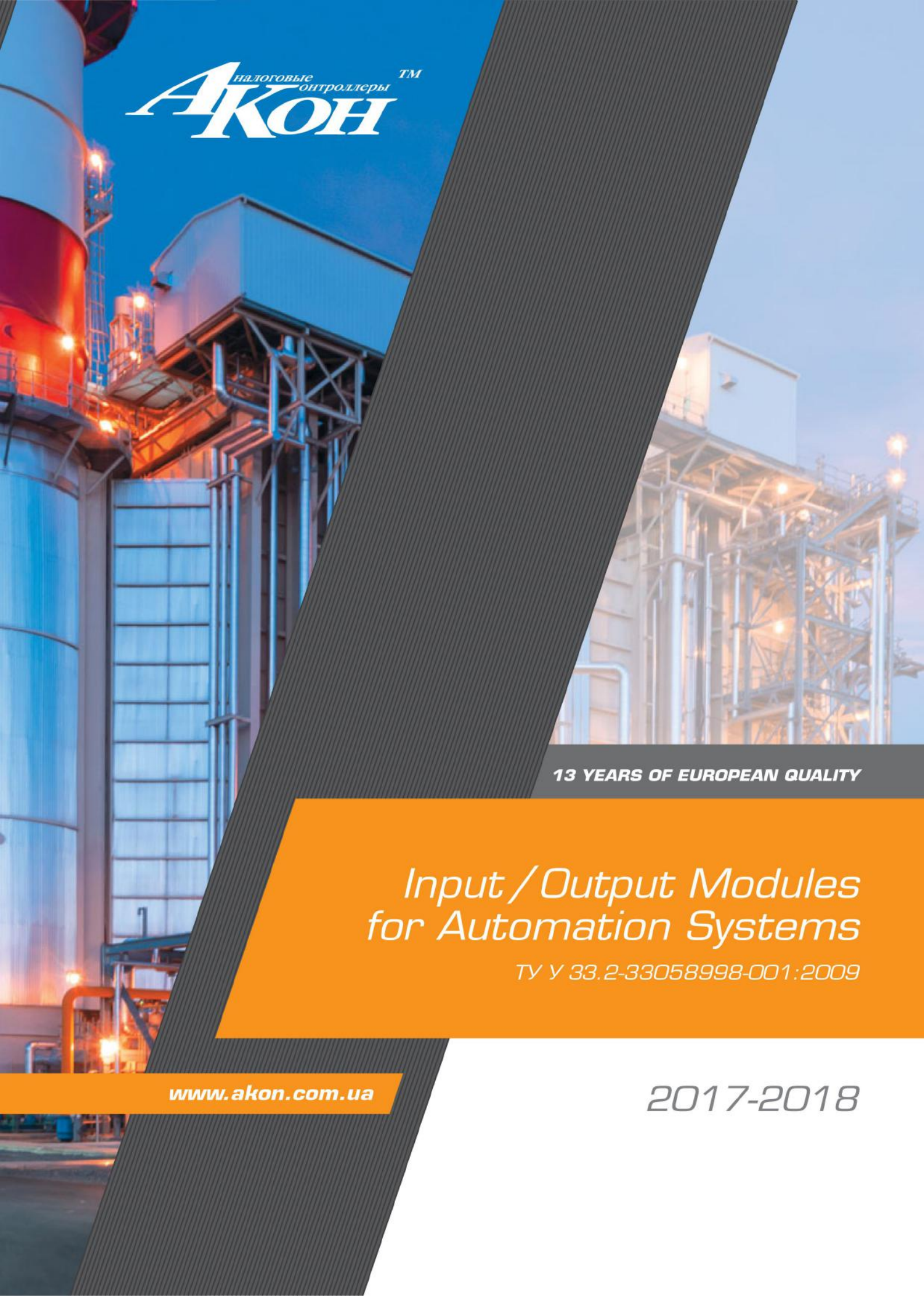

Аналоговые контроллеры
АКОН
TM
13 YEARS OF EUROPEAN QUALITY
Input / Output Modules
for Automation Systems
ТУ У 33.2-33058998-001:2009
www.akon.com.ua
2017-2018

Dear Sirs and Madams,

It is no secret that supplier's reliability and quality of products used is the key to success. Over the years, producer's reputation consolidates and the established concept is embodied in thousands of items made. That is why Akon has witnessed a sustainable development: every year we enlarge our assortment with new modules and product lines, as well as improve testing and manufacturing techniques. Expertise cannot be bought! Our team's skeleton staff engaged in different activities, from development to production, has already been working together for more than 13 years. We always comply with the client's wishes and appreciate the opinion of everyone.

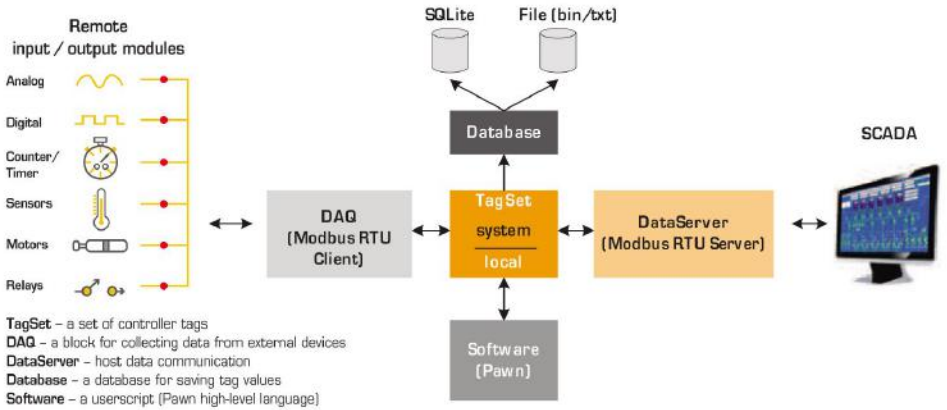
In 2016, we doubled our productive capacity and deliveries. The same year, the Ministry of Economic Development and Trade of Ukraine included AKON in the catalog of the best national instrument makers for it to represent the Ukrainian export engineering and technical capacity on the world stage (you can download the catalog here).

However, it would be impossible to succeed without you, our Dear Clients! Your recognition and confidence make us move forward faster and faster!

Faithfully yours,
Vadim Nikolaievich Batrak,
Founder and Director of AKON Co. LLC,
+38-067-442-33-89, sales@akon.com.ua

AKON PROCESS CONTROLLER (APC)

AKON Process Controller (APC/Controller.Controller core) is the Software that supplements an input.output module with a controller properties. This Software is integrated in the AKON devices' firmware, and then they can independently control the technological process, archive data and provide them to the upper level for SCADA. A controller core has a module architecture which allows using only those blocks that are necessary for this controller hardware version. Moreover, the modularity helps to create and integrate new block types easily.



TagSet – a set of controller tags
DAQ – a block for collecting data from external devices
DataServer – host data communication
Database – a database for saving tag values
Software – a userscript (Pawn high-level language)

TagSet is the main controller block. It is irreplaceable and connects all other blocks. It is intended for storing operational data. DAQ Block ensures the communication with remote input/output devices. It reads off data from devices and records it in tags, and thereafter records tag values in devices. However, tags in a register need not be in sequence. DataServer prepares the set of tags to provide them to the upper level (SCADA-system). For each tag of this set, the access level – reading/recording – is specified. Database block allows archiving the tag sets indicated. Each record contains a time mark, the value of number of tags in such record and full information on the same (identifier, data type, value). Software block controls all blocks. In addition, a user himself/herself is able to determine when inputs are read off, outputs are recorded, and data is archived etc. The Script is written in Pawn high-level language (C-like).

Once APC has been integrated, a device can be used as follows:

FUNCTION	DESCRIPTION
Controller	a device for controlling technological process
Proportional-integral-derivative controller	a control loop feedback mechanism
2/3-position controller	to be used for systems controlling levels of different substances, heating and cooling
Concentrator	the data from separate remote terminal unit (DAQ block) is accumulated in one big register map (Data-Server block) for SCADA. This register map is available for reading/recording by one pack which results in significant reduction of network traffic and polling time
Repeater	the data is read off from one remote terminal unit and recorded into the other one.
Recorder	the values of tag sets indicated are recorded in a database with appropriate intervals and time reference

If you have any equipment you have bought from us earlier, it means that APC function can be added remotely by means of updating the item's firmware through bootloader.

Налоговые контроллеры АКОН ™

Catalog page number:	WAD-AIK-BUS 6	WAD-AIH12-BUS 6	WAD-AO-BUS 8	WAD-AO6-BUS 8	WAD-P34D-BUS 10	WAD-P68D-BUS 10	WAD-DI14-BUS 12	WAD-DIO-BUS 14	WAD-DOF-BUS 15	WAD-DOS-BUS 16	WAD-DOS12-BUS 16	WAD-DOR-BUS 16	WAD-TC-BUS 18	WAD-RS-BUS 18	WAD-STEP-BUS 20	WAD-FLAME-BUS 22	WAD-AI-MAXPro 24	WAD-AI4-MAXPro 24	WAD-AO2-MAXPro 26	WAD-DIO-MAXPro 28	WAD-MIO-MAXPro 30	WAD-TC-MAXPro 32	WAD-RS-MAXPro 32	WAD-uHOST-MAXPro 34	WAD-AI24-ECO 36	WAD-AO16-ECO 38	WAD-DIO24-ECO 40-45	WAD-DIO4-ECO 46	WAD-A-MAX 48	WAD-2A-MAX 48	WAD-2AR-BUS 48	WAD-B-MAX 52	WAD-G-MAX 52	WAD-MDR 54	WAD-POW-BUS 54	WEBHMI 56	WAD-LAN-USB-RS-BUS 58	WAD-LAN-USB-RS-ILOOP-BUS 58	WAD-RS485-RS485-BUS 58	WAD-2RS232-RS485-ILOOP-BUS 58
AI/AO																																								
Analog input	4	12			2..4	3..8										2..4	1..7	4			1				8..24				1	1	1									
Analog output			4	6	2											1			2		1					16			1	2	2									
DI/DO																																								
Total number of DI/DO channels		1			6	12	15	8	6	8	12	4	1	1		4				4	2			2			24	4							2				
DI: potential					0..4	0..8	0..15	0..8	0..6											0..4	0..2			0..2			0..24	0..4											
DI: dry contact					0..4	0..8	0..15	0..8	0..6											0..4	0..2			0..2			0..24											
DO: optical relay					0..4	0..8		0..8	0..6							4				0..4	0..2			0..2											2				
DO: locking relay		0...1				4				8			0...1	0...1													0..24	0..4										
DO: switching relay		0...1										4	0...1	0...1																								
DO: relay groups (GxR)					1x2						4x3																											
Uncategorised																																								
Pulse Generator									2																														
Frequency Counter / Pulse Counter														12																								
1-Wire (DS18B20)													12									4																
Stepper Motor (4/6 phases)															1																							
System Status Controller			•	•	•	•		•	•	•	•	•							•	•	•			•			•	•	•										
Communication																																								
USB 2.0 (Virtual Com)	•	•	•		•			•	•	•		•	•	•											•	•	•	•											
Ethernet 100M6																									•	•	•	•											
RS485	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	2	1	1	1	1											
Services																																								
APC (AKON Process Controller)						•											•	•	•	•	•	•	•	•	•	•	•	•											
Real Time Clock					•	•											•	•	•	•	•	•	•	•	•	•	•	•											
Data Storage					•	•											•	•	•	•	•	•	•	•	•	•	•	•											
Keyboard					•	•																			•	•	•	•											
Display (7-segment, liquid-crystal display)					•	•																			•	•	•	•											

Normalizers and Protection Units

Single-Channel	•
Splitter	• •
Output Manual Control Mode	•
Spark Protection Unit	•
Lightning Protection Unit	•

Power Supply Units

Input ~220V 50 Hz	•
Input 10...30V DC	•
Number of Output Channels	1 1..8

Integrated Controller

Lua Scripts	•
Integrated SCADA	•
Cloud Storage	•
Ethernet, Wi-Fi, RS485, USB 2.0	•

Interface Converters

RS232	1	1		2
RS485	2	1	2	1
ILOOP		1		1
USB	1	1		
Ethernet	1	1		

DIN RAIL | 3-YEAR GUARANTEE | BUS SERIES

ANALOG INPUT

USB/RS485 • MODBUS RTU

	WAD-AIK-BUS	WAD-AIK12-BUS
Number of Channels	4	12
Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)	Channel-to-Channel 1,5kV (2,5kV, if required)
ADC Resolution	24	12
Voltage Error	0,05%	0,15%
Current Error	Up to 100mA – 0.07%; more than 100mA – less than 0,15%	Up to 100mA – 0.2%; more than 100mA – less than 0,25%
Resistance Error	0,07%	–
Sampling Frequency	Easy mode 30Hz Synchronous mode 1200Hz Spectral analysis Up to 6kHz	50Hz Spectral analysis Up to 100kHz
Parameters and ranges measured	Voltages: +/-15mV, +/-30mV,…..,+/-500V, +/-1000V Current: +/-1mA, +/-2 mA, +/-5mA,+/- 20mA,….., +/-10A Resistance: 100hm,……20kOhm Thermocouples: all kinds whether with cold junction compensation or not Thermal resistance: all kinds and calibrations Strain gauge bridges: all kinds Frequency (Tachometer mode): up to 1,5MHz	Voltage: +/-1V, +/-2V,……,+/-500V, +/-1000V Current: 1 mA, 2 mA, 5mA, 20mA, 50mA,100mA
Connection Diagrams	2/3/4-wire	2-wire
Measuring Modes	Current Values Signal RMS Value	Current values Modes for Measuring a Signal RMS Value
User Polynomial	Present (the second order)	Absent
Integrated Low-Pass Filter Impulse Noise Suppression System	The cutoff frequency can be regulated from 0,5 up to 50,0Hz Response Time – from 100 msec up to 5000 msec If these values are set as 0, a filter and Impulse Noise Suppression System are off.	The cutoff frequency can be regulated from 0,5 up to 50,0Hz Response Time – from 100 msec up to 5000 msec If these values are set as 0, a filter and Impulse Noise Suppression System are off.
Operational Temperature Range	On default: -20…+75 °C; Extended range: -40…+75 °C	On default: -20…+75 °C; Extended range: -40…+75 °C
Dimensions	114x105x17,5 mm	114x105x22,5 mm
Weight	110g	140g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485 or USB, Modbus RTU protocol	RS485 or USB, Modbus RTU protocol
Power Consumption	Not more than 1,5W	Not more than 1,5W
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

4AI

WAD-AIK-BUS

TY Y 33.2-33056998-001:2009 (426437.001)

A 4-channel analog input module with channel-to-channel galvanic isolation for RS-485And USB. Depending on configuration: voltage, current, resistance, thermocouples, thermal resistance, strain gauge bridges, True RMS, frequency and a spectrum. All inputs/outputs are protected.

12AI

WAD-AIK12-BUS

TY Y 33.2-33056998-001:2009 (426431.001)

A 12-channel analog input module with channel-to-bus galvanic isolation for RS-485And USB. Depending on configuration: voltage, current, True RMS and spectrum. All inputs/outputs are protected.

The best-in-line WAD-AIK-BUS is a unique item due to CHANNEL-TO-CHANNEL galvanic isolation and perfect measuring accuracy that in reality is even better than that indicated in the certificate due to 24-bit Analog-to-Digital Converters, appropriate circuit design and software-based self-control and self-calibration of a module. Even a lot of years from now the indications will remain as claimed without maintenance and tests.

4AO

WAD-AO-BUS

TY Y 33.2-33056998-001:2009 (426435.001)

A 4-channel analog output module with channel-to-channel galvanic isolation for RS-485And USB. Software-based setting of output signal kind and range as well as setting of output level values on default upon the power supply. All inputs/outputs are protected.

6AO

WAD-AO6-BUS

TY Y 33.2-33056998-001:2009 (426435.002)

A 6-channel analog output module with channel-to-channel galvanic isolation for RS-485. An output signal is selected at the time of order. Software-based setting of output signal range as well as setting of output level values on default upon the power supply. All inputs/outputs are protected.

ANALOG OUTPUT

USB/RS485 • MODBUS RTU

	WAD-AO-BUS	WAD-AO6-BUS
Number of Channels	4	6
Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)	Channel-to-Channel 1,5kV (2,5kV, if required)
ADC Resolution	16 bits	16 bits
Voltage Error	0,05%	0,05%
Current Error	0,07%	0,07%
DC Voltage Generation (assignable limits)	0-1V, 0-2 V, 0-5 V, 0-10V,+/-1 V, +/-2 V,+/-5 V, +/- 10V (Load resistance > 500 Ohm)	0-1V, 0-2 V, 0-5 V, 0-10V,+/-1 V, +/-2 V,+/-5 V, +/- 10V (Load resistance > 500 Ohm)
Constant Current Generation (assignable limits)	0-5mA, 1-5mA, 0-10mA, 0-20mA, 4-20mA (Voltage: up to 10V, Load resistance < 2kOhm – at the limit of 5mA, and <500 Ohm – at the limit of 20mA)	0-5mA, 1-5mA, 0-10mA, 0-20mA, 4-20mA (Voltage: up to 10V, Load resistance < 2kOhm – at the limit of 5mA, and <500 Ohm – at the limit of 20mA)
Output Resistance	⩽ 0,2 Ohm – voltage efficiency ⩾ 10 Mohm – current efficiency	⩽ 0,15 Ohm – voltage efficiency ⩾ 10M Ohm – current efficiency
System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	114x105x17,5 mm	114x105x17,5 mm
Weight	130g	130g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485 or USB, Modbus RTU protocol	RS485, Modbus RTU protocol
Power Consumption	3W (in case of maximum load of all outputs)	3W (in case of maximum load of all outputs)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

Channel-to-channel galvanic isolation of these blocks allows ensuring an appropriate and qualitative control over several circuits at significantly more favourable price without additional modules with galvanic isolation.

WAD-P340-BUS / WAD-P680-BUS

WAD-P340-BUS

2/4AI, 2AO
4DIO, 2R

TY У 33.2-33056998-001:2009 (422500.004)

RS-485/USB Single-Phase Fieldbus Controller. Specifications: 4 dry contact inputs, 2 relays 16A 250V, 1(2) measuring input(s), True RMS, Cos(φ), a current transformer, a real-time clock, and an event file. All inputs/outputs are protected.

WAD-P680-BUS

3/6AI
8DIO, 4R

TY У 33.2-33056998-001:2009 (422500.005)

A controller for three-phase fieldbuses with 2xRS-485 interfaces. Specifications: 8 dry contact inputs, 4 relays 16A 250V, 3(6) measuring inputs, True RMS, Cos(φ), a current transformer, a real-time clock, and an event file. All inputs/outputs are protected.

MULTIFUNCTION CONTROLLERS

APC • USB/RS485 • MODBUS RTU

		WAD-P340-BUS	WAD-P680-BUS
	APC	Absent	Present (if required)
Analog Input	Number of Channels	2/4	3/6
	Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)	Channel-to-Channel 1,5kV (2,5kV, if required)
	ADC Resolution	24	24
	Metering Channel Percentage Error	0,07%	0,07%
	Connection Diagram	2/3/ 4-wire	2/3/ 4-wire
	Parameters and ranges measured	Voltages: 15 mV, 30mV, 60 mV,.....500V, 1000V Currents: 1mA, 2mA, 5mA, 20mA,....,10A Resistance: 10 Ohm,.....20kOhm Thermocouples: all kinds whether with cold junction compensation or not Thermal resistance: all kinds and calibrations Strain gauge bridges: all kinds Frequency (Tachometer mode): up to 1,5 MHz	Voltage: 15mV, 30mV, 60mV,.....500V, 1000V Current: 1mA, 2mA, 5mA, 20mA,....,10A Resistance: 10 Ohm,.....20kOhm Thermocouples: all kinds whether with cold junction compensation or not Thermal resistance: all kinds and calibrations Strain gauge bridges: all kinds Frequency (Tachometer mode): up to 1,5 MHz
	For other analog input parameters see WAD-AIH-BUS		
Analog Output	Number of Channels	2	Absent
	Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)	
	ADC Resolution	16 bits	
	Voltage Error	0,05%	
	Current Error	0,07%	
	For other analog input parameters see WAD-AO6-BUS		
Discrete input/output	Number of Output Channels	0...4	0...8
	Number of Input Channels	4...0	8...0
	Total Number of Channels	4	8
	Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
	Maximum Switching Current	Up to 100mA	Up to 100mA
	Maximum Switching Voltage	Up to 300V	Up to 300V
	Input Levels of Logic 1	DC voltage/AC voltage; 2,5 V...500V (to be specified at the time of order)	DC voltage/AC voltage; 2,5 V...500V (to be specified at the time of order)
	Line Break Control in "Dry Contact" Configuration	On/Off	On/Off
	For other discrete input/output parameters see WAD-DIO-BUS		
Relay output	Number of Channels	2 (one common wire)	4
	Galvanic Isolation	Channel-to-Bus	Channel-to-Channel
	Maximum Load of Relay Outputs	16A/250V (other hardware version: 8A/250V)	16A/250V (other hardware version: 8A/250V)
	System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.	
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	160x80x60 mm	200x120x60 mm
	Weight	280g	480g
	Box and Terminals	Bopla case; Phoenix Contact compression screw terminals; wire section: 0,2-2,5 mm²	Bopla case; Phoenix Contact compression screw terminals; wire section: 0,2-2,5 mm²
	Communication	RS485 or USB, Modbus RTU protocol	2xRS485, Modbus RTU protocol
	Power Consumption	1,5...5W (depending on configuration)	1,5...7 W (depending on configuration)
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

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DISCRETE INPUT

USB/RS485 • MODBUS RTU

	WAD-DI-BUS	WAD-DI14-BUS
Number of Channels	8	15
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
Input Levels of Logic 1	DC voltage/AC voltage 2,5V...500V (to be specified at the time of order)	DC voltage/AC voltage 2,5V...500V (to be specified at the time of order)
Line Break Control in "Dry Contact" Configuration	On/Off	On/Off
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	114x105x17,5 mm	114x105x22,5 mm
Weight	120g	120g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485 or USB, Modbus RTU protocol	RS48, протокол Modbus RTU
Power Consumption	Up to 2,5W – for dry contact inputs with built-in power supply unit and up to 1,5W – for potential inputs	Up to 2,5W – for dry contact inputs with built-in power supply unit and up to 1,5W – for potential inputs
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

8DI

WAD-DI-BUS

TY Y 33.2-33056998-001:2009 (426438.001)

An 8-channel discrete input module. The typical or dry contact with built-in contact power supply unit, channel-to-bus galvanic isolation and line break control for RS-485And USB. All inputs/outputs are protected.

15DI

WAD-DI14-BUS

TY Y 33.2-33056998-001:2009 (426438.002)

A 15-channel discrete input module. The typical or dry contact with built-in contact power supply unit, channel-to-bus galvanic isolation and line break control for RS-485. All inputs/outputs are protected.

i *Small in size, these input modules with line break control ensure the input of numerous discrete signals, and signal types and levels can vary in different channels and are to be specified at the time of order.*

8DI/DO

WAD-DIO-BUS

TY Y 33.2-33056998-001:2009 (426438.005)

An 8-channel discrete input/output module. Inputs: typical or dry contact with built-in contact power supply unit, channel-to-bus galvanic isolation and line break control. Outputs: load current – up to 100mA. Interfaces: RS485And USB. All inputs/outputs are protected.

DISCRETE INPUT/OUTPUT

USB/RS485 • MODBUS RTU

	WAD-DIO-BUS
Number of Output Channels	1...7
Number of Input Channels	7...1
Total Number of Channels	8
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
Maximum Switching Current	Up to 100mA
Maximum Switching Voltage	Up to 300V
Input Levels of Logic 1	DC voltage/AC voltage; 2,5V...500V (to be specified when ordered)
Line Break Control in "Dry Contact" Configuration	On/Off
System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	114x105x17,5 mm
Weight	120g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485 or USB, Modbus RTU protocol
Power Consumption	Up to 1,5W (if case of maximum load)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

These are the group of discrete input/output modules with low-power electronic switches at outputs.

8DO

WAD-DO-BUS

TY Y 33.2-33056998-001:2009 (426438.003)

An 8-channel discrete output module with load current less than 100mA and RS485/USB interface. All inputs/outputs are protected.

DISCRETE AND FUNCTIONAL OUTPUT

USB/RS485 • MODBUS RTU

	WAD-DO-BUS	WAD-DOF-BUS
Number of Channels	8	6DI/DO 2F(DO)
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
Maximum Switching Current	Up to 100mA	Up to 100mA
Maximum Switching Voltage	Up to 300V	Up to 300V
System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.	
Line Break Control in "Dry Contact" Configuration	-	On/Off
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	114x105x17,5 mm	114x105x17,5 mm
Weight	120g	120g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485 or USB, Modbus RTU protocol	RS485 or USB, Modbus RTU protocol
Power Consumption	Up to 1,5W (if case of maximum load)	Up to 1,5W (if case of maximum load)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

6DI/DO 2F

WAD-DOF-BUS

TY Y 33.2-33056998-001:2009 (426438.004)

A discrete input/output module with two frequency outputs. Frequency range – 15 Hz...300 kHz. All inputs/outputs are protected.

8R

WAD-DOS-BUS

TY Y 33.2-33056998-001:2009 (426438.006)

An 8-channel relay block for RS-485And USB. 8 independent circuit closing contact groups with load current of up to 5A. All inputs/outputs are protected

12R
normally open, 4 groups each having 3 relays

WAD-DOS12-BUS

TY Y 33.2-33056998-001:2009 (426438.007)

A 12-channel relay block for RS-485. 4 independent groups each of which has its own three relays and one "common" with load current of up to 5A without protection and 500mA with inductive load and overvoltage protection. All inputs/outputs are protected.

4R
switching relays

WAD-DOR-BUS

TY Y 33.2-33056998-001:2009 (426438.008)

A 4-channel relay block for RS-485And USB. Four independent switching relays with load current of up to 5A. All inputs/outputs are protected

RELAY OUTPUT

USB/RS485 • MODBUS RTU

	WAD-DOS-BUS	WAD-DOS12-BUS	WAD-DOR-BUS
Number of Channels	8	12	4
Galvanic Isolation	Channel-to-Channel	Channel-to-Bus	Channel-to-Channel
Maximum Switching Current	8A	5A	8A
Maximum Switching Voltage	Up to 300V	Up to 300V	Up to 300V
System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	114x105x22,5 mm	114x105x22,5 mm	114x105x17,5 mm
Weight	175g	250g	120g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485 or USB, Modbus RTU protocol	RS485, Modbus RTU protocol	RS485 or USB, Modbus RTU protocol
Power Consumption	Up to 4 W (if case of maximum load)	Up to 4 W (if case of maximum load)	Up to 3W (if case of maximum load)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

i We have produced relay output modules with a highly-efficient false response protection through generation by the module of enabling switch for each input/output for energetic and telecontroling purposes since 2005.

WAD-TC-BUS

12-CHANNELS
1-wire

ТУ У 33.2-33056998-001:2009 (422500.002)

A 12-channel module for connecting DS18B20 digital temperature sensors. Protection against random values. All inputs/outputs are protected.

WAD-RS-BUS

12-CHANNELS
pulse counter

ТУ У 33.2-33056998-001:2009 (422500.003)

A 12-channel flow meter counter module for RS-485And USB. All inputs/outputs are protected.

FUNCTIONAL CONVERTER
USB/RS485 • MODBUS RTU

	WAD-TC-BUS	WAD-RS-BUS
Number of Channels	(Number of buses) x (Number of sensors) 12x1 (with automated detection of sensors) 12x8 7x16 or to be made to order	12
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
Maximum Current and Voltage Being Switched by a Built-in Relay	8A/250V A relay can be used as a part of module's alarm system or as a separate relay output channel (to be configured)	8A/250V A relay can be used as a part of module's alarm system or as a separate relay output channel (to be configured)
Alarm	Switching Relay and Audible Relay (buzzer). For each channel/sensor, its own maximum and minimum limits can be specified. If a relay alarm system is switched off, the relay can be used as a separate relay output channel.	Switching Relay and Audible Relay (buzzer). For each channel/sensor, its own maximum and minimum limits can be specified. If a relay alarm system is switched off, the relay can be used as a separate relay output channel.
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	114x105x22,5 mm	114x105x22,5 mm
Weight	120g	120g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485 or USB, Modbus RTU protocol	RS485 or USB, Modbus RTU protocol
Потребляемая мощность	1,5W (in case of maximum load of all outputs)	1,5W (in case of maximum load of all outputs)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

Modules for connecting digital temperature sensors and a flow meter have an audible alarm and a relay the operational conditions for which are set independently through programming channels selected for these purposes. It allows ensuring the equipment protection and alarm, etc. at local level.

DIN RAIL | 3-YEAR GUARANTEE | BUS SERIES

STEPPER MOTOR CONTROLLING UNIT

WAD-STEP-BUS

TY Y 33.2-33056998-001:2009 (426438.005)

A module for controlling unipolar 4/6-phase stepper motors.

STEPPER MOTOR CONTROLLING UNIT

RS485 • MODBUS RTU

	WAD-STEP-BUS
Number of Control Channels	1
Types of Motors Supported	Unipolar
Number of Phases	4/6
Hardware Versions	External control – CLK & DIR signals come from outside; Remote control (RS485) – CLK & DIR signals are generated inside of a module
Locking Signal	There are left and right locking units
Step Mode	Step/Half step
Maximum Phase Current	5A
Motor Power Supply Voltage	3...36V
Galvanic Isolation	1,5kV (2,5kV, if required)
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	114x105x22,5 mm
Weight	110g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485, Modbus RTU protocol
Power Consumption	Up to 1,5W (if case of maximum load)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

The module allows controlling the stepper motor's operation not only from CLK impulses coming to the input but also through RS485 interface.

WAD-FLAME-BUS

PROTECTOFIER

WAD-FLAME-BUS

TY Y 33.2-33056998-001:2009 (422500.001)

It is intended to control combustion inside a tank and generate controlling signals for operational units. It can run autonomously or under control through RS485. A channel for controlling combustion at definite spectral regions – 1/2; discrete input/output channels – 4; an analog output channel – 1. All inputs/outputs are protected.

3-YEAR GUARANTEE | BUS SERIES

MULTIFUNCTION CONTROLLERS

RS485 • MODBUS RTU

		WAD-FLAME-BUS
Analog Input	Number of Channels	2
	Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)
	ADC Resolution	24
	Metering Channel Percentage Error	0,07%
	Connection Diagram	2-wire
	Parameters and ranges measured	Voltage: 15 mV, 30 mV, 60 mV,.....500V,1000V Current: 1 mA, 2 mA, 5mA,20mA,....,10A Resistance: 10 Ohm,.....20kOhm Thermocouples: all kinds whether with cold junction compensation or not Thermal resistance: all kinds and calibrations Strain gauge bridges: all kinds Frequency (Tachometer mode): up to 1,5 MHz
		For other analog input parameters see WAD-AIH-BUS
Analog Output	Number of Channels	1
	Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)
	ADC Resolution	16 bits
	Voltage Error	0,05%
	Current Error	0,07%
		For other analog output parameters see WAD-AO6-BUS
Discrete Input/Output	Number of Output Channels	0...4
	Number of Input Channels	4...0
	Total Number of Channels	4
	Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
	Maximum Switching Current	Up to 100mA
	Maximum Switching Voltage	Up to 300V
	Input Levels of Logic 1	DC voltage/AC voltage; 2,5 V...500V (to be specified at the time of order)
	Line Break Control in "Dry Contact" Configuration	On/Off
		For other analog discrete input/output parameters see WAD-DIO-BUS
	System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	160x80x60 mm
	Weight	280g
	Box and Terminals	IDC-10 – for photosensors; IDC-16 – for all other lines
	Communication	RS485, Modbus RTU protocol
	Power Consumption	1,5...5W (depending on configuration)
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

WAD-AI-MAXPRO / WAD-AI4-MAXPRO

DIN RAIL | 3-YEAR GUARANTEE | MAXPro SERIES

ANALOG INPUT

APC • RS485 • MODBUS RTU

1AI

WAD-AI-MAXPRO

TY Y 33.2-33056998-001:2009 (426431.002)

An analog input module with galvanic isolation for RS-485. Depending on configuration: voltage, current, resistance, thermocouples, thermal resistance, strain gauge bridges, True RMS, frequency and a spectrum. All inputs/outputs are protected.

4AI

WAD-AI4-MAXPRO

TY Y 33.2-33056998-001:2009 (426431.003)

A 4-channel analog input module with channel-to-bus galvanic isolation for RS-485. Depending on configuration: voltage, current, True RMS and a spectrum. All inputs/outputs are protected.

	WAD-AI-MAXPRO	WAD-AI4-MAXPRO
APC	Present (if required)	Present (if required)
Number of Channels	1	4
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
ADC Resolution	24	14
Voltage Error	0,05%	0,12%
Current Error	Up to 100mA – 0,07%; more than 100mA – less than 0,15%	Up to 100mA – 0,15%; more than 100mA – less than 0,2%
Resistance Error	0,07%	0,15%
Sampling Frequency	Easy mode 30Hz; Spectral analysis Up to 6kHz	Easy mode 150Hz; Spectral analysis Up to 100kHz
Parameters and ranges measured	Voltage: 15mV, 30 mV, 60mV,.....500V, 100V Current: 1mA, 2mA, 5mA, 20mA,....,10 A Resistance: 10 Ohm,.....20kOhm Thermocouples: all kinds whether with cold junction compensation or not Thermal resistance: all kinds and calibrations Strain gauge bridges: all kinds Frequency (Tachometer mode): up to 1,5 MHz	Voltage: 1V, 2V,.....500V, 1000V Current: 1mA, 2mA, 5mA, 20mA, 50mA, 100mA Resistance: 10 Ohm,.....20kOhm Thermal resistance: all kinds and calibrations
Connection Diagrams	2/3/4-wire	2-wire
Measuring Modes	Current Values Signal RMS Value	Current Values Signal RMS Value
User Polynomial	Present (the second order)	Absent
Integrated Low-Pass Filter Impulse Noise Suppression System	The cutoff frequency can be regulated from 0,5 up to 50,0Hz Response Time – from 100 msec up to 5000 msec If these values are set as 0, a filter and Impulse Noise Suppression System are off.	The cutoff frequency can be regulated from 0,5 up to 50,0Hz Response Time – from 100 msec up to 5000 msec If these values are set as 0, a filter and Impulse Noise Suppression System are off.
Service Voltage Source	Voltage: +5V, +8,2V, +10V, +12V or other (to be made to order); Imax = 100mA	Voltage: +5V, +8,2V, +10V, +12V or other (to be made to order); Imax = 100mA
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	125,5x93,1x7,2 mm	125,5x93,1x7,2 mm
Weight	65g	65g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485, Modbus RTU protocol	RS485, Modbus RTU protocol
Power Consumption	Not more than 1,5W	Not more than 1,5W
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

A compact box is the main advantage of this series of modules with an interface when there is no need for numerous channels.

DIN RAIL | 3-YEAR GUARANTEE | MAXPro SERIES

ANALOG OUTPUT

APC • RS485 • MODBUS RTU

	WAD-A02-MAXPRO
APC	Present (if required)
Number of Channels	2
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
ADC Resolution	16 bits
Voltage Error	0,05%
Current Error	0,07%
DC Voltage Generation (assignable limits)	0-1V, 0-2V, 0-5V, 0-10V (Load resistance > 500 Ohm)
Direct Current Generation (assignable limits)	0-5mA, 1-5mA, 0-10mA, 0-20mA, 4-20mA (Voltage: up to 10V, Load resistance < 2 kOmh – at the limit of 5mA and <500 Ohm – at the limit of 20mA)
Output Resistance	≤ 0,15 Ohm – voltage efficiency ≥ 10 Mohm – current efficiency
System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	125,5x93,1x7,2 mm
Weight	65g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485, Modbus RTU protocol
Power Consumption	3W (in case of maximum load of all outputs)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

2AO

WAD-A02-MAXPRO

ТУ У 33.2-33056998-001:2009 (426435.003)

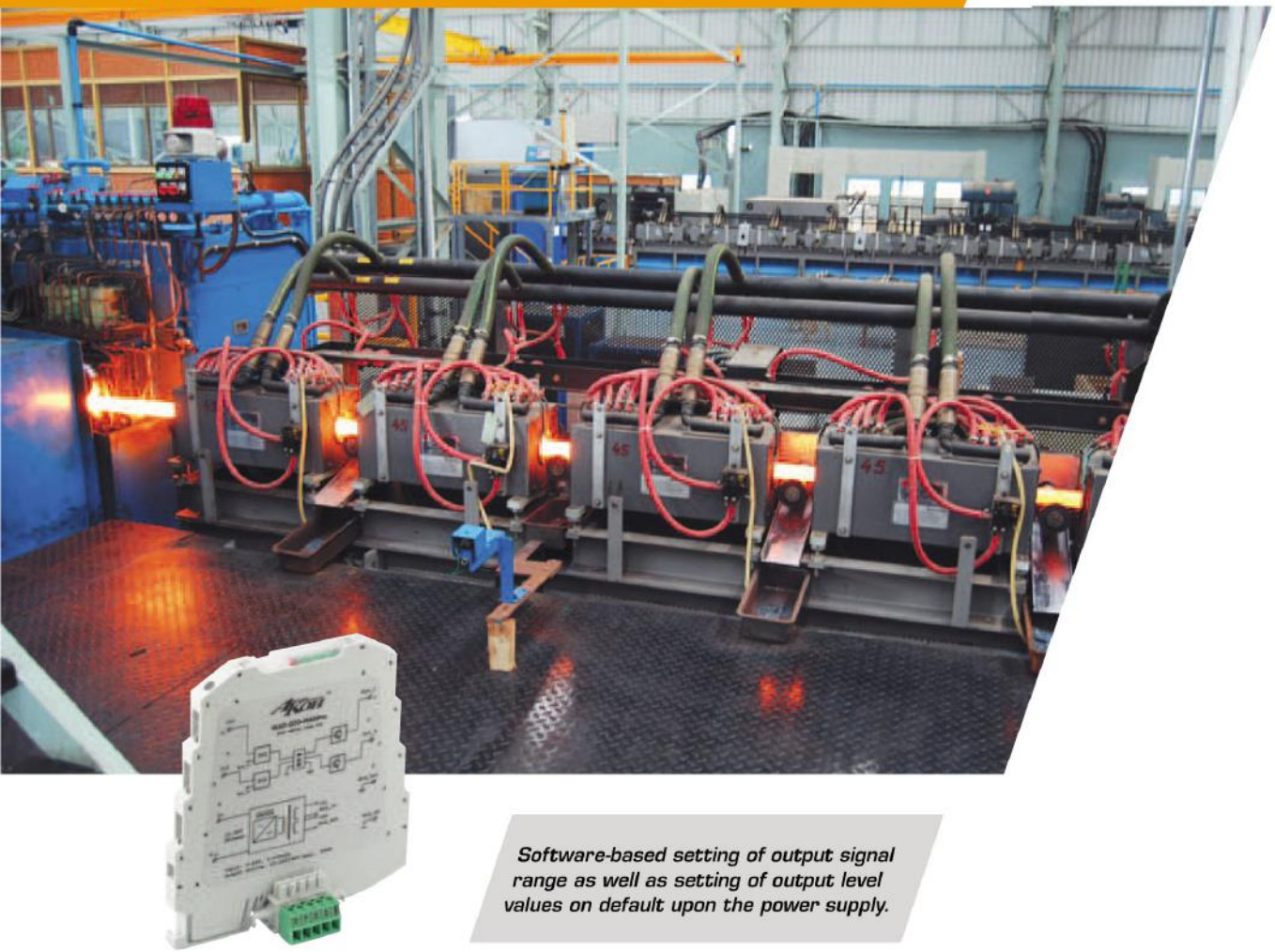
A 2-channel analog output module with channel-to-channel galvanic isolation for RS-485. An output signal is selected at the time of order. All inputs/outputs are protected.

Software-based setting of output signal range as well as setting of output level values on default upon the power supply.

The main advantages of this module are a compact box and galvanically-isolated channels with an interface. This is a perfect option for specific tasks.

WAD-DIO-MAXPRO

DIN RAIL | 3-YEAR GUARANTEE | MAXPro SERIES



DISCRETE INPUT/OUTPUT

APC • RS485 • MODBUS RTU

	WAD-DIO-MAXPRO
APC	Present (if required)
Number of Output Channels	0....4
Number of Input Channels	4....0
Total Number of Channels	4
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
Maximum Switching Current	Up to 100mA
Maximum Switching Voltage	Up to 300V
Input Levels of Logic 1	DC voltage/AC voltage; 2,5V...500V (to be specified at the time of order)
Line Break Control in "Dry Contact" Configuration	On/Off
System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	125,5x93,1x7,2 mm
Weight	65g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485, Modbus RTU protocol
Power Consumption	Up to 1,5W (if case of maximum load)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

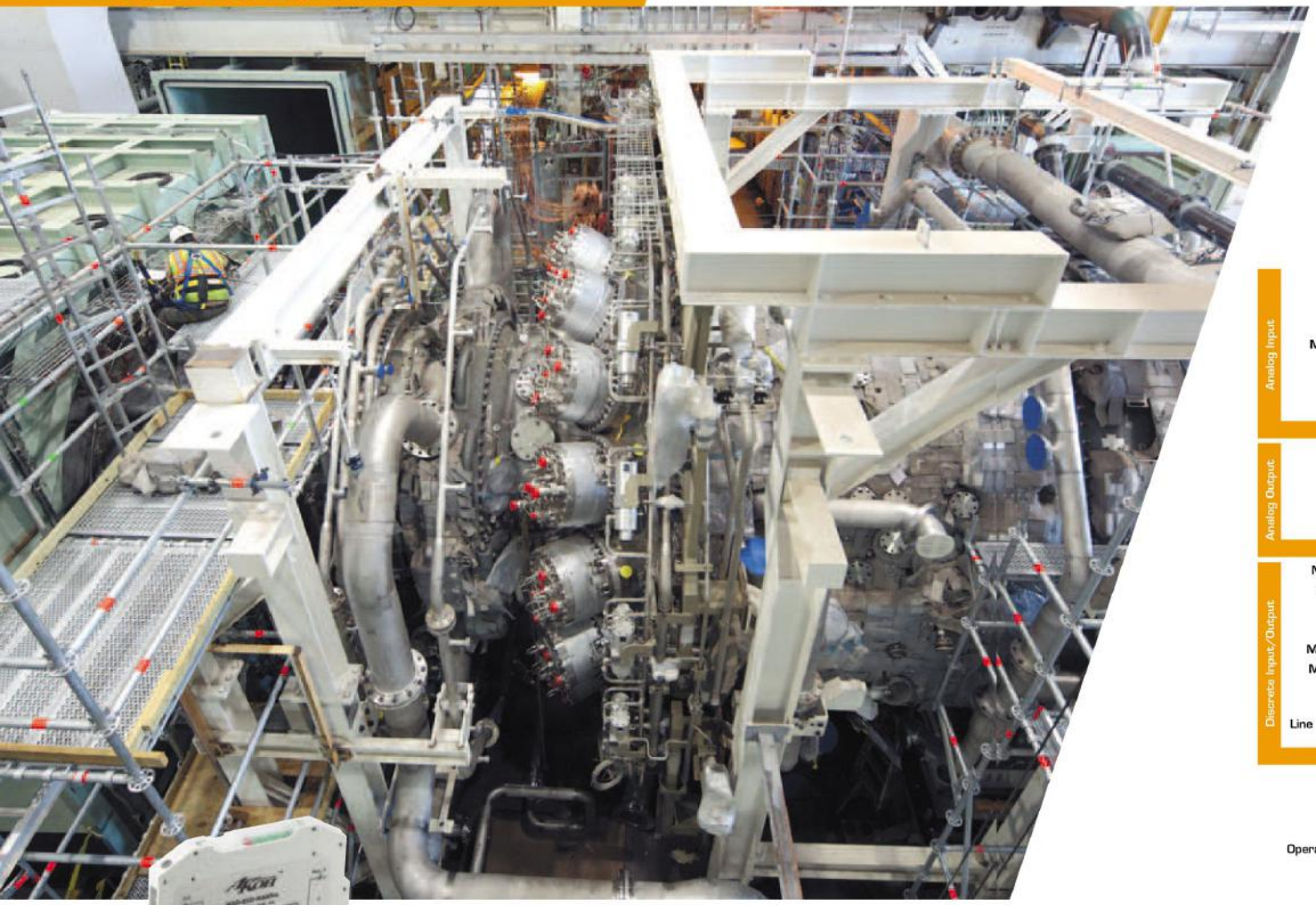
Software-based setting of output signal range as well as setting of output level values on default upon the power supply.

WAD-DIO-MAXPRO

ТУ У 33.2-33056998-001:2009 (426438.011)

A 4-channel discrete input/output module.
Total number of input and output channels is 4.

4DI/DO



WAD-MIO-MAXPRO

1AI, 1AO, 2DI/DO

TY Y 33.2-33056998-001:2009 (426438.012)

A multifunction controller with RS-485 interface. Analog inputs: 1 channel; analog outputs: 1 channel; discrete inputs/outputs: 2 channels; and a database. All inputs/outputs are protected.

MULTIFUNCTION CONTROLLER

APC • RS485 • MODBUS RTU

		WAD-MIO-MAXPRO
	APC	Present (if required)
Analog Input	Number of Channels	1
	Galvanic Isolation	1,5kV (2,5kV, if required)
	ADC Resolution	14
	Metering Channel Percentage Error	0,12%
	Connection Diagram	2-ware
	Parameters and ranges measured	Voltage: 15 mV, 30 mV, 60 mV,....500V, 1000V Current: 1mA, 2mA, 5mA, 20mA, 50mA, 100mA
	For other analog input parameters see WAD-AI4-MAXPro	
Analog Output	Number of Channels	1
	Galvanic Isolation	1,5kV (2,5kV, if required)
	ADC Resolution	16 bits
	Voltage Error	0,05%
	Current Error	0,07%
	For other analog output parameters see WAD-AO2-MAXPro	
Discrete Input/Output	Number of Output Channels	0...2
	Number of Input Channels	2...0
	Total Number of Channels	2
	Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
	Maximum Switching Current	Up to 100mA
	Maximum Switching Voltage	Up to 300V
	Input Levels of Logic 1	DC voltage/AC voltage; 2,5V...500V (to be specified at the time of order)
	Line Break Control in "Dry Contact" Configuration	On/Off
	For other analog discrete input/output parameters see WAD-DIO-MAXPro	
	System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	125,5x93,1x7,2 mm
	Weight	65g
	Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
	Communication	RS485, Modbus RTU protocol
	Power Consumption	1,5...5W (depending on configuration)
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

WAD-TC-MAXPRO

4 CHANNELS
1-wire

TY У 33.2-33056998-001:2009 (426438.009)

A 4-channel module for connecting DS18B20 digital temperature sensors for RS485. Protection against random values. All inputs/outputs are protected.

WAD-RS-MAXPRO

PULSE COUNTER

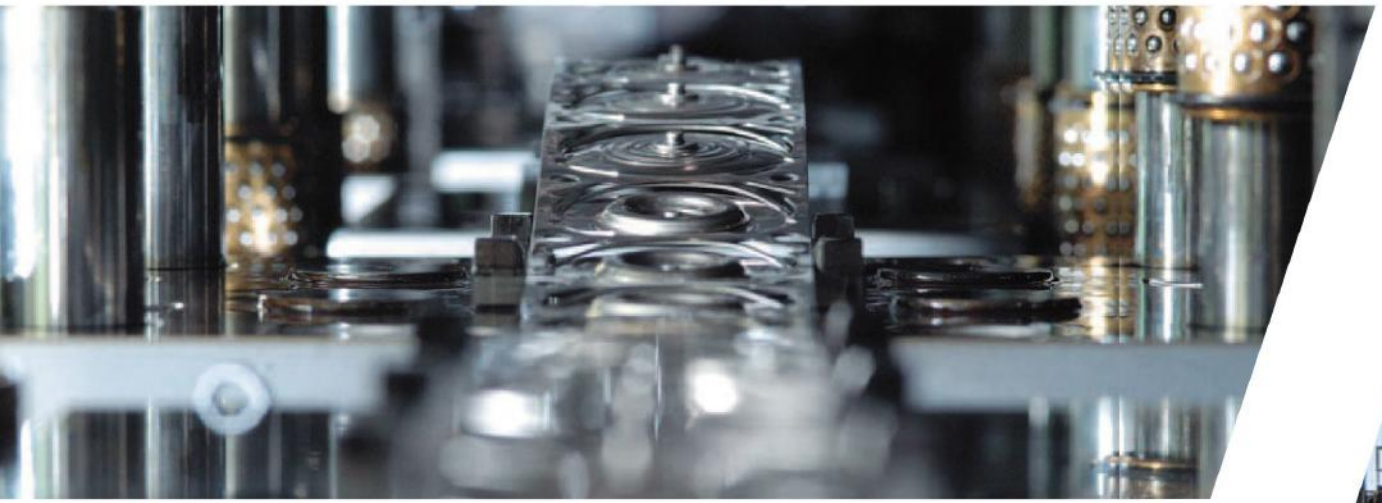
TY У 33.2-33056998-001:2009 (426438.010)

A 4-channel flow meter counter module for RS485. All inputs/outputs are protected.

FUNCTIONAL CONVERTERS

APC • RS485 • MODBUS RTU

	WAD-TC-MAXPRO	WAD-RS-MAXPRO
APC	Present (if required)	Present (if required)
Number of Channels	**(number of buses) x (number of sensors)** 4x1 (with automated detection of sensors) 4x20 Or to be made to order	4
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
Service Voltage Source	Voltage: +5 V, +8,2 V, +10V, +12 V or other (to be made to order); Imax = 100mA	Voltage: +5 V, +8,2 V, +10V, +12 V or other (to be made to order); Imax = 100mA
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	125,5x93,1x7,2 mm	125,5x93,1x7,2 mm
Weight	65g	65g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	RS485, Modbus RTU protocol	RS485, Modbus RTU protocol
Power Consumption	1,5W (in case of maximum load of all outputs)	1,5W (in case of maximum load of all outputs)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V



The main advantages of this module are a compact box and galvanically isolated channels with interfaces. This a perfect option for specific tasks.

2DI/DO

WAD-uHOST-MAXPRO

TY Y 33.2-33056998-001:2009 (426438.013)

A multifunction controller with two RS485 interfaces.
Discrete inputs/outputs: 2 channels; a built-in power supply source for external users (relays, sensors and other low-power loads), a real-time clock and a database file.
All inputs/outputs are protected.

MULTIFUNCTION CONTROLLER

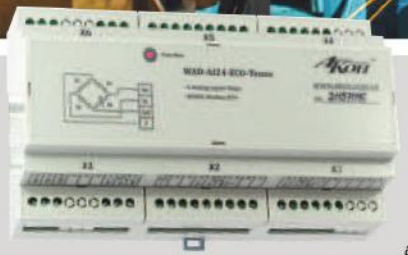
APC • RS485 • MODBUS RTU

		WAD-uHOST-MAXPRO
	APC	Present (if required)
Discrete Input/Output	Number of Output Channels	0...2
	Number of Input Channels	2...0
	Total Number of Channels	2
	Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
	Maximum Switching Current	Up to 100mA
	Maximum Switching Voltage	Up to 300V
	Input Levels of Logic 1	DC voltage/AC voltage; 2,5 V...500V (to be specified at the time of order)
	Line Break Control in "Dry Contact" Configuration	On/Off
	For other analog discrete input/output parameters see WAD-DIO-MAXPro	
	System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
	Service Voltage Source	Voltage: +5V, +8,2V, +10V, +12V (to be made to order); Imax = 100mA
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	125,5x93,1x7,2 mm
	Weight	65g
	Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
	Communication	RS485mAster, Modbus RTU protocol RS485 Slave, Modbus RTU protocol
	Power Consumption	1,5...5W (depending on configuration)
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

A compact controller has one RS485 interface for connecting equipment and another one – for communicating with a host. It is programmed in Pawn high-level language.

ANALOG INPUT

APC • ETHERNET/USB/RS485 • MODBUS RTU/TCP



24AI

WAD-AI24-ECO

TY Y 33.2-33056998-001:2009 (426437.004)

A 24-channel analog input module with channel-to-bus galvanic isolation for RS-485. Depending on configuration, it measures voltage, current, resistance, thermocouples, thermal resistances, strain gauge bridges, True RMS, frequency and a spectrum. All inputs/outputs are protected.

	WAD-AI24-ECO	
APC	Present (if required)	
Number of Channels	24 Number of channels depends on the set of parameters measured. Typical configurations:	
	DC unipolar voltage/current	24
	Thermal resistance, resistance (3-wire diagram)	12
	Bipolar voltage/current	6
	Strain gauge bridges (4-wire diagram)	6
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)	
ADC Resolution	24	
Voltage Error	0,05%	
Current Error	Up to 100mA – 0.07%; more than 100mA – less than 0,15%	
Resistance Error	0,07%	
Sampling Frequency	50Hz	
Parameters and ranges measured	Voltage: +/-15mV, +/-30mV,....,+/-500V, +/-1000V Currents: +/-1mA, +/-2mA, +/-5mA, +/- 20mA,....,+/-10A Resistance: 100hm,.....20k0hm Thermocouples: all kinds whether with cold junction compensation or not Thermal resistances: all kinds and calibrations Strain gauge bridges: all kinds Frequency (Tachometer mode): up to 1,5 MHz	
Connection Diagrams	2/3/4-wire	
Measuring Modes	Current Values Signal RMS Value	
User Polynomial	Present (the second order)	
Integrated Low-Pass Filter Impulse Noise Suppression System	The cutoff frequency can be regulated from 0,5 up to 50,0Hz Response Time – from 100 msec up to 5000 msec If these values are set as 0, a filter and Impulse Noise Suppression System are off.	
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	
Dimensions	155,5x90x56,5 mm	
Weight	250g	
Box and Terminals	Compression screw terminals; wire section: 0,2-2,5 mm²	
Communication	USB/RS48; Modbus RTU; Ethernet; Modbus RTU/TCP	
Power Consumption	Not more than 2,5W	
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	

DIN RAIL | 3-YEAR GUARANTEE | ECO SERIES

ANALOG OUTPUT

APC • ETHERNET/USB/RS485 • MODBUS RTU/TCP

	WAD-A016-ECO
APC	Present (if required)
Number of Channels	16
Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
ADC Resolution	16 bits
Voltage Error	0,05%
Current Error	0,07%
DC Voltage Generation (assignable limits)	0-1V, 0-2V, 0-5 V, 0-10V (Load resistance > 500 Ohm)
Direct Current Generation (assignable limits)	0-5mA, 1-5mA, 0-10mA, 0-20mA, 4-20mA (Voltage: up to 10V, Load resistance < 2kOmh – at the limit of 5mA and <500 Ohm – at the limit of 20mA)
Output Resistance	⩽ 0,15 Ohm – voltage efficiency ⩾ 10 Mohm – current efficiency
System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
Dimensions	155,5x90x56,5 mm
Weight	250g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Communication	USB/RS485; Modbus RTU; Ethernet; Modbus RTU/TCP
Power Consumption	6W (in case of maximum load of all outputs)
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

16AO

WAD-A016-ECO

TY Y 33.2-33056998-001:2009 (426435.004)

A 16-channel analog output module with channel-to-bus galvanic isolation for RS-485. An output signal is selected at the time of order. Software-based setting of output signal range as well as setting of output level values on default upon the power supply. All inputs/outputs are protected.

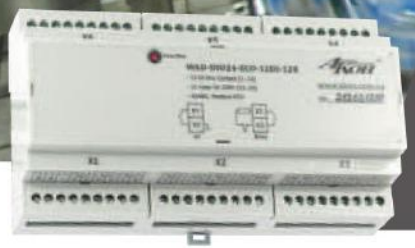
Due to numerous analog outputs in one box, the cost of one channel is as low as never before.

DIN RAIL | 3-YEAR GUARANTEE | ECO SERIES

DISCRETE INPUT/OUTPUT

APC • ETHERNET/USB/RS485 • MODBUS RTU/TCP

8DI-16R



WAD-DI024-ECO-8DI-16R

ТУ У 33.2-33056998-001:2009 (426440.001)

A 24-channel discrete input/output module for RS-485. Out of these 24 channels, 8 are discrete input channels and 16 are independent circuit closing contact groups with load current of up to 5A. All inputs/outputs are protected.

12DI-12R

WAD-DI024-ECO-12DI-12R

ТУ У 33.2-33056998-001:2009 (426440.001)

A 24-channel discrete input/output module for RS-485. Out of these 24 channels, 12 are discrete input channels and 12 are independent circuit closing contact groups with load current of up to 5A. All inputs/outputs are protected.

		WAD-DI024-ECO-8DI-16R	WAD-DI024-ECO-12DI-12R
	APC	Present (if required)	Present (if required)
DI	Number of Channels	8	12
DI	Input Levels of Logic 1	DC voltage 2,5V...500V (to be specified at the time of order)	DC voltage 2,5V...500V (to be specified at the time of order)
DI	Line Break Control in "Dry Contact" Configuration	On/Off	On/Off
DO	Number of Channels	16 (normally open)	12 (normally open)
DO	Maximum Switching Current	Up to 5A	Up to 5A
DO	Максимальное коммутируемое напряжение	Up to 250V	Up to 250V
DO	System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
	Galvanic Isolation	Channel-to-Bus	Channel-to-Bus
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	155,5x90x56,5 mm	155,5x90x56,5 mm
	Weight	250g	250g
	Box and Terminals	Compression screw terminals; wire section: 0,2-2,5 mm²	Compression screw terminals; wire section: 0,2-2,5 mm²
	Communication	USB/RS48; Modbus RTU; Ethernet; Modbus RTU/TCP	USB/RS48; Modbus RTU; Ethernet; Modbus RTU/TCP
	Power Consumption	Not more than 5.5W (in case of maximum load)	Not more than 5W (in case of maximum load)
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V	DC voltage (it needs not be stabilized): 10V – 30V

One module with numerous inputs and outputs correlating freely allows you minimizing the system cost. The protected output placing mode guarantees you 0% probability of running erroneous and (formally) "suitable" by address and format commands under the conditions of interference.

DIN RAIL | 3-YEAR GUARANTEE | ECO SERIES

DISCRETE INPUT/OUTPUT

APC • ETHERNET/USB/RS485 • MODBUS RTU/TCP

		WAD-DIO24-ECO-16DI-8R
	APC	Present (if required)
DI	Number of Channels	16
DI	Input Levels of Logic 1	DC voltage 2,5V...500V (to be specified at the time of order)
DI	Line Break Control in "Dry Contact" Configuration	On/Off
DO	Number of Channels	8 (normally open)
DO	Maximum Switching Current	Up to 5A
DO	Максимальное коммутируемое напряжение	Up to 250V
	System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
	Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	155,5x90x56,5 mm
	Weight	250g
	Box and Terminals	compression screw terminals; wire section: 0,2-2,5 mm²
	Communication	USB/RS48; Modbus RTU; Ethernet; Modbus RTU/TCP
	Power Consumption	Not more than 5W (in case of maximum load)
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

16DI-8R

WAD-DIO24-ECO-16DI-8R

ТУ У 33.2-33056998-001:2009 (426440.001)

A 24-channel discrete input/output module for RS-485. Out of these 24 channels, 16 are discrete input channels and 8 are independent circuit closing contact groups with load current of up to 5A. All inputs/outputs are protected.

One module with numerous inputs and outputs correlating freely allows you minimizing the system cost. The protected output placing mode guarantees you 0% probability of running erroneous and (formally) "suitable" by address and format commands under the conditions of interference.

WAD-DI024-ECO-24DI / WAD-DI024-ECO-24R

DISCRETE INPUT/OUTPUT

APC • ETHERNET/USB/RS485 • MODBUS RTU/TCP

24DI

WAD-DI024-ECO-24DI

TY Y 33.2-33056998-001:2009 (426440.001)

24 discrete input channels. Inputs: "dry contact"; constant levels. All inputs/outputs are protected.

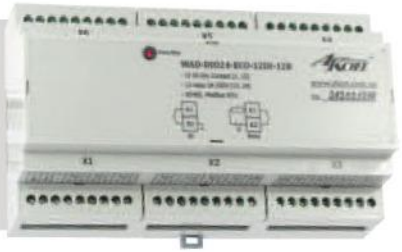
		WAD-DI024-ECO-24DI
	APC	Present (if required)
DI	Number of Channels	24
DI	Input Levels of Logic 1	DC voltage 2,5V...500V (to be specified at the time of order)
DI	Line Break Control in "Dry Contact" Configuration	On/Off
	Galvanic Isolation	Channel-to-Bus
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	155,5x90x56,5 mm
	Weight	250g
	Box and Terminals	Compression screw terminals; wire section: 0,2-2,5 mm²
	Communication	USB/RS48; Modbus RTU; Ethernet; Modbus RTU/TCP
	Power Consumption	Not more than 5W (in case of maximum load)
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

24R

WAD-DI024-ECO-24R

TY Y 33.2-33056998-001:2009 (426440.001)

A 24-channel relay block for RS-485. 24 independent circuit closing contact groups with load current of up to 5A. All inputs/outputs are protected.



		WAD-DI024-ECO-24R
	APC	Present (if required)
DO	Number of Channels	24 (normally open)
DO	Maximum Switching Current	Up to 5A
DO	Maximum Switching Voltage	Up to 250V
DO	System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
	Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	155,5x90x56,5 mm
	Weight	350g
	Box and Terminals	Compression screw terminals; wire section: 0,2-2,5 m²
	Communication	USB/RS48; Modbus RTU; Ethernet; Modbus RTU/TCP
	Power Consumption	Not more than 5,5W (in case of maximum load)
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

4DI/DO

WAD-DI04-ECO

ТУ У 33.2-33056998-001:2009 (426439.001)

4 discrete input/output channels. Inputs: potential (DC and AC voltage). Outputs: normally open with load current of 5A. All inputs/outputs are protected.

DISCRETE INPUT/OUTPUT

APC • ETHERNET/USB/RS485 • MODBUS RTU/TCP

		WAD-DI04-ECO
DI	Number of Channels	0...4
	Input Levels of Logic 1	DC voltage 2,5 V...500V (to be specified at the time of order)
	Line Break Control in "Dry Contact" Configuration	Absent
DO	Number of Channels	4...0
	Maximum Switching Current	Up to 5A
	Максимальное коммутируемое напряжение	Up to 250V
	System Status Controller	When there are no host requests to this module (or to other modules – to be adjusted) exceeding the timeout value set, the system status controller sets outputs as specified. The timeout period and channel status are configured.
	Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)
	Operational Temperature Range	On default: -20...+75 °C; Extended range: -40...+75 °C
	Dimensions	54x95x58 mm
	Weight	When the power supply is 10...30V – 150g When the power supply is 220V – 250g
	Клеммы	compression screw terminals; wire section: 0,2-2,5 mm²
	Communication	USB/RS48; Modbus RTU; Ethernet; Modbus RTU/TCP
	Power Consumption	Not more than 2,0W (in case of maximum load)
	Power Supply	Main: DC voltage: 10V – 30 V (it needs not be stabilized) Optional: 220V 50Hz

There is no better solution for not numerous input/output lines. This module combines all the best of its "predecessors".

NORMALIZER

WAD-A-MAX

TY Y 33.2-33056998-001:2009 (426448.001)

A one-channel module with galvanic isolation. The input connection can be two-, three- and four-wire. Voltage, current, thermocouples, strain gauge bridges and thermal resistance. Cold junction compensation and characteristic linearization. The current or voltage is normalized at an output. A percentage error is 0.07%. The power supply is 10-30V. Terminal blocks are screwed.

SPLITTER

WAD-2A-MAX

TY Y 33.2-33056998-001:2009 (426449.001)

An analog signal splitter with full galvanic isolation. The input connection is two-wire. Voltage, current, thermocouples and thermal resistance. Cold junction compensation. The current or voltage is normalized at an output. A percentage error is 0.07%. The power supply is 10-30V. Terminal blocks are screwed.

SPLITTER

WAD-2AR-BUS

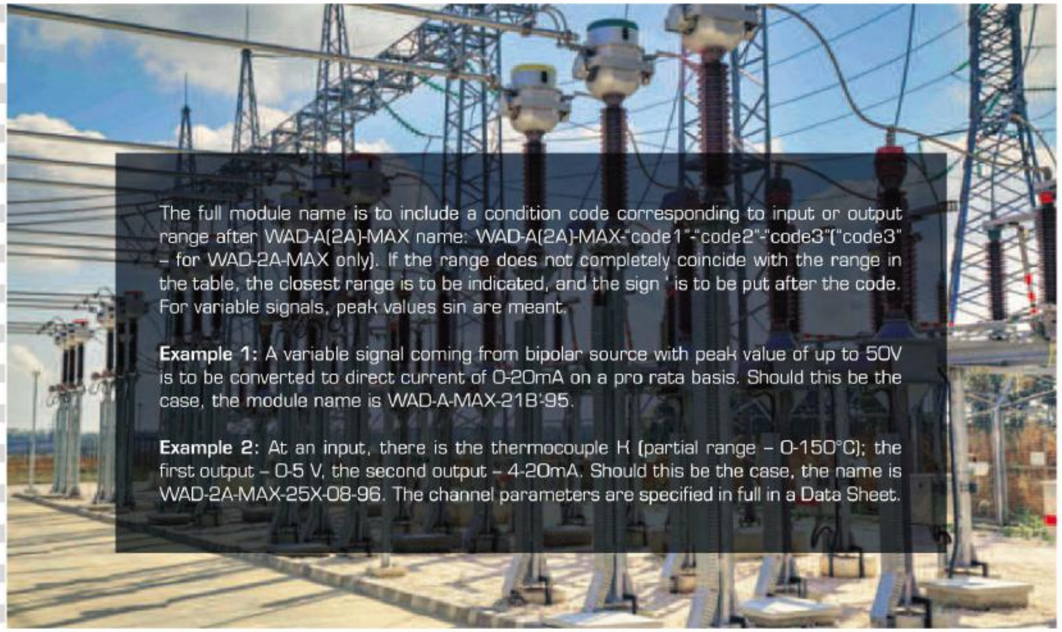
TY Y 33.2-33056998-001:2009 (466449.002)

An analog signal splitter with a full galvanic isolation, output manual control mode and an operating mode switch. The input connection is two-wire. Voltage, current, thermocouples and thermal resistance. Cold junction compensation. The current or voltage is normalized at an output. A percentage error is 0.07%. The power supply is 10-30 V. Terminal blocks are screwed.

GALVANIC ISOLATION (NORMALIZERS)

		WAD-A-MAX	WAD-2A-MAX	WAD-2AR-BUS
INPUT	Number of Input Channels	1	1	1
	Number of Output Channels	1	2	2
	Pass Band	5 Hz/16 Hz/50Hz...100kHz (to be specified)	5 Hz/16 Hz/50Hz...100kHz (to be specified)	5 Hz/16 Hz/50Hz...100kHz (to be specified)
	Galvanic Isolation	Channel-to-Channel 1,5kV (2,5kV, if required)		
	DC Voltage (unipolar or bipolar) and AC Voltage (RMS Value or Peak Value)	0-15mV, 0-30mV, 0-60mV, 0-125mV, 0-250mV, 0-500mV, 0-1V, 0-2V, 0-5V, 0-10V, 0-20V, 0-40V,0-80V, 0-150V, 0-300V, 0-600V		
	Thermocouple Signals	B, E, J, K, N, R, S, T, C, N, BP 5/20, A1, A2, A3 and other kinds		
	Resistance	0-15 Ohm, 0-30 Ohm, 0-60 Ohm, 0-125 Ohm, 0-250 Ohm, 0-500 Ohm, 0-1kOhm, 0-2kOhm		
	Resistance Thermometers	Copper Resistance Thermal Converters (CRTC) and Platinum Resistance Thermal Converters (PRTC): CRTC50, CRTC100, PRTC50, PRTC100, PRTC500, PRTC1000, PRTC1088, Pt100, Pt1000 and other kinds		
	DC (unipolar or bipolar) and AC (RMS Value or Peak Value)	0-1mA, 0-2mA, 0-5mA, 1-5mA, 0-10mA, 0-20mA, 4-20mA, 0-50mA, 0-100mA, 0-200mA, 0-500mA, 0-1 A, 0-2 A, 0-5 A		
OUTPUT	Voltage	0-2V, 0-5V, 1-5V, 0-10V, +/-2,5 V, +/-5 V 10V (Load resistance >500 Ohm) 0-2,5V, 0-5V, 1-5V, 0-10V (Load resistance >500 Ohm)		
	Current	0-5mA, 1-5mA, 0-20mA, 4-20mA (Voltage: up to 10V, Load resistance < 2kOhm – at the limit of 5mA, and <500 Ohm – at the limit of 20mA)		
	Output Voltage Resistance	Not more than 0,1 Ohm		
	Output Current Resistance	At least 10 Mohm		
	Basic DC Voltage Conversion Error	0,05%		
	Basic Thermocouple Signal Conversion Error	0,1% of output range		
	Basic Resistance Conversion Error	0,06% – at the limits of at least 0-60 Ohm		
	Basic Error when Dealing with Resistance Thermometers	0,07% of output range		
	Basic DC Conversion Error	0,07 % – at the limits of 0-1 mA...0-100mA, and not more than 0,2% – at the other limits		
	Basic RMS Value Conversion (Signal: 50-400Hz) Error	0,2% (typical 0.07%)		
	Dimensions	125,5x93,1x7,2 mm		114x105x22,5 mm
	Weight	65g		120g
	Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²		
	Power Consumption	1,3W (an output is not loaded); not more than 1,75W (load current: 20mA)		
	Power Supply	DC voltage (it needs not be stabilized): 10V – 30V		

CODE 1			INPUT SIGNAL	CODE 2 (3)		OUTPUT SIGNAL
Input Connection Diagram (choose one) Options: 2-wire 3-wire 4-wire	0	0	0-15mV			
	0	1	0-30mV			
	0	2	0-60mV			
	0	3	0-125mV			
	0	4	0-250mV			
	0	5	0-500mV			
	0	6	0-1V	0	6	0-1 V
	0	7	0-2V	0	7	0-2 V
	0	8	0-5V	0	8	0-5 V
2, 3, 4	0	9	0-10V	0	9	0-10V
2, 3, 4	0	A	0-20V	2	6	+/- 1 V
2, 3, 4	0	B	0-40V	2	7	+/- 2 V
2, 3, 4	0	C	0-80V	2	8	+/- 5 V
2, 3, 4	0	D	0-160V	2	9	+/- 10V
2, 3, 4	0	E	0-300V			
2, 3, 4	0	F	0-600V			
2, 3, 4	0	X	The other range for voltage			
2, 3, 4	1	0-F	The same ranges for AC voltage			
2, 3, 4	1	X	The other range; AC voltage			
2, 3, 4	2	0-F	The same range; bipolar; 02> 0-60mV, 22> +/-60mV			
2, 3, 4	2	X	the other range; bipolar for voltage			
2, 3, 4	3	0	0-15 Ohm			
2, 3, 4	3	1	0-30 Ohm			
2, 3, 4	3	2	0-60 Ohm			
2, 3, 4	3	3	0-125 Ohm			
2, 3, 4	3	4	0-250 Ohm			
2, 3, 4	3	5	0-500 Ohm			
2, 3, 4	3	6	0-1кOhm			
2, 3, 4	3	7	0-2кOhm			
2, 3, 4	3	X	Other			
2	5	0	Thermocouple B			
2	5	1	Thermocouple E			
2	5	2	Thermocouple J			
2	5	3	Thermocouple K			
2	5	4	Thermocouple N			
2	5	5	Thermocouple R			
2	5	6	Thermocouple S			
2	5	7	Thermocouple T			
2	5	X	The other type of thermocouple or a range used partially			
2, 3, 4	7	0	CRTC 50			
2, 3, 4	7	1	CRTC 100			
2, 3, 4	7	2	PRTC 50			
2, 3, 4	7	3	PRTC 100			
2, 3, 4	7	X	The other type of thermal resistance or a range used partially			
2	9	0	0-1mA			
2	9	1	0-2mA			
2	9	2	0-5mA			
2	9	3	1-5mA			
2	9	4	0-10mA			
2	9	5	0-20mA			
2	9	6	4-20mA	9	2	0-5mA
2	9	7	0-50mA	9	3	1-5mA
2	9	8	0-100mA	9	4	0-10mA
2	9	9	0-200mA	9	5	0-20mA
2	9	A	0-500mA	9	6	4-20mA
2	9	B	0-1A			
2	9	C	0-2A			
2	9	D	0-5A			
2	9	X	The other range for current			
2	A	0-D	The same ranges for AC			
2	A	X	The other range			
2	B	0-D	The same ranges; bipolar			
2	B	X	The other range; bipolar for current			



The full module name is to include a condition code corresponding to input or output range after WAD-A(2A)-MAX name: WAD-A(2A)-MAX-"code1"-"code2"-"code3"("code3" – for WAD-2A-MAX only). If the range does not completely coincide with the range in the table, the closest range is to be indicated, and the sign ' is to be put after the code. For variable signals, peak values sin are meant.

Example 1: A variable signal coming from bipolar source with peak value of up to 50V is to be converted to direct current of 0-20mA on a pro rata basis. Should this be the case, the module name is WAD-A-MAX-21B'-95.

Example 2: At an input, there is the thermocouple K (partial range – 0-150°C); the first output – 0-5 V, the second output – 4-20mA. Should this be the case, the name is WAD-2A-MAX-25X-08-96. The channel parameters are specified in full in a Data Sheet.

DIN RAIL | 3-YEAR GUARANTEE | MAX SERIES

SPARK PROTECTION UNIT AND LIGHTNING PROTECTION UNIT

	WAD-B-MAX	WAD-G-MAX
Number of Channels	3	3
Channel Type	For transmitting a bipolar signal with the peak value of +/- 30V (in relation to a common wire)	For transmitting a bipolar signal with the peak value of +/- 30V (in relation to a common wire)
Maximum Voltage of Each Line in Relation to Common Wire	0..+/-30V	0..+/-30V
Value of Channel (Input/Output) Series Resistance	240 Ohm +/-20%	10 Ohm +/-20%
Maximum Current through Barrier	80mA	-
Withstand Current of Discharge Lasting for Not More than 350 µs	-	500A
Withstand Current of Discharge Lasting for Not More than 20 µs	-	5kA
Response Time	-	less than 1 nsec
Channel-On-Common Wire Capacity	< 3nF	< 3nF
Channel Pass Band	0-1MHz	0-1MHz
Dimensions	125,5x93,1x7,2 mm	125,5x93,1x7,2 mm
Weight	65g	65g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²

SPARK PROTECTION UNIT

WAD-B-MAX

TY Y 33.2-33056998-001:2009 (426469.001)

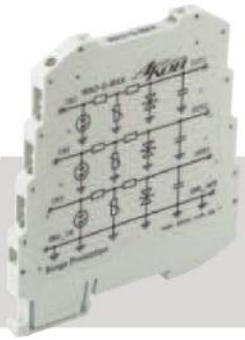
A three-channel spark protection module.

LIGHTNING PROTECTION UNIT

WAD-G-MAX

TY Y 33.2-33056998-001:2009 (426474.001)

A three-channel overvoltage & interference protection module (lightning protection module).



i *Small in size, these blocks protect the equipment duly. Despite of their dimensions, the admissible peak-point current in these blocks is similar to that in big boxes of other brands.*

DIN RAIL

3-YEAR GUARANTEE

POWER SUPPLY SOURCES WITH DIN-RAIL FIXATION

AC/DC • DC/DC

CONFIGURATION	ПАРАМЕТРЫ						
	Power, W	Number of Channels, items	Input Voltage, V	Output Voltage, V	Load Current, A	Dimensions, mm	Weight, g
WAD-MDR-10-24	10	1	85...264	24	0...0,42	100x90x22,5	170
WAD-MDR-20-12	20	1	85...264	12	0...1,67	100x90x22,5	190
WAD-MDR-20-24	20	1	85...264	24	0...1	100x90x22,5	190
WAD-MDR-40-12	40	1	85...264	12	0...3,33	100x90x40	300
WAD-MDR-40-24	40	1	85...264	24	0...1,7	100x90x40	300
WAD-MDR-60-12	60	1	85...264	12	0...5	100x90x40	330
WAD-MDR-60-24	60	1	85...264	24	0...2,5	100x90x40	330
WAD-MDR-60-48	60	1	85...264	48	0...1,25	100x90x40	330
WAD-MDR-100-12	100	1	85...264	12	0...7,5	100x90x55	420
WAD-MDR-100-24	100	1	85...264	24	0...4	100x90x55	420
WAD-POW-BUS 8x5	1,2	1...8	10-30В DC	5	0,03	114x105x17,5	110
WAD-POW-BUS 8x12	2,8	1...8	10-30В DC	12	0,03	114x105x17,5	110
WAD-POW-BUS 4x24	2,8	1...8	10-30В DC	24	0,03	114x105x17,5	110

AC/DC

WAD-MDR

AC/DC power supply source. Input: ~220В 50Hz. Output: 12 V/24 V/48 V; DC. Overheating, current overload and output overvoltage protection. Industrial version; DIN rail fixation.

DC/DC

WAD-POW-BUS

DC/DC power supply source for different low-power devices, sensors and strain gauge bridges. Input: 10V...30V; DC. Output: 5 V/12 V/24 V; DC. Channel-to channel galvanic isolation. Overheating, current overload and output overvoltage protection. Industrial version; DIN rail fixation.

To supply sensors with channel-to-channel isolation with power, an appropriate number of isolated sources is required. WAD-POW-BUS Module forms 8 channels with channel-to-channel isolation in one box. For instance, we obtain 8 input channels being open on a channel-to-channel basis with two WAD-AIH-BUS modules.

WEBHMI

INTEGRATED CONTROLLER

A WebHMI controller allows combining a set of automation devices in a unified system and carrying out supervisory monitoring of and control over this system with one simple web browser used through local network or Internet. An integrated SCADA with unlimited tags.

INTEGRATED CONTROLLER

ETHERNET/WIFI/USB/RS485 • SCADA

	WEBHMI
Platform	Ultra-compact, fanless MIPS processor architecture, Embedded Linux
Data Storage	Industrial SD Cards; up to 32GB
Interfaces	2 x Ethernet 100BASE-T, RJ45With galvanic isolation, ESD 3kV 1 x WLAN 802.11 b/g/n (transmitter power – 100 mW), antenna port – RP-SMA 1 x RS-485, "Multi-protocol" mode, 250/921 kbit/sec*, galvanic isolation – 2500V, ESD – 8kV 1 x USB 2.0 – loading capacity – up to 500mA, controlled supply, ESD protection according to IEC 61000-4-2 level 4: 15kV (air discharge) – 8kV (contact) Additional ports: RS-232/422/485, M-bus, 1-Wire, etc. through USB-adaptors
Modems Supported	3G, CDMA, GSM, EDGE
Input/Output	2 x solid state relays (125mA, 240V)
Clock	Real time clock with a back-up battery (CR3032) NTP-client NTP-server
Watchdog Timers	Present (system and communicative)
Response Time and Performance	Tunable polling time (at least 5 msec) Tunable frequency of data display in a web-interface (at least 20 times per second)
Power Supply	24V (18..32V) 500 mA (excluding the power consumption by USB devices) Built-in UPS; up to 120 min. of off-line operation
Box	ABS-plastic, DIN profile fixation
Protection Rate	IP40
Dimensions	101x35x120 mm
Weight	300 g
Temperature Range	0—50 °C
Compliance with Standards	DSTU (National Standards of Ukraine) CISPR 22:2007, DSTU CISPR 24:2008 (CISPR 24:1997, IDT), DSTU 4467-1:2005, DSTU IEC 61131-2:2006, DSTU 3626-97
Delivery Set	Packing, interface port, WiFi antenna, Data Sheet, Certificate of Guarantee

WAD-LAN/RS232/USB/RS485/ILOOP-BUS

WAD-LAN/RS232/USB/RS485/ILOOP-BUS

TY У 33.2-33056998-001:2009 (426441.001)

An ETHERNET, USB, RS232, RS485 interface converter (repeater) with an output to RS485 or the current loop of 0-20 mA. Galvanic isolation. All inputs/outputs are protected.

SPECIFICS: *It ensures a fail-safe network operation irrespective of the combination of different producer's modules on one bus.*

INTERFACE CONVERTERS
ETHERNET/USB/RS232/RS485/ILOOP

WAD-LAN/RS232/USB/RS485/ILOOP-BUS

Galvanic Isolation	Bank (Channel-to-Bus) 1,5kV (2,5kV, if required)
Operational Temperature Range	On default: -20...+75 °C; extended range: -40...+75 °C
Dimensions	114x105x17,5 mm / (C Ethernet) 114x105x22,5 mm
Weight	110g / 140g
Box and Terminals	Phoenix Contact (Germany); casted compression screw terminals; wire section: 0,2-2,5 mm²
Power Consumption	Not more than 1,5W
Power Supply	DC voltage (it needs not be stabilized): 10V – 30V

Interface Classification in terms of input and output conditions. All converters are bidirectional.

CONFIGURATION	INPUT INTERFACES					OUTPUT INTERFACES			
	RS232 #1	RS232 #2	USB	LAN	RS485	RS485 #1	ILOOP	RS232	RS485 #2
WAD-RS232/RS485-BUS	●					●			
WAD-2xRS232/RS485-BUS	●	●				●			
WAD-RS232/USB/RS485-BUS	●		●			●			
WAD-RS232/LAN/RS485-BUS	●			●		●			
WAD-RS232/RS485/RS485-BUS	●					●			
WAD-RS232/ILOOP-BUS	●						●		
WAD-2xRS232/ILOOP-BUS	●						●		
WAD-RS232/RS485/ILOOP-BUS	●	●				●	●		
WAD-RS232/LAN/ILOOP-BUS	●			●			●		
WAD-2xRS232/RS485/ILOOP-BUS	●	●				●	●		
WAD-USB/RS485-BUS			●			●			
WAD-USB/LAN/RS485-BUS			●	●		●			
WAD-USB/ILOOP-BUS			●				●		
WAD-USB/LAN/ILOOP-BUS			●	●			●		
WAD-LAN/RS485-BUS				●		●			
WAD-LAN/RS485/RS485-BUS				●		●			●
WAD-LAN/ILOOP-BUS				●			●		
WAD-LAN/RS232-BUS				●				●	
WAD-RS485/RS485-BUS					●	●			

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