GTS TEST SOLUTIONS GUARDIAN TEST SYSTEM Item no. 21325

UMB2

Features

- Universal controller board
- 24 GPIOs
- 10-bit ADC
- I2C, SPI and 2x UART
- Colour sensor retrieval

The UMB2 board was developed to provide the basis for various applications. The controller's GPIOs have a logic level of 3.3V and are tolerant up to 24V. 8 of the pins can be used as analog inputs. The controller's UART0 communicates with the WinGuard software on the test PC via a RS-422 level converter. Corresponding WinGuard script commands are available for using the I²C, SPI or UART2 interfaces

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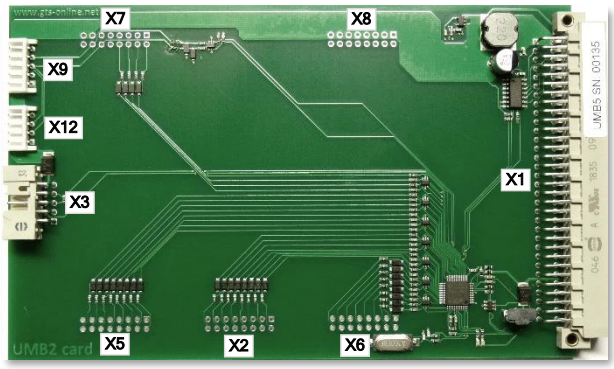
UMB2 board



Application

- Testing coloured LEDs with VEML6040 colour sensors In conjunction with an I²C multiplexor extension, up to 16 sensors can be connected to one UMB2 board. The WinGuard software contains a corresponding GUI for measuring the brightness and colour.

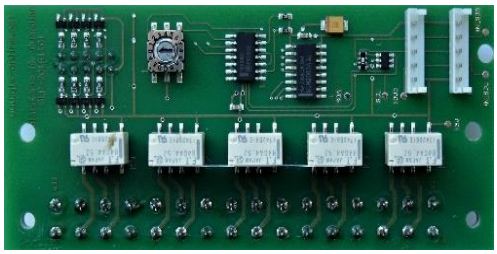
- Control of up to 4 relay modules via I²C.

- Testing of components with I²C or SPI connections.

- Implementation of customer-specific modifications 5 male connectors can be installed on the board for inserting a PCB, where necessary. This provides users with an easy way to integrate matching circuits, etc., into the test system.

Addressing

The board address is written onto the flash memory by the software. At address 25, the firmware acts as a controller with the features described here. At address 248. The controller controls the relay module of the Guardian System. Please read the data sheet. for more information on the relay modules.



Relay module

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Specification

Current consumption	max. 80mA
Dimensions	160 x 100 mm
Interface	RS-422 with Guardian log
X1	System connector, 64-pin multipole connector DIN 41612
X2	Port1, 16-pin header RM 2.54 (optional)
X3	Programming plug, 10-pin header RM 2.54
X5	Port2, 16-pin header RM 2.54 (optional)
X6	Port3, 16-pin header RM 2.54 (optional)
X7	3.3V, 5V, I2C, SPI, 16-pin header RM 2.54 (optional)
X8	5V and GND, 16-pin header RM 2.54 (optional)
X9	Connector for relay module, JST B5B EH
X12	Connector for colour sensors, JST B4B EH

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

Pin	Signal
2	Port1, Bit0
4	Port1, Bit1
6	Port1, Bit2
8	Port1, Bit3
10	Port1, Bit4
12	Port1, Bit5
14	Port1, Bit6
16	Port1, Bit6
Pin 1,3,5,7,9,11,13,15 = NC	

Pinout

X5

Pin	Signal
2	Port2, Bit0
4	Port2, Bit1
6	Port2, Bit2
8	Port2, Bit3
10	Port2, Bit4
12	Port2, Bit5
14	Port2, Bit6
16	Port2, Bit6
Pin 1,3,5,7,9,11,13,15 = NC	

X6

Pin	Signal
2	Port3, Bit0
4	Port3, Bit1
6	Port3, Bit2
8	Port3, Bit3
10	Port3, Bit4
12	Port3, Bit5
14	Port3, Bit6
16	Port3, Bit6
Pin 1,3,5,7,9,11,13,15 = NC	

Pinout

X7

Pin	Signal
1	NC
2	SPI_CLK
3	NC
4	SPI_MISO
5	NC
6	SPI_MOSI
7	NC
8	SPI_NSS
9	3.3 V
10	GND
11	3.3 V
12	I2C_SCL
13	5 V
14	I2C_SDA
15	5 V
16	GND

X8

Pin	Signal
1,3,5,7,9,11,13,15	5 V
2,4,6,8,10,12,14,16	GND

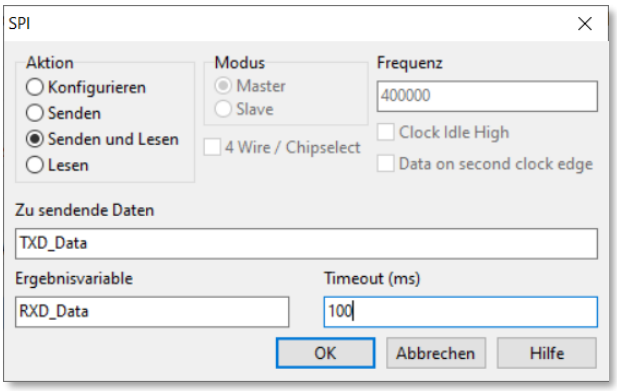
X9, connector for relay module

Pin	Signal
1	5 V
2	3.3 V
3	I²C SCL
4	I²C SDA
5	GND

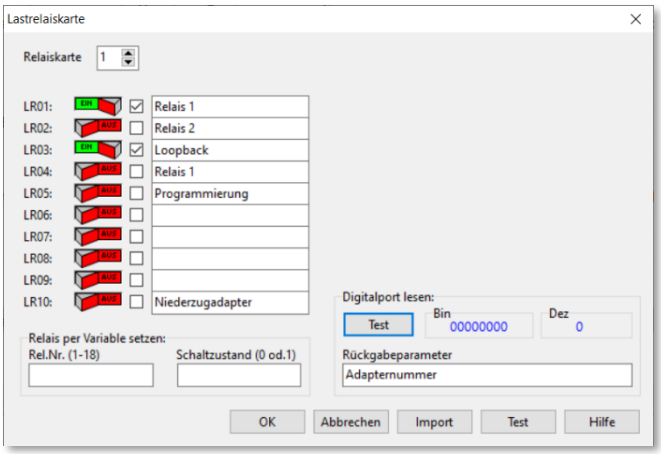
X12, connector for colour sensors

Pin	Signal
1	3.3 V
2	I²C SCL
3	I²C SDA
4	GND

WinGuard



Dialog box to control the SPI Interface



Dialog box to control the relay boards

More information on this process can be found in the WinGuard documentation. I²C and UART1 are controlled with low-level bus commands, dialogs are prepared.

The ‘Colorimeter’ command can be used to retrieve up to 16 colour sensors. More information on this process can be found in the WinGuard documentation.