enorise

Simulate, Automate, Qualify

# MIO™ Acquisition

## Smart solution for testing measurements

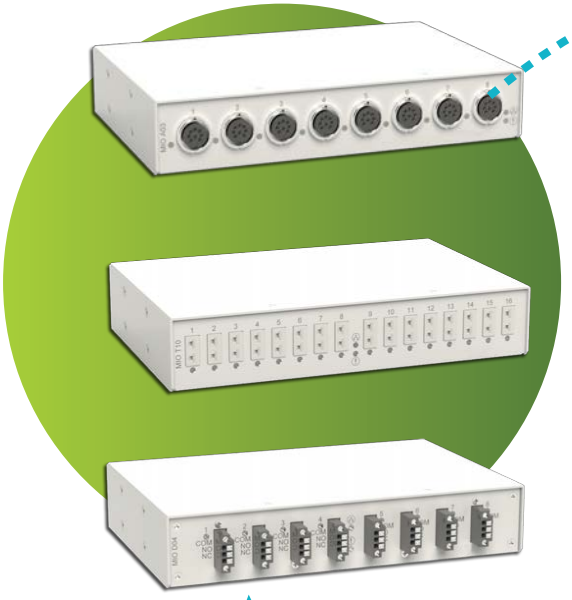
# MIO™ Acquisition

## The most suitable acquisition solution for your testcell

ENORISE MIO™ Acquisition range has been developed to provide a high level of integration with MORPHEE® automation system. Featuring excellent acquisition and control performances thanks to the EtherCAT technology, it is the perfect solution for measurement boombox or mobile measurement racks of test beds but also for embedded applications including e-mobility.

## With ENORISE solutions, boost your acquisition capacities!

**MIO™ product range provides performant, robust and accurate measurements of all relevant signals in any kind of test beds.**




## Your benefits

- High integration with MORPHEE®
- Direct EtherCat connectivity
- Compact and modular
- Simple and reliable
- Easy maintenance and updates

EtherCAT®

(Ethernet for Control and Automation Technology) is an Ethernet solution for industrial automation offering exceptional performance while being very easy to use. The master bus requires no additional extension board, and can be easily implemented on any Ethernet adapter. EtherCAT is especially well-suited for control-command systems that use remote I/O, such as automotive test cells.

## MIO A04

- 8 Analog outputs module
- ±10 V or 0...20 mA
- 16 bit resolution
- 20 kHz sampling rate per channel
- 500 Vpk isolation channel by channel
- Binder 7 pins plugs
- +9...30 VDC supply

## MIO A06

- 8 Insulated analog inputs module
- ±50 V, ±30 V, ±10 V, ±5 V, ±2 V, ±1 V, or 0...25 mA
- 24 bit resolution
- 20 kHz sampling rate per channel
- Binder 8 pins plugs
- +9...30 VDC supply

## MIO A31

- 16 Analog inputs module
- +/-10 V or 0...25 mA
- 24 bit resolution
- 20 kHz sampling rate per channel
- LEMO 5 pins plg
- +9...30 VCS supply

## MIO A33

- 8 Analog inputs module
- +/-10 V or 0...25 mA
- 24 bit resolution
- 20 kHz sampling rate per channel
- Binder 5 pins plug
- +9 ... 30 VCS supply

## MIO D01

- 16 Digital channels module
- 8 x TTL or HTL inputs PWM, Period and frequency measuring
- 8 x TTL or relay outputs PWM, state and frequency control up to 100 kHz
- Sensor supply 5 VDC
- 20 kHz sampling rate per channel
- Weidmuller terminal with clamps
- +9...30 VDC supply

## MIO D02

- 16 Digital inputs module
- TTL or HTL
- PWM, period and frequency measuring
- Sensor supply 5 VDC
- 20 kHz sampling rate per channel
- 500 Vpk isolation (2 by 2)
- Weidmuller terminal with clamps
- +9...30 VDC supply

## MIO D03

- 16 Digital outputs module
- Solid-state relays 500 mA / 50 V (dry contact)
- TTL 0...5 V
- SENT, PWM, state and frequency
- control up to 360 kHz
- Sensor supply 5 Vdc
- 20 kHz sampling rate per channel
- Weidmuller terminal with clamps
- +9...30 VDC supply

## MIO D04

- 8 Digital outputs module
- Electromechanical relays
- 8 A / 100 V (dry contact)
- State control
- 20 kHz sampling rate per channel
- 500 Vpk isolation channel by channel
- Weidmuller terminal with clamps
- +9...30 VDC supply

## MIO F01

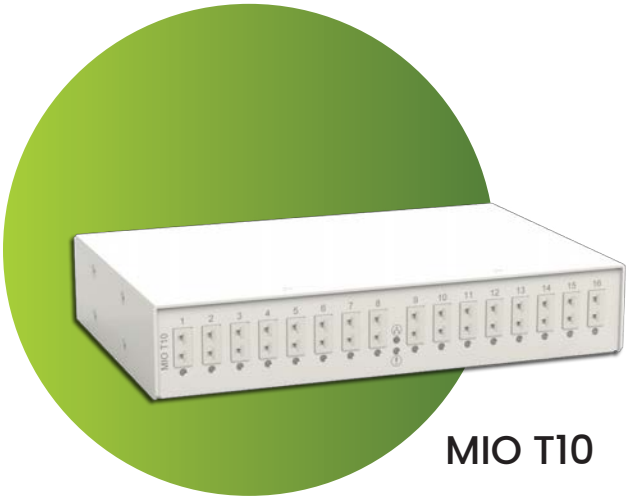
- 4 Frequency inputs rack
- 0.2 Hz to 360 kHz
- Torque, speed, acyclism, position or frequency measurements
- Binder 12 pins, DIN8 and BNC plugs
- +9 ... 30 V supply

## MIO R02

- 8 Resistance inputs module
- 2, 3 or 4 wires
- PT100, PT1000 or Potentiometer
- 24 bit resolution
- 100 Hz sampling rate per channel
- 500 Vpk isolation channel by channel
- Binder 8 pins plugs
- +9...30 VDC supply

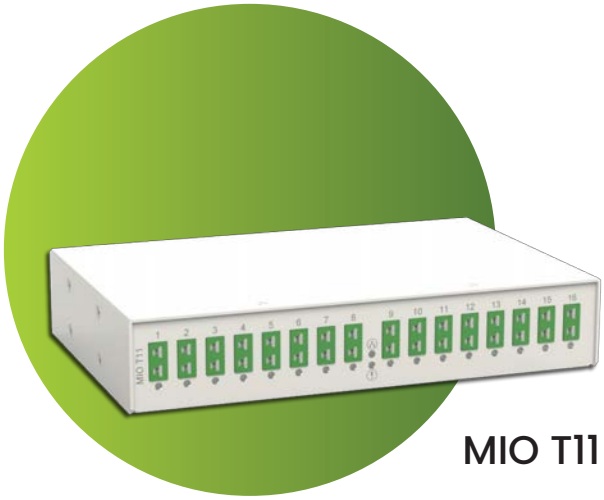
## MIO R03s

- 8 Resistance outputs module
- 10 Ω to 1 MΩ
- 0.25 Ω resolution
- 5 Hz sampling rate per channel
- 500 Vpk insulation channel by channel
- Banana plugs
- +9 ... 30 V supply



## MIO T10

- 16 Thermocouples module
- Type: K, J, T, E, N, R, S, B
- 24 bit resolution
- 100 Hz sampling rate per channel
- 500 Vpk isolation channel by channel
- Mini TCU plugs
- +9...30 VDC supply



## MIO T11

- 16 Thermocouples module
- Type: K
- 24 bit resolution
- 100 Hz sampling rate per channel
- 500 Vpk isolation channel by channel
- Mini TCK plugs
- +9...30 VDC supply

## MIO A05

- 16 Analog inputs rack
- ± 50 V, ± 30 V, ± 10 V, ± 5 V, ± 2 V, ± 1 V or 0…25 mA
- 24 bit resolution
- 20 kHz sampling rate per channel
- 500 Vpk isolation channel by channel
- Binder 8 pins plugs (Variant A07 Binder 6 pins ; variant A09 – M12 A 8 pins – quantity 20 min)
- +9…30 VDC supply

## MIO P03

- 8 Analog inputs rack dedicated to pressure transducers
- 1 U
- ± 10 V, 0…25 mA
- 24 bit resolution
- 20 kHz sampling rate per channel
- +9 … 30 V supply

## MIO P04

- 8 Analog inputs rack dedicated to pressure transducers
- 2 U
- ± 10 V, 0…25 mA
- 24 bit resolution
- 20 kHz sampling rate per channel
- +9 … 30 V supply

# High Voltage MIO Racks

## MIO A11

- 4 x High voltage Inputs - 4 x Current sensors Channels
- ± 1400 V, ± 700 V, ± 280 V, ± 140 V
- 1000 V CAT III
- Banana plugs (4mm)
- ± 2000 A, ± 50 A (HIOKI Current transducers)
- ± 10 V, ± 5 V, ± 2 V, ± 1 V or ±25 mA
- 60 Vdc – 500 Vpk
- BNC & ME15W
- 24 bit resolution
- 500 kHz sampling rate per channel
- +10...+30 Vdc

## MIO A12

- 16 x Isolated analog inputs Channels
- ± 100 V, ± 30 V, ± 10 V, ± 3 V
- 24 bit resolution
- 20 kHz sampling rate per channel
- Isolation: 1000 V CAT II & 600 V CATIII
- Banana plugs (4mm)
- +9...+30 Vdc


To build the largest High Voltage Battery Test Center in the world, ENORISE has increased its MIO™ range with High Voltage racks.
This range is able to meet all your needs in high voltage battery testing.

# DYNABOX

## “A universal box for the monitoring of all ENORISE dynamometers”


The DYNABOX is dedicated to the monitoring management of ENORISE DYNACRAFT dynamometers. This unit integrates a lot of channels for dedicated monitoring functions: Torque, Speed, PT100, PTC, Vibration measurements or digital inputs.

# DYNABOX

## Technical Data

### Inputs:

- 4 x PT100
- 2 x PTC / PT1000 / PT100
- 4 x Digital input
- 4 x Vibration 4-20 mA
- 1 x Speed (Incremental encoder)
- 1 x Torque (Frequency signal)
- 3 x Slots for optional input

### Outputs:

- 4 x Digital output (Dry contact)
- 1 x Summary digital output (Relay)
- 2 x Speed in Frequency (Input copy)
- 1 x Torque in Frequency (Input copy)
- 1 x Torque in Voltage (Measurement value)

### Interfaces:

- Ethernet (Web server)
- EtherCAT
- Power supply: 9-30 Vdc
- Operating temperature: -20... +60°C
- Protection class: IP54
- EMC: IEC61326-1
- Size (W x H x D): 410 x 250 x 110 mm
- Weight: ~ 5,0 kg
- Scope of supply
- 1 x DynaBox
- 1 x User manual in English or in French

ENORISE

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**Are you interested in innovative, pioneering software solutions?**

**Contact us!**

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