



ZOOM® SYSTEM

STANDARD MONITORING CABINET FOR ENERGY INDUSTRIES

This cabinet is designed as a flexible, scalable solution for implementing monitoring in energy industries. A cost-effective product with a focus on reliability and performance, the standard cabinet is a future-proof solution. From an entry-level configuration, you can gradually build up your system as your monitoring needs evolve. The modular design allows fast and seamless integration of additional components.

The cabinet is offered in two basic configurations:









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CABINET MAIN FEATURES

- · Pre-assembled cabinets allow for fast and easy on-site installation while minimizing the risk of error
- · High-quality components from suppliers with proven reliability
- Pre-wired with high-quality wiring, structured cabling, fully tested
- · Pre-assembled to simplify future in-field installation of additional equipment
- Compatible with fiber-optic and traditional copper cable local area network
- Including relays for remote notification
- Meets IP54 and Nema 12 protection rating
- Front door with a full-height window, allowing a view on the instrument displays
- Solid metal rear door with two filter fans to guarantee long term operation
- Key lock handle on both front and rear doors
- Front and rear 19" rackmount internal configuration
- Cable entry from top and bottom of cabinet
- Terminal blocks provided for the connection of the two required power sources (Main for critical acquisition and alarm equipment, and Auxiliary for the cabinet complementary accessories)
- Internal power distribution through fuse-protected pull-out terminal blocks
- · Integrated power source for the measuring chains
- Factory Acceptance Test (FAT) report provided, performed with the client present on request
- Documentation is included, showing components location and general configuration





CABINET (UP TO 4 ZPU-5000 ACQUISITION UNITS)



The standard monitoring cabinet is provided with one ZPU-5000 acquisition unit. This cabinet allows for future expansion with room for up to four ZPU-5000 acquisition units to monitor up to 64 parameters.

CABINET WITH INTEGRATED ZOOM USER INTERFACE

(UP TO THREE ZPU-5000 ACQUISITION UNITS)





The standard monitoring cabinet with an integrated ZOOM user interface is provided with one ZPU-5000 acquisition unit. This cabinet allows for future expansion with room for up to three ZPU-5000 acquisition units to monitor up to 48 parameters. The ZOOM user interface includes a rackmount Workstation or Server and a touch screen monitor for interaction with the system.







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SPECIFICATIONS - RACK ENCLOSURE

PHYSICAL CHARACTERISTICS

• Model	42U Rittal Modular Enclosure	
• Dimensions		
Height (including plinth base)	2100 mm [<i>82.7 in.</i>]	
Width	600 mm [<i>23.6 in.</i>]	
Depth	800 mm <i>[31.5 in.]</i>	
Material		
Frame, rear door, and gland plates	Steel, 2 mm [78.7 mils]	
Front door	Aluminium with single-pane safety glass 3 mm	
Side panels	Steel, 1.5 mm [59.1 mils]	
Paint coating	3 stage: nanoceramic coating, electrophoretic dipcoat-primer, textured powder-coating	
Paint color		
Frame, rear door, roof, and side panels	RAL 7035 light gray	
Plinth base	RAL 9005 black	
Paint thickness	Typical: 100 μm <i>[4 mils]</i> (Minimum: 80 μm <i>[3 mils]</i>)	
Key lock handle	Front and rear doors	
Default door configuration	Left-hinged (may be changed to the opposite side after installation)	
Ventilation	Rear door - Two fans with filter (intake at bottom, exhaust at top)	
Weight (approximate)		
Equipped with one ZPU-5000 unit	198 kg [437 lb]	
Equipped with ZOOM user interface and one ZPU-5000 unit	218 kg [481 lb]	
Each additional ZPU-5000 and MFTBP panel	15 kg <i>[33 lb]</i>	
Anchoring provided	Concrete anchors through plinth base (model HSL-3 M8/20)	
Internal cable management	2 cable routes	
Cable entry	Top: Four 250 x 160 mm steel gland plates	
	Bottom: Floor divided into four steel gland plate segments	
Protective conductor terminal	Two earthing points, single barrel lug fixed to frame	
Conductor range	10 to 35 mm ² [8-2 AWG]	
Material	Copper	
ENVIRONMENT		
Protection rating	IP54, NEMA 12	
Temperature range		
Cabinet (up to 4 ZPU-5000 acquisition units)		
Operating	0 to 40 °C [32 to 104 °F]	
Storage	-20 to 80 °C [-4 to 176 °F]	
Cabinet with ZOOM user interface (up to 3 ZPU-5000 acquis	Cabinet with ZOOM user interface (up to 3 ZPU-5000 acquisition units)	
Operating	0 to 30 °C [<i>32 to 86 °F</i>]	
Storage	-20 to 60 °C [-4 to 140 °F]	
Humidity	Up to 85%, non-condensing	





EQUIPMENT DESCRIPTION

POWER PANEL

Each cabinet receives power from two sources to support two distinct power input circuits. The main power input circuit powers up to four ZPU-5000 acquisition units while the auxiliary power input circuit powers the cabinet fans and the Ethernet switch through a 24Vdc power supply, and the rackmount ZOOM user interface if this option is selected.

MAIN POWER INPUT CIRCUIT

The main power circuit is distributed through pull-out switches to the acquisition units and paired multifunction panels.

Input voltage range	
Universal use	100 to 240 Vac [50/60 Hz], 120 to 250 Vdc
Designated use*	
Option A: AC source	100 to 240 Vac [50/60 Hz]
Option B: DC source	120 to 250 Vdc
Protection	
Overcurrent	
Universal use	10 A Supplementary protector (UL 1077)
Designated AC source	10 A Listed circuit breaker (UL 489)
Designated DC source	10 A Listed circuit breaker (UL 489)
EMI filter and surge protection device	Included
(Note: an external listed circuit breaker is required, and mu	ist be provided by the client in accordance with local/national code)
• Load (max.)	
	170 \\/

With 1x ZPU-5000	170 W
With 4x ZPU-5000	680 W
Connection	Terminal blocks

AUXILIARY POWER INPUT CIRCUIT

The auxiliary power circuit is distributed through pull-out switches: to a 24 Vdc power supply powering the door fans and ethernet switch, and in cabinets with an integrated ZOOM user interface, to the touch screen monitor and computer.

 Input voltage range (nominal) 	
Cabinet with ZOOM User interface (up to 3 ZPU-5000)	
AC source	100 to 240 Vac [50/60 Hz]
Cabinet (up to 4 ZPU-5000)	
Universal use	100 to 240 Vac [50/60 Hz], 120 to 250 Vdc
Designated use*	
Option A: AC source	100 to 240 Vac [50/60 Hz]
Option B: DC source	120 to 250 Vdc
Protection	
Overcurrent	
Universal use	10 A Supplementary protector (UL 1077)
Designated AC source	10 A Listed circuit breaker (UL 489)







Designated DC source

10 A Listed circuit breaker (UL 489)

(Note: an external listed circuit breaker is required, and must be provided by the client in accordance with local/national code)

• Load (max.)	
Cabinet (up to 4 ZPU-5000)	45 W
Cabinet with integrated ZOOM User interface	e 315 W
Connection	Terminal blocks

Selection of a designated input range depends on local requirements and applicable standards, and determines the type of protective devices installed in the cabinet.

ETHERNET SWITCH

This Ethernet switch is prewired to all ZPU-5000 acquisition units and optionally to the ZOOM user interface inside the cabinet and will be used to connect the cabinet to the VibroSystM dedicated communication network. Two types of interface are provided: Ethernet RJ45, and fiber optic. Fiber optic connectors can be used for on-site connection of the Ethernet switch to the local FO network.

GENERAL CHARACTERISTICS

•	Basic functionality Port configuration Interface specifications	Unmanaged switch 6 RJ45 Ports/ 2 FO ports
	Ethernet RJ45 interface	
	Type of connection	RJ45 socket, auto-negotiation, and auto-crossing
	Transmission physics	Ethernet in RJ45 twisted pair
	Transmission speed	10/100 Mbps
	Maximum cable length	100 m
	Fiber optic interface	
	Type of connection	SC-Duplex
	Transmission physics	Multimode glass fiber
	Transmission speed	100 Mbps (SC-D, full-duplex)
	Maximum cable length	2 000 m (glass fiber 62.5/125)
	Connectors included	Five 3M [™] 6800-62.5 FO connectors
	Recommended assembly tool	3M [™] No Polish connector assembly tool 8865-AT







MULTIFUNCTION PANEL

Each ZPU-5000 acquisition unit is paired with a multifunction panel which includes terminal blocks, annunciation relays, and a 24Vdc power supply.

TERMINAL BLOCKS

Two types of terminal blocks are pre-wired to the ZPU-5000 through a standardized harness.

4-level terminal blocks provide for the connection of:

up to 16 sensor inputs

synchronization signal inputs

Double terminal blocks provide for the connection of:

3 control signals (alarm inhibit, external trigger, rotation) RS-485/RS-422 communication

GENERAL CHARACTERISTICS

Conductor cross-section

0.2 to 6 mm² [24-10 AWG]

ANNUNCIATION RELAYS

The relays are pre-wired to the ZPU-5000 through a standardized harness and provide for the connection of:

• Alarm	4 relays (all HI, HIHI, LO, and LOLO in parallel)
Status	2 relays (System OK and Channel OK)

GENERAL CHARACTERISTICS

- Contact type
- Maximum switching voltage
- Limiting continuous current
- Interrupting rating (ohmic load) max.
- Connection
- Conductor cross-section

2 relays (System OK and Channel OK) 1PDT

250 V ac/dc 6 A 140 W (at 24 Vdc), 23 W (at 110 Vdc), 40 W (at 220 Vdc) 1500 VA (at 250 Vac) Terminal blocks 0.14 to 2.5 mm² [26-14 AWG]

Identification	Source	Purpose of the NO/NC contact
System OK	Power supplies ZPU-5000 Control Module	Remote confirmation that all power supplies are operational Remote confirmation that all ZPU-5000 acquisition units are operational
Channels OK	ZPU-5000 Control Module	Remote confirmation that all measuring chains are operational
1 to 4	ZPU-5000 Analog Modules	Remote notification of a monitoring point alarm (alert or danger warning on high or low thresholds)







24Vdc POWER SUPPLY

The power supply on the multifunction panel receives its source from the main power input circuit of the Power panel and provides power for the status relays and the measuring chains. A LED status indicator and a dry contact connected to the System OK relay confirm the operability of the power supply.

ELECTRICAL CHARACTERISTICS

- Output
- Inrush surge protection
- Input fuse (internal)
- Transient surge protection

3.5 A 20 A (typical) Slow-blow, 5A Built-in (varistor)

Rackmount (19 in.), 1U

Windows 10 Pro for Workstation

1TB 7200rpm Hard Disk Drive (2x, RAID 1)

16GB, DDR4, 2666MHz, ECC

Intel Xeon E

OPTIONAL RACKMOUNT ZOOM USER INTERFACE

The cabinet with an integrated ZOOM user interface includes either a rack-mount Workstation or a Server, and a LED-19.5 touch screen monitor.

WORKSTATION

- Format
- Processor
- Operating system
- Memory
- Storage

SERVER

• Format Rackmount (19 in.), 1U • Processor Intel Xeon E · Operating system Windows Server 2019 (5 CAL included) • Database engine • Memory 16GB, DDR4, 2666MHz, ECC • Storage

TOUCH SCREEN MONITOR

- Type
- Resolution
- Image size Diagonal Width Height
- Format
- Control Panel Buttons

Microsoft SQL Express (limited to 10 GBytes database) 1TB 7200rpm Hard Disk Drive (2x, RAID 1)

Thin-film transistor (TFT) Active Matrix Liquid Crystal HD 1080p (1920 x 1080 @ 60 Hz)

495 mm [19.5 in.] 435 mm [17.1 in.] 239 mm [9.4 in.] Rackmount (19 in.), 7U Power On/Off button, Control Function buttons







CABINET INTERNAL WIRING AND CABLING

All wires and cables have stranded tinned copper conductors, and each conductor is terminated by either a lug or a tinned insulated ferrule.

SINGLE CONDUCTOR WIRES

- Internal main and auxiliary power distribution
 - 14 AWG, 600 V, PVC jacket, colors: white, black, green/yellow
- Internal 24VDC power distribution
 16 AWG, 600 V, PVC jacket, colors: red, black
- Digital signal and relay control circuit

 AWG, 300 Vrms, PVC jacket, colors: red, black
 AWG, 300 Vrms, PVC jacket, colors: red, black
 AWG, 300 Vrms, PVC jacket, colors: red, white, green

MULTICONDUCTOR CABLES

Internal 24VDC power distribution

16 AWG, stranded (19x29), 300 V, PVC jacket, 1 twisted pair, shielded, color code: red & black

• Digital signal and relay control circuit

22 AWG, stranded (7x30), 300 V, PVC jacket, 2 twisted pairs, individually shielded, color code: red & black, green & white

Analog Input/Output

20 AWG, stranded (7x28), 600 V, PVC jacket, 1 pair, shielded, color code: red & black

• RS-422/485 serial communication

22 AWG, stranded (7x30), 300 V, PVC jacket, 2 twisted pairs, individually shielded, color code: red & black, green & white







MARKING AND LABELS

The structured wiring method clearly identifies each terminal block and each wire. The components inside the cabinet are connected through standardized harnesses.

- Multi-conductor cables inside a harness are identified with a printed cable marker, either clip-on or secured with a cable tie.
- Every control wire is identified at both ends with a printed clip-on cable marker.



- Every connection point on every terminal block is identified (on both sides) with a printed plastic marker.
- Every connector is identified with a plastified printed label.
- Every safety function grounding point on the panels and inside the cabinet is identified with a polyester laminated label.

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