

RTU513 Remote Terminal Unit DataSheet

Digital Input 16DIM10

Application

The binary input board 16DIM10 is used for the isolated input of up to 16 binary process signals. Scanning and processing of the inputs are executed with the high time resolution of 1ms. Allocation of an input to a processing function can be done according to the rules of configuration. The board 16DIM10 can process the following types of signals:

- 16 single indications with time stamp
- 8 double indications with time stamp
- 2 digital measured values with 8 bit
- 1 digital measured value with 16 bit
- 16 pulse counters



Characteristic

Eight inputs each form a group with a common return. The 16 inputs form two groups. The inputs are potentially isolated by means of optocouplers. The board allows process signal voltages from 24 to 60 VDC. The input circuit is dimensioned in that way, that current regulative diodes keep the signal current constant.

The board has sixteen light emitting diodes to indicate the signal-state. The LEDs are organized in two columns on the front plate. The LED follows directly the input.

The binary input board 16DIM10 can execute the following processing functions for the different types of signals:

Characteristic

The binary input board 16DIM10 can execute the following processing functions for the different types of signals:

- Digital filtering to suppress contact bounce
- Suppression of technologically caused chattering signals
- Consistency check for all binary input Intermediate position suppression and monitoring for double indications
- Channels allocated to digital measured values
- Summation of increment pulses to form counter values in 31 bit counter value registers
- Relocation of count values into other relocation registers on request

The 16DIM10 board has a buffer which allows the temporary storage of 50 time-stamped event messages in chronological order designated for transmission to the communication unit. The micro-controller on the board processes all time-critical tasks of the parameterized processing functions. Moreover it carries out the interactive communication with the PKS RTU513 system bus. All configuration data and processing parameters are loaded from the communication unit via the PKS RTU513 system bus.

The board is equipped with a serial interface to the PKS RTU 513 system bus. This board can't be used in the basic-Subrack of a RTU513 system (parallel system bus).

During initialization and operation the board carries out a number of tests. If a fault occurs it is reported to the

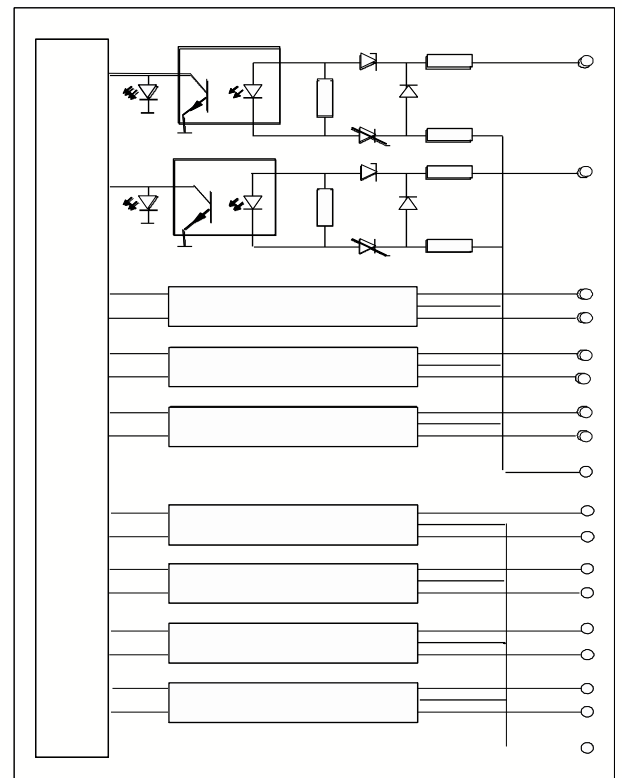


Fig. 1: Block diagram Binary Input Module 16DIM10

Characteristic

communication unit. All fault conditions impairing the function of the board are displayed as common fault signal with a light emitting diode (ST) on the front panel. A failure of the board is detected by the communication unit.

Signaling

The 16DIM10 has sixteen yellow light emitting diodes (LEDs) on the front plate, which indicate the state of the sixteen inputs. It means:

- LED ON Input: 24...60 V DC
- LED OFF Input: 0 V DC

The LED's indicates the signal after the conversion by the optocoupler that means they follow the signal directly. The board monitors and checks its functionality as well as the dialog via the peripheral bus. Detected errors are indicated and/or transmitted by the board:

- By the red LED "ST" on the front plate
- By diagnostic messages

The "ST" LED indicates board errors or peripheral bus errors. The "ST"-LED indicates:

- Board runs initialization procedure
- Board is doing a cold- or warm start
- Board has detected a memory error (RAM or EPROM)
- Micro-controller faulty
- No dialog via the peripheral bus for at least 2 minutes. The board is not polled by the PBP of CMU.

Setting

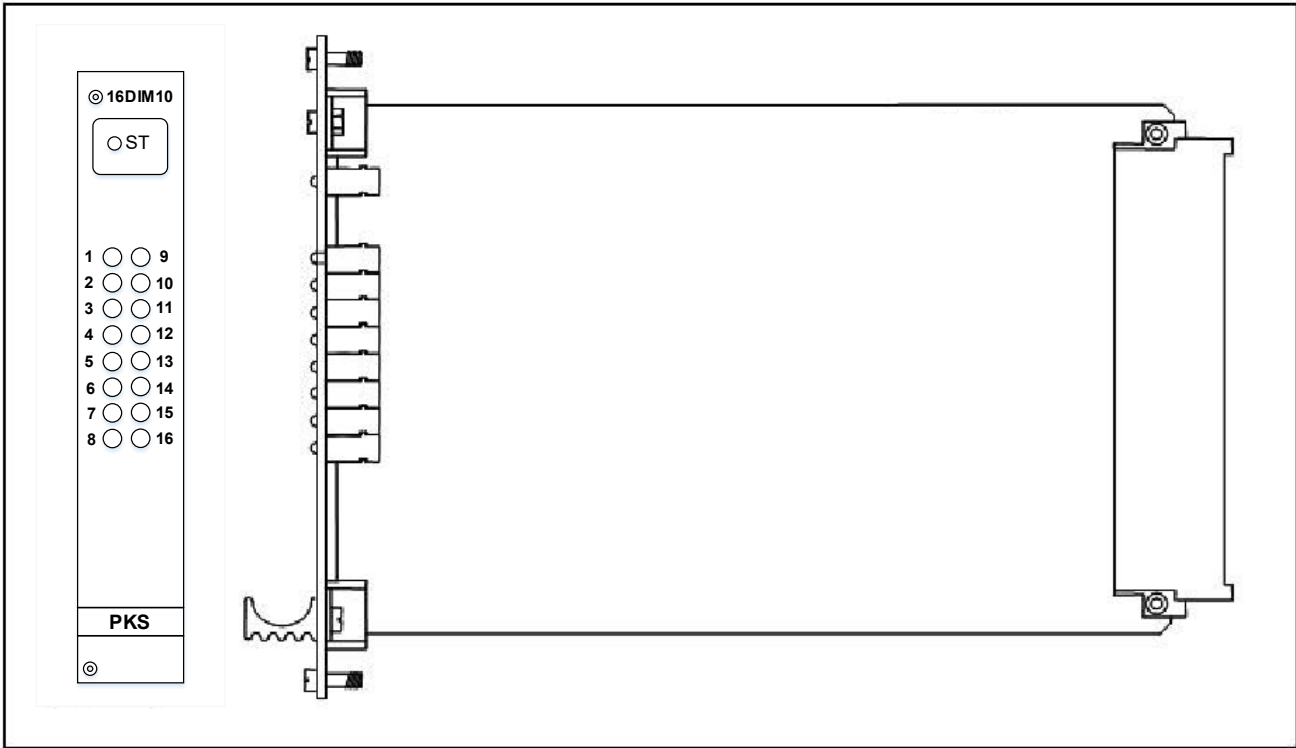


Fig.2: Board layout with setting positions

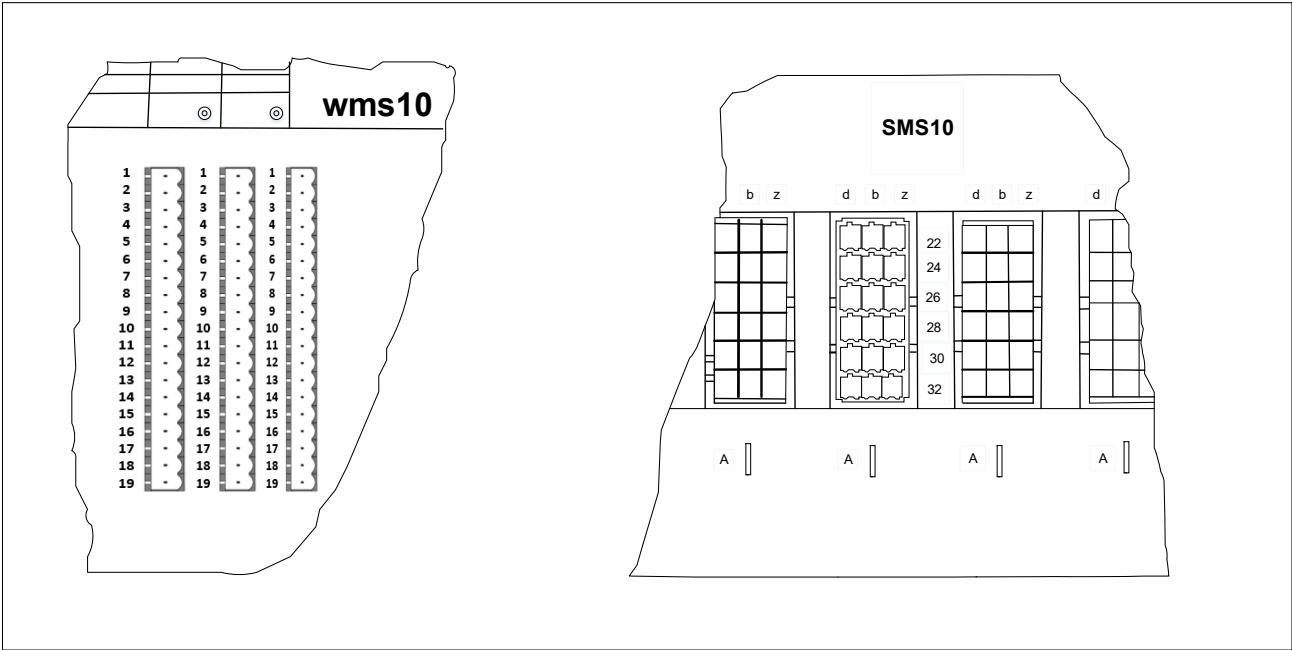


Fig. 3: Placement of signal terminal connectors on subracks

Setting

WMS10	SMS10 Sub-connector			Signal Identification	
				Identification	Meaning
1			z32	E01	Binary input 1 +
2		b32		E02	Binary input 2 +
3	d32			E03	Binary input 3 +
4			z30	E04	Binary input 4 +
5		b30		E05	Binary input 5 +
6	d30			E06	Binary input 6 +
7			z28	E07	Binary input 7 +
8		b28		E08	Binary input 8 +
9	d28			E09	Binary input 9 +
10			z26	E10	Binary input 10 +
11		b26		E11	Binary input 11 +
12	d26			E12	Binary input 12 +
13			z24	E13	Binary input 13 +
14		b24		E14	Binary input 14 +
15	d24			E15	Binary input 15 +
16			z22	E16	Binary input 16 +
17	A			A	
18		b22		W01	Connection return input 1 to 8 -
19	d22			W02	Connection return input 9 to 16 -
The pin configuration of SMS10 Subrack corresponds to the pin configuration of the board connector					

Table 1: Subrack terminal connection: 16DIM10

Signaling

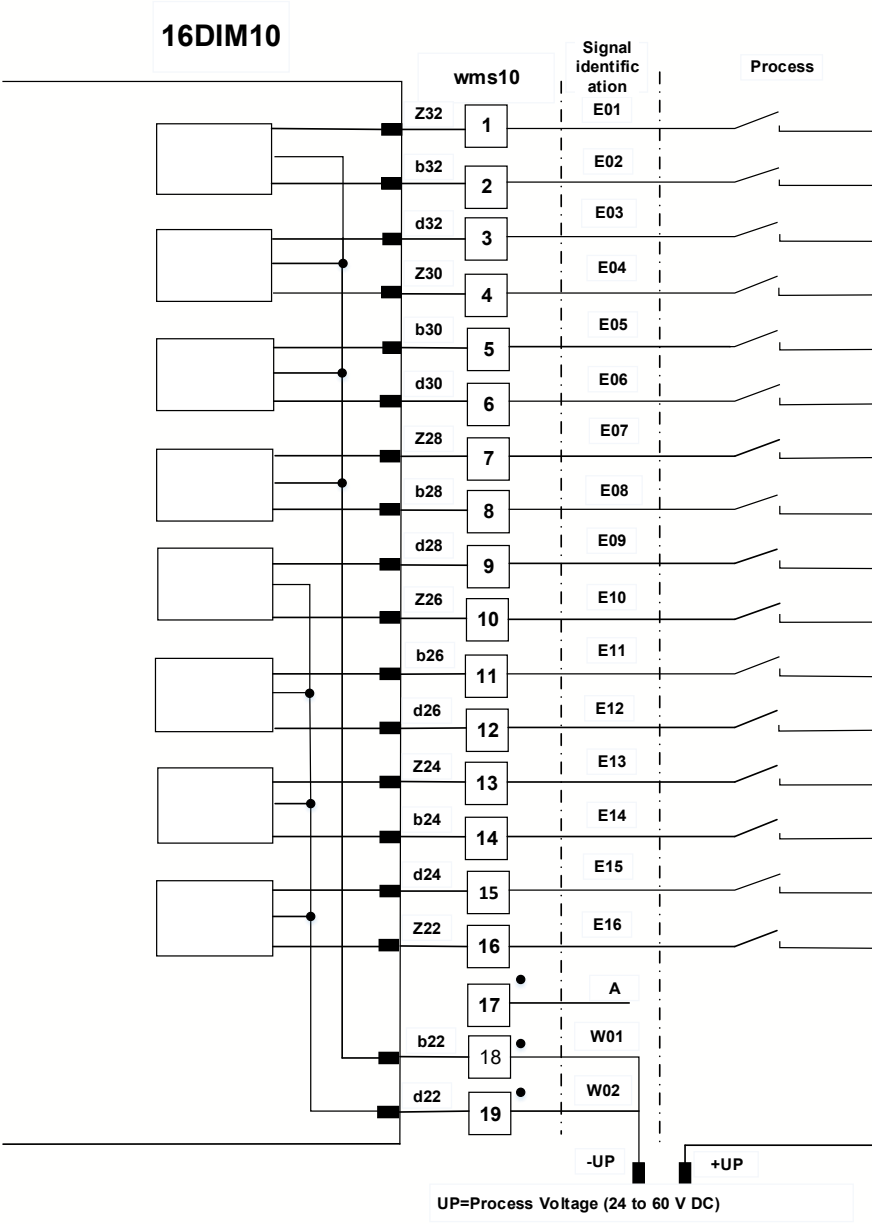


Fig. 4: Pin assignment WMS10

Technical Data

In addition to the PKS RTU 513 general technical data, the following applies:

Input channel

Inputs	16, in 2 groups of 8 with common return per group
Input voltage	24, 48, 60 V DC
Input current	Typically. 2 mA for 24 to 60 V DC

Power Supply

Supply	5 V / 190 mA
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Mechanical Layout

Printed circuit board	3HE, Euro card format (160 x 100)
Front panel	4R, 1 Slot (20 mm)
weight	approx. 0.2 kg

Connection Type

Connector	Indirect, 48 pole Type F DIN 41612
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Test Voltage

AC Test Voltage EN 61000-4-16 IEC 60870-2-1 (class VW3)	2,5 kV, 50 Hz Test duration: 1 min
Impulse Voltage with stand test IEC 60255-5 IEC 60870-2-1 (class VW 3)	5 kV (1,2 / 50 µs)

Immunity Test

Electrostatic discharge Immunity Test IEC 61000-4-2 (level 3)	6 kV Contact 8 kV Air Performance criteria A
Radiated Radio-Frequency Electromagnetic Field Immunity Test IEC 61000-4-3 (level 3)	10 V/m Performance criteria A
Immunity to Electrical Fast Transient / Burst IEC 61000-4-4 (level 3)	2 kV Performance criteria A
Surge Immunity Test IEC 61000-4-5 (level 3)	2 kV Performance criteria A
Immunity to Conducted Disturbances, induced by Radio-Frequency Fields IEC 61000-4-6 (level 3)	10 V Performance criteria A

Environmental conditions

Temperature	-10 ... 65 °C
Relative humidity	5 ... 95 % (non condensing)