



Digital Measure and Control System EU3000RTC



The EU3000D is the newest generation of digital measure and control system. It's fully modular design allows the most flexible set up for all test applications from a simple single channel test rig up to complex cross coupled 32 channel full vehicle simulator.

The multi station, multiuser capabilities allows it to control several independent test rigs from one control system.

A wide range of different universal and specialized I/O modules like signal conditioners or analogue in and outputs and Servo outputs makes the EU3000RTC usable with any test rig and is the first choice for new test rigs as well as for upgrading your existing test rig to the 21 century technology.

24Bit AD Resolution and 10kHz loop update rate that don't scale down with the number of channels results in an unbeaten accuracy in measure and control.

The seamless integration of CAN Bus and Flexray signals from specimen ECU's allows realistic testing of modern car and truck components.

The usage of proven industrial standards and concepts results in an excellent reliability.

With the modular, powerful and easy to use software TestControl a test rig and test set up is a task of minutes.

Structure of the EU3000RTC measure

and Control System

Operator PC's

For parameterisation of the System and the test and visualisation of the signals under the operating system MS Windows



RTC

Real Time Control Unit for signal processing and calculation of the control loops

1 GB Ethernet TCP/IP



I/O Base Frame

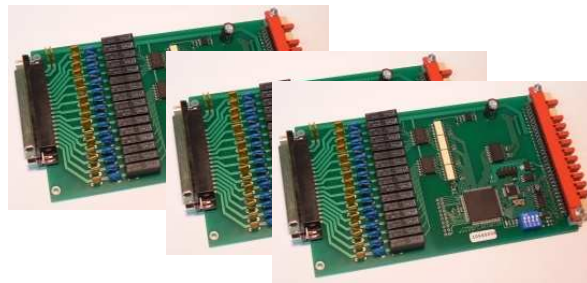
Carries the I/O Modules and the 1GB Ethernet Interface to the RTC Unit

1 GB Raw Ethernet



I/O Modules

- Signal conditioners
- Digital I/O
- Analogue I/O
- Servo valve drivers



Core element of the EU3000RTC is the RTC Real Time Control Unit. The RTC processes the input and output signals, calculates the PID loop and run the test sequence.

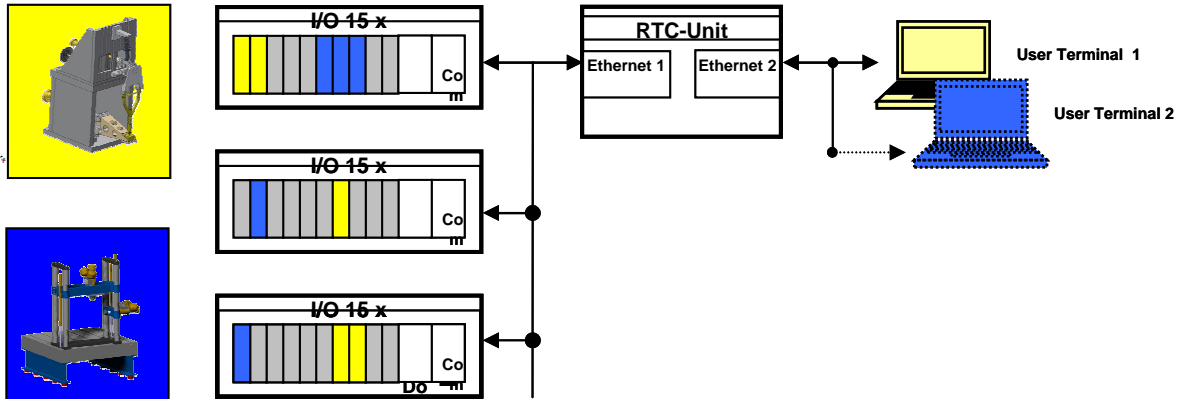
The RTC unit Interfaces to the I/O Frames with the I/O modules and the User PC. All real-time tasks are proceed in the RTC. The user PC is only for setting the parameters and for visualisation of the signals.

The I/O Base Frames accommodates an 1GB raw Ethernet interface to the RTC and carries the I/O modules. The I/O modules acts as the interfaces to the test rig.

Communication between RTC unit, I/O Base Frame, I/O Modules and user PC are supervised by watch-dog functions. If communication is disturbed system runs in a safe state.

Safety relevant functions like emergency stop functions are realized in real hardware by PiZ PNOZ relays. This functions direct cut the current to the start stop valve solenoids or other drive systems without the need of interaction from the RTC-Unit.

Multi Station Multi User Capabilities



The Multi-Station Multi-User capabilities allows to control several test rig from one or several user terminals. System resources can be assigned freely to any test rig configuration. There is no hard binding from sensor channels to control channels. Each signal can be configured as a control loop feedback signal in depended from the position in the system.

Standard System Configurations

(Any other configuration or packaging is possible on request)

Configuration	EU3000RTC 1-2 Compact	EU3000RTC 1-6 Basic	EU3000RTC 1-8 Medium	EU3000RTC 1-18 Enterprise
Number of servo control Channels	1-2 3-4	1-6	1-8	1-16
I/O Base frame	1 x I/O Base 8 extensible to 2	1 x I/O Base 15 extensible to 2	2 x I/O Base 15 extensible to 3	4 x I/O Base 15 extensible to 6
Max. No. of I/O Modules	8 (16)	15 (30)	30 (45)	60 (90)
24 Volt power supply	6 A 12A (with second I/O Base 8)	20 A	40A	60A
Max No. of solenoids (24V, 1.25A)	4 8 (with second I/O Base 8)	12	20	40
Cabinet size (mm) height x with x depth	200x520x500 or 900x600x600	1300x600x600	1500x600x600	1800x600x600
Operator PC	External Laptop or PC	Industrial PC, Integrated or external	Industrial PC, Integrated or external	Industrial PC, Integrated or external
Electrical Power	230V, 1kVA	230V, 1.2kVA	230V, 1.5kVA	230V, 2.5kVA
Weight (app.)	30kg	160kg	180kg	200kg



Specifications

General:

Number of control loops	max. 32
Number of independent testing stations	max. 32
Number of in- or output channels	max. 128
Number of operator PC	max. 8
UPS buffered voltage supply	
PIZ PNOZ Emergency Stop circuits	
Communication bandwidth 1GBIT/s	

Operation:

Standard PC runs Microsoft Windows
Interface Ethernet TCP/IP 1GBIT

Environment and voltage supply:

Voltage: 230V
Frequency: 45 – 65Hz
Storage temperature -40 to + 60°C
Storage humidity 10 to 90% no condensing

Output I/O Modules:

Analog Output module

8 analogue outputs per module
Voltage +-10 Volt
Resolution 16 Bit DAC
Update rate 10 kHz
connector BNC connector or SUB-D

Digital Output module

16 digital outputs per module
Switching capacity 24 V DC/1,5 A per contact
Regenerative fuses 2A

Servo valve and manifold drive module

4 X Servo valves Moog Series 761 or similar
4 X Servo valves Moog Series 765 or similar
2 X Servo valves Moog Series 792 or similar
3 X digital solenoid outputs 24V 1,35A
1 X digit multi valve output 24V 1,35A
1 X Emergency stop contact

Input I/O Modules

Analogue Inputs

4 Inputs per I/O module
Resolution 24 Bit ADC
Input voltage ± 1 V or ± 10 V
Sample frequency 10 kHz

Digital Input module

16 digital Inputs per I/O module
auxiliary supply 24V internal / external

DC Signal conditioner module

2 Inputs per I/O module
Strain gauge full or half bridge
4 or 6 wire sensors
auxiliary voltage supply for potentiometer sensors
Sensitivity 0,125 mV/V to 1000 mV/V
Supply voltage 2,5V to 10V
Resolution 24 Bit ADC
Sample rate 10 kHz

AC Signal conditioner module

2 Inputs channels per I/O module
Resolution 24 Bit ADC
Sample rate 10 kHz
Full- or half bridge sensors
2 independent carrier frequency generators
Carrier frequency 3,3 , 5 or 10 kHz
Sensitivity 0,125 mV/V to 500 mV/V
Supply voltage 2,5 V eff

PCB Input module

2 input channels per module
2 wire types
Constant current source 3.5mA
Adjustable gain
High pass filter HP 0,2 Hz or 1 Hz
Low pass filter 5 kHz

Digital incremental/counter input module

2 input channels per module
Input Signals TTL, RS 422
Counting frequency 500 kHz
Sensor supply voltage 5V DC 300mA
Counting range 32 Bit

Other module like Universal amplifier, communication cards like RS422, RS485, SSI are available