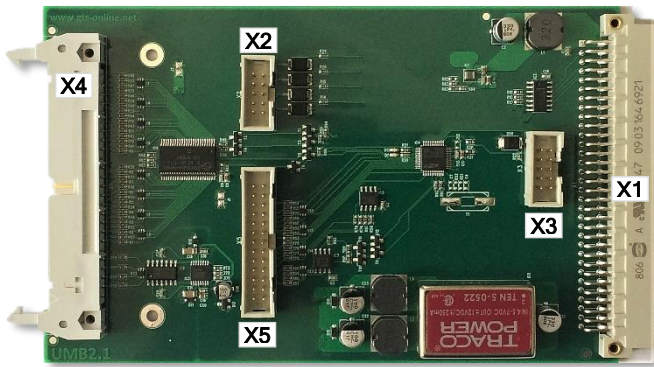


## Features

- 32 GPIOs
- 4 A/D converter with scope function
- I<sup>2</sup>C interface with hot-swap driver
- SPI-Interface
- 3.3V UART



UMC1 board

The UMC1 is a universal multifunction board used to test assemblies and devices. With a combination of digital and analogue functions, the board is suitable for a number of uses.

## Specification

Operating voltage	5V ± 0.25V
Current consumption	max. 350mA
GPIO	32 channels, 3.3V or 5V logic level (I/O expander CY8C9540A)
A/D converter	4 channels, ±3V, ±6V, 0-12V, ±12V, 12-bit resolution
Scope function	800 Hz to 15 KHz with 4 channels or 17/3, 19/2, 21/4 storage for 100,000 12-bit readings
Interfaces	I2C, SPI, UART1 with 3.3V logic level
Interface	RS-422 Guardian log (UART0)
X1 connector	X2 64-pin multipole connector DIN 41612, system connector
X2 connector	10-pin male connector RM 2.54, RS-422 transmission
X3 connector	10-pin header RM 2.54 API
X4 connector	50-pin male connector RM 2.54, 90°, GPIO and ADC
X5 connector	26-pin male connector RM 2.54
Dimensions	160 x 100 mm

## Application

- Standard test tasks
- Communication with the DUT or test adapter components via I<sup>2</sup>C, SPI or UART
- Testing devices with three-phase voltage monitoring
- Standalone test devices without test PC

## Addressing

The standard base address is 25 and is configured by the software. WinGuard supports up to 4 boards.

## Pinout

### X1, system connector

Pin	Signal
AC1	+5 V
A2	GND
C2	RXD +
A3	RXD -
C3	GND
A4	TXD +
C4	TXD -
AC5	GND
AC32	GND

### X2, RS-422

Pin	Signal
1	+5 V
2	+5 V
3	GND
4	RXD-
5	GND
6	RXD+
7	GND
8	TXD+
9	GND
10	TXD-

### X5, interfaces

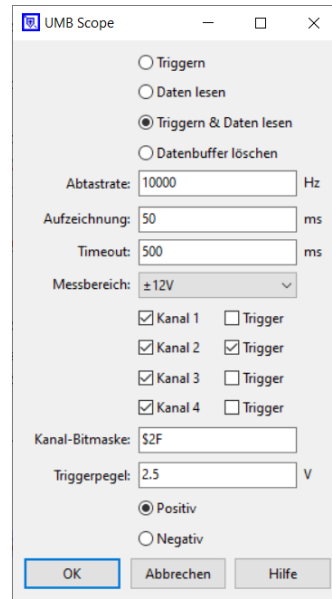
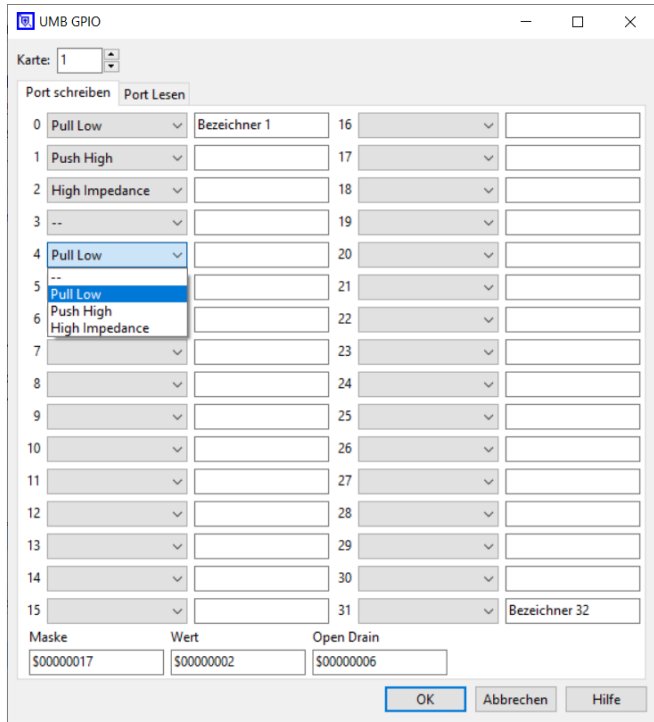
Pin	Signal
1	NC
2	NC
3	I2C_SDA *
4	GND
5	I2C_SCL*
6	GND
7	SPI_SCK *
8	GND
9	SPI_MOSI *
10	SPI_MISO *
11	SPI_NSS1 *
12	GND
13	SPI_NSS2 *
14	SPI_NSS3 *
15	SPI_NSS4 *
16	SPI_NSS5 *
17	SPI_NSS6 *
18	SPI_NSS7 *
19	UART1_RX *
20	GND
21	UART1_TX *
22	GND
23	3.3 V
24	3.3 V
25	5.0 V
26	5.0 V

\* with 100Ω series resistance

### X4, GPIO and ADC

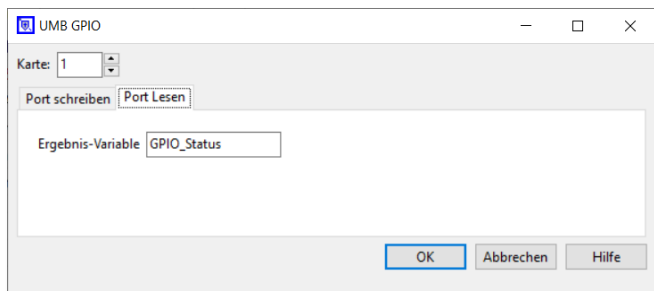
Pin	Signal	Pin	Signal
1	NC	2	NC
3	ADC0	4	GND
5	ADC1	6	GND
7	ADC2	8	GND
9	ADC3	10	GND
11	GND	12	GND
13	GPIO0	14	GPIO1
15	GPIO2	16	GPIO3
17	GPIO4	18	GPIO5
19	GPIO6	20	GPIO7
21	GPIO8	22	GPIO9
23	GPIO10	24	GPIO11
25	GPIO12	26	GPIO13
27	GPIO14	28	GPIO15
29	3.3 V	30	3.3 V
31	GND	32	GND
33	GPIO16	34	GPIO17
35	GPIO18	36	GPIO19
37	GPIO20	38	GPIO21
49	GPIO22	40	GPIO23
41	GPIO24	42	GPIO25
43	GPIO26	44	GPIO27
45	GPIO28	46	GPIO29
47	GPIO30	48	GPIO31
49	5.0 V	50	5.0 V

## WinGuard



The UMC1 can record up to 4 analogue signals at the same time. The WinGuard scope can be used to display and evaluate the data. More information on this process can be found in the WinGuard manual.

Individual GPIOs are easiest to control using the dropdown menu, whereby '-' indicates that no changes have been made. All channel statuses can be viewed below in the fields 'Mask', 'Value' and 'Open Drain'. If, for example, 8 bits need to be controlled as ports in a loop from 0 to 255, the corresponding variables can be entered into the fields.



The 'Read Port' tab is used to assign the high/low status of the digital inputs to the specific variables.