

INTELART

IM210 V1.0

Digital Input Module

User Manual

www.intelart.ir

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Warning notice system

This manual contains notices you have to observe in order to ensure your personal safety, as well as to prevent damage to property. The notices referring to your personal safety are highlighted in the manual by a safety alert symbol, notices referring only to property damage have no safety alert symbol. These notices shown below are graded according to the degree of danger.

DANGER

indicates that death or severe personal injury will result if proper precautions are not taken.

WARNING

indicates that death or severe personal injury may result if proper precautions are not taken.

NOTICE

indicates that property damage can result if proper precautions are not taken.

Qualified personnel

The product/system described in this documentation may be operated only by personnel qualified for the specific task in accordance with the relevant documentation, in particular its warning notices and safety instructions.

Qualified personnel are those who, based on their training and experience, are capable of identifying risks and avoiding potential hazards when working with these products/systems

Contents

Warning notice system I

Qualified personnel..... I

1 Technical Specifications 1

 1.1 Hardware Parameters 1

2 Configurations..... 3

 2.1 Digital Inputs 3

3 Address Space 4

4 Diagnostic and Wiring..... 5

5 Dimensional drawing 7

1 Technical Specifications

1.1 Hardware Parameters

The following table specifies the hardware information of the module.

Table 1 Hardware parameters

Digital Inputs	Inputs count	16
	Type of digital input	Isolated transistor (both sinking and sourcing)
	Number of inputs group	4
	Group 0 distribution	COM0, DI00, DI01, DI02, DI03
	Group 1 distribution	COM1, DI04, DI05, DI06, DI07
	Group 2 distribution	COM2, DI08, DI09, DI10, DI11
	Group 3 distribution	COM3, DI12, DI13, DI14, DI15
	Type of input voltage	DC
	Rated voltage	24V
	For signal "0"	-30 to 11 V
	For signal "1"	12 to 30 V
	Power consumption for signal "1"	72mW
	Configurable input delay	Yes. 1, 2.5, 7, 12, 20 ms
	Input impedance	8kΩ
	Response time from "0" to "1"	20μs
	Response time from "1" to "0"	40μs
	Alternate Functions	No
Stop Actions	No	
Dimensions	Width	30mm
	Height	102mm
	Depth	58mm
Ambient Conditions	Storage temperature	-15 to 75 °C
	Operating temperature	0 to 55 °C

Miscellaneous	Weight	Approx. 90g
	Power LED	Yes. Green LED
	Diagnostic LED	Yes. Yellow LED

2 Configurations

2.1 Digital Inputs

All digital inputs have a configuration for the input delay. The default value of the input delay is 0ms. The input delay is applicable to eliminate the bouncing effect of a mechanical switch.

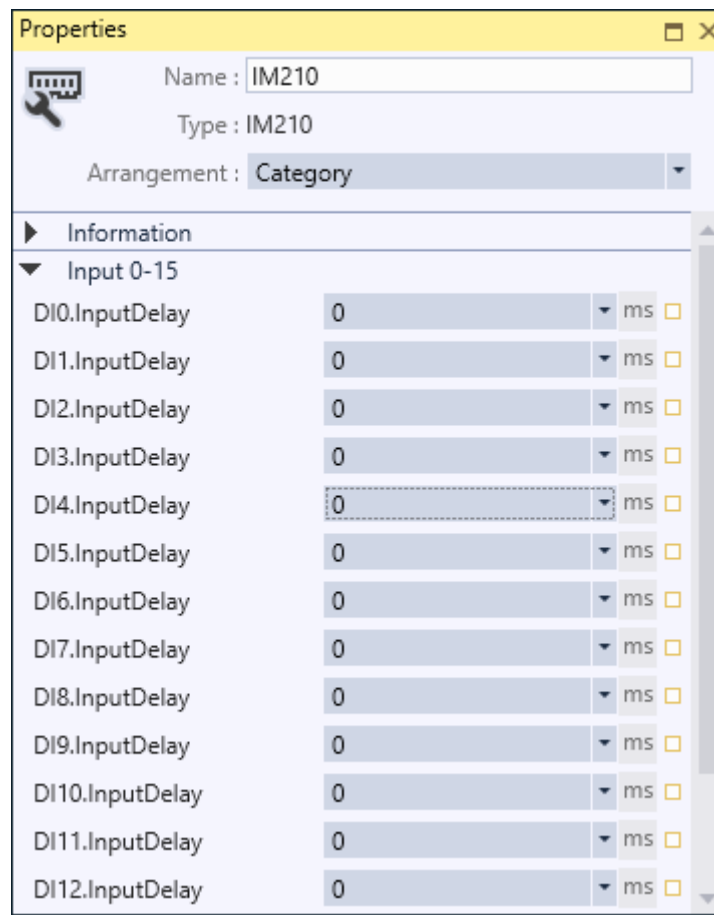


Figure 1 Properties of digital inputs

The inputs of the module have no alternate function.

3 Address Space

The value of input channels and output channels and some configurations will be accessible via an address space. There are bunch of predefined mapped tags in order to read or write a value in the address space. The following table illustrates the type and purpose of each mapped tag.







Table 2 Mapped tags of parameters in the address space

Category	Name	Data Type	Address	Function
Input Space (I)				
Digital Inputs	DI00 ⋮ DI07	BOOL	%I0.0 ⋮ %I0.7	Gets the value of channel when its alternative function is set to "None"
	DI00_07	BYTE	%IB0	A wrapper to get first 8 digital input channel values as a byte
	DI08 ⋮ DI15	BOOL	%I1.0 ⋮ %I1.7	Gets the value of channel when its alternative function is set to "None"
	DI08_15	BYTE	%IB1	A wrapper to get second 8 digital input channel values as a byte
	DI00_15	WORD	%ID0	A wrapper to get all digital input channel values as a byte
Diagnose	DiagInfo	WORD	%IW4	Gets all diagnostic information when the module is in RUN mode. <ul style="list-style-type: none"> • Bit 0: DQ power missing • Bit1- Bit15: Reserved

4 Diagnostic and Wiring

The module has 2 LEDs indicating the status of module. The following table explains the combination of these two LEDs state.

Table 3 Combination of "POWER" and "MAINT" LEDs

LED		Indicating	Solution
POWER	MAINT		
 Off	 Off	Power missing or hardware failure.	<ul style="list-style-type: none"> • Check the main power supply • Verify that the module is installed correctly
 On	 On	The module is configured and is in RUN mode.	--
 On	 Flashes	Indicates an error (communication error, configuration error etc.)	<ul style="list-style-type: none"> • Verify that the module is installed correctly

The following block diagram shows you information about wiring of the module.

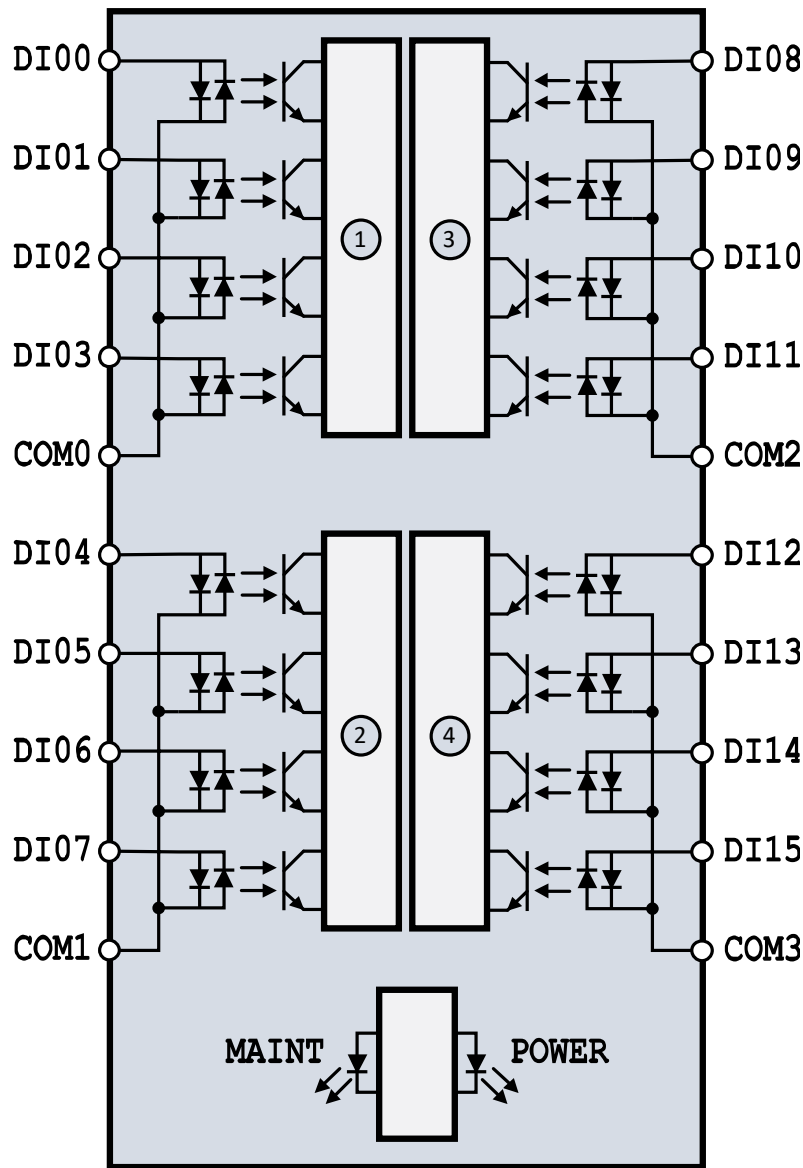


Figure 2 Wiring diagram and terminal assignments

- | | | | |
|---|--------------------------|---------------|-------------------------------|
| ① | Group0 of digital inputs | POWER: | Power LED |
| ② | Group1 of digital inputs | MAINT: | Maintenance LED |
| ③ | Group2 of digital inputs | DIx: | Digital Input terminal |
| ④ | Group3 of digital inputs | COMx: | Common terminal of a DI group |

5 Dimensional drawing

The dimensions of the module are available in this section. For install the module and its main device follow the below dimensional drawing.

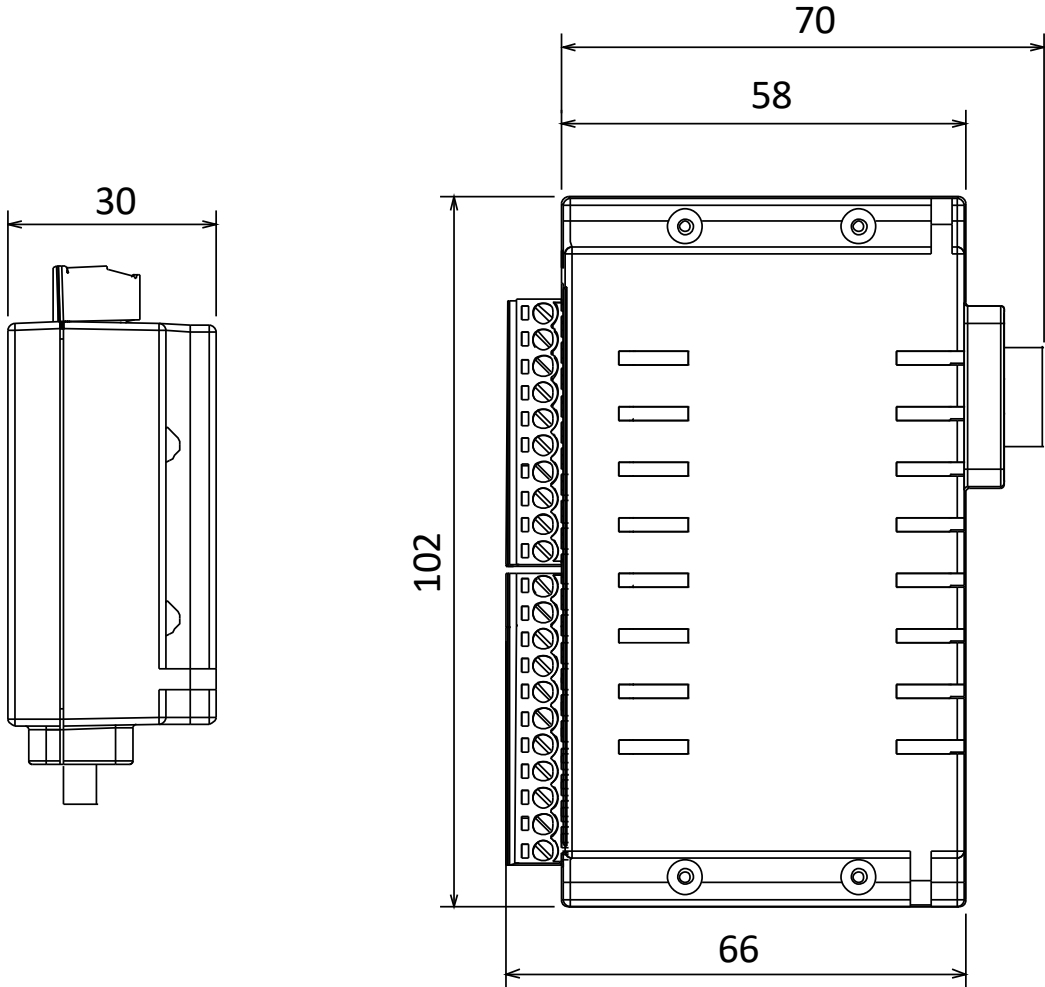


Figure 3 Dimensional drawing of IM210 module