# WC-8 — User's manual
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## Features

- 8 isolated binary inputs

- 24 V, 110 V or 220 V input voltage

- BUSMAT bus

## 1 Introduction

The WC-8 is an optically isolated 8 digital inputs card with a BUSMAT bus interface.

The WC-8 card is configured by four jumpers that selects four least significant I/O port address bits. Each device must have an unique address on a single BUSMAT bus. Older cards have only one jumper.

### 1.1 New revisions

This is the revision 0.0 of this specification. The first number is the major revision number. The major revision number identifies the hardware revision. The second number is the minor revision. This number identifies the version of the documentation of for the same hardware.

Latest revision of this document is available at `http://www.microster.pl/doc/wc8`.

### 1.2 Copyright

## 2 Ordering guide

The WC-8 card is available in the following versions:

| Model | Bus | No. Inputs | Input voltage |
|-------|-----|------------|---------------|
| WC8-24 | BUSMAT | 8 | 24 V DC |
| WC8-110 | BUSMAT | 8 | 110 V DC |
| WC8-220 | BUSMAT | 8 | 24 V DC |

## 3 Technical specifications

| | |
|---|---|
| Bus interface | BUSMAT |
| Power supply voltage | 5 V ±5% |
| Number of inputs | 8 |
| Inputs type | DC |
| Inputs current flow direction | sink |
| Inputs voltage | 24 V or 110 V or 220 V |
| Inputs voltage tolerance | ±35% |
| Inputs current | 3 mA to 6.5 mA |
| Inputs isolation | ≥ 1000 V |

## 3.1 Absolute Maximum Ratings

| Parameter | Min | Max | Unit |
|---|---|---|---|
| Supply voltage | -0.5 | 6.0 | V |
| Input voltage | | | |
| 24 V | 0 | 32 | V |
| 110 V | 0 | 150 | V |
| 220 V | 0 | 300 | V |
| Operating temperature | 5 | 60 | °C |
| Storage temperature | -40 | 85 | °C |

## 3.2 Digital inputs recommended operating conditions

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| 24 V Low-level input voltage | 0 | 0 | 4 | V |
| 24 V High-level input voltage | 26 | 24 | 30 | V |
| 110 V Low-level input voltage | 0 | 0 | 20 | V |
| 110 V High-level input voltage | 72 | 110 | 150 | V |
| 220 V Low-level input voltage | 0 | 0 | 40 | V |
| 220 V High-level input voltage | 145 | 220 | 300 | V |

## 3.3 I/O connector

The WC-8 card I/O connector is presented in Figure 1.

| Pin | Description |
|---|---|
| 1 | GND |
| 2 | GND |
| 3 | Binary Input 0 |
| 4 | Binary Input 1 |
| 5 | Binary Input 2 |
| 6 | Binary Input 3 |
| 7 | Binary Input 4 |
| 8 | Binary Input 5 |
| 9 | Binary Input 6 |
| 10 | Binary Input 7 |

Figure 1: WC-8 I/O connector.

# 4 Host interface

The WC-8 card is visible from host as a single I/O port on a BUSMAT bus. The I/O port address is configurable by jumpers in `0xfd80` to `0xfd8f` range.

## 4.1 Binary Input Register

| | |
|---|---|
| I/O address | `0xfd80` to `0xfd8f` |
| Width | 8 bit |
| Type | RO |
| Reset value | — |

| 7 | 6 | 5 | 4 | 3 | 2 | 1 | 0 |
|---|---|---|---|---|---|---|---|
| D7 | D6 | D5 | D4 | D3 | D2 | D1 | D0 |
| RO | RO | RO | RO | RO | RO | RO | RO |

Binary Input Register Bit Descriptions

| Bit | Name | Description |
|---|---|---|
| 7–0 | Dn | **Digital Input n value**. The `Dn` bit shows the negated logical value of n-th input signal. The bit value is equal to 0 if the voltage is applied to digital input. It is equal to 1 otherwise. |