TIMING

REIPRO

Touch the invisible

www.reipro.it

MICROGATE

REIPRO

Touch the invisible

MAIN CHARACTERISTICS

WEIGHT 2.2 kg

DIMENSIONS (LxHxD) 365 x 245 x 78 mm (78mm max, 30mm min)

OPERATING TEMPERATURE RANGE -25°C +70°C

TIME MEASUREMENT UNITS selectable down to 1/10,000 of a second

TIME ACCURACY 1/50,000 of a second

RACE MEMORY standard 8 GB expandable to 128 GB

Welcome to the new era of professional timekeeping.

Microgate has developed a revolutionary professional chronometer: the first timer to feature fully digital connectivity (Ethernet, Wifi, Bluetooth), that gives you total precision while offering the versatility and flexibility to meet all professional timekeeping requirements. The new user interface couldn't be more simple, with a large touchscreen and easy connection of peripheral devices, such as a monitor, keyboard and mouse.

State-of-the-art components used throughout

EVEN MORE LINES

Compared with the previous model, ReiPro retains the 4 main input lines (start, stop, lap, aux) with both banana sockets and amphenol socket:
- plus one additional native input for radio line management.
- implements ReiPro Net, based on Ethernet infrastructure.
- retains communication with peripheral devices via RS232 and RS485 serial lines.
- introduces direct communication to PC via USB.

CONNETTIVITY

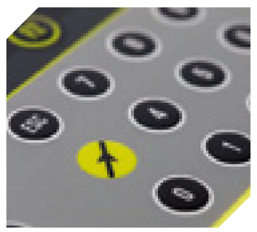
It is easy to connect a mouse, a monitor, an external keyboard or a PC via the USB and HDMI ports provided. Two Ethernet ports facilitate the creation of LAN ReiPro Networks without the use of switch and internal WiFi and Bluetooth modules allow you to fully exploit all the resources available on your WLAN and Smartphone or other mobile device.

DISPLAY

ReiPro is equipped with a large touch screen colour display (7") with high brightness level (which can be set manually or automatically via the light sensor), and has the possibility to invert the background colour, a feature that its makes it suitable for use in strong ambient light conditions.

KEYBOARD

The immediacy of the touch screen is supported by the functionalities of the keyboard, which have been retained to give greater flexibility of access to the commands. The ergonomic layout of the keys (in terms of both spacing and positioning) and an excellent tactile response allow rapid, precise key operation.

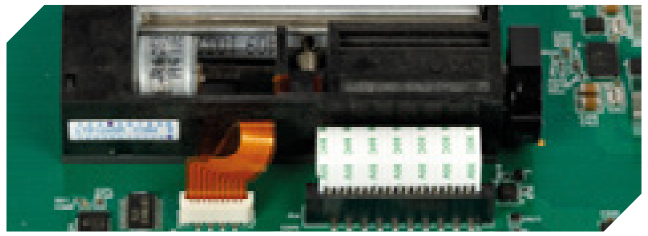


POWER SUPPLY

ReiPro is equipped with an internal lithium-ion battery with a high capacity, providing up to 10 hours of autonomy. The battery is easily replaceable by the user, without the need for any special maintenance operations. The chronometer can also be powered from a direct current power supply with input voltage ranging from 10 to 30 V.

PRINTER

The thermal printer allows operation at low temperatures (-25 +70°C), with print speeds of up to up to 8 lines a second and noiseless printing. The paper rolls used are of standard size and readily available.



CPU E TIMING UNIT

The architecture is based on two separate processors. To ensure maximum reliability, the Quad Core General CPU manages the operating system and all the related operations, while the Time Base and all the section dedicated to real-time events is managed by an FPGA responsible for timing alone.

TIME BASE

The time base used is thermocompensated and guarantees a high level of precision: ±1 ppm over the entire temperature range. Even in standby mode, with the chronometer powered off, the time base continues to function with the same degree of accuracy (until the batteries are fully discharged), ensuring that the time and date remain synchronized. Inside the machine, there is a latest generation GPS module that can be connected to an external antenna in situations where the unit fails to receive the signal.

SOFTWARE

A new UI/UX for easy operation

UI

USER INTERFACE

Much thought has gone into making the ReiPro chronometer simpler, easier and quicker to use, while maintaining the basic concepts and innovative operational philosophy introduced 15 years ago with the Rei2. Any time and effort you may have spent learning how to use the Rei2 will certainly not go to waste, but users new and old will find new features offering significant advantages:

Improved menu navigation
- Use of icons and explanatory text
- Use of touch navigation
- Permanently present dedicated icons for:
  Synchronization
  Test Hardware
  Configurations

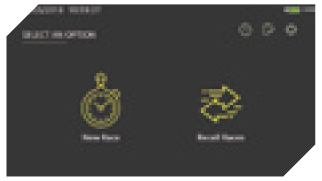
Simplified settings and configuration
- Use of status bar and navigation pane
- Use of a breadcrumb trail, so you always know which menu you are in
- Use of dedicated icons with specific colours (e.g. red=synchronization, green=settings, orange=test)
- Use of user friendly controls (sliders, toggles, dropdown menus)
- Portability of configurations (xml files can be copied from one ReiPro to another)

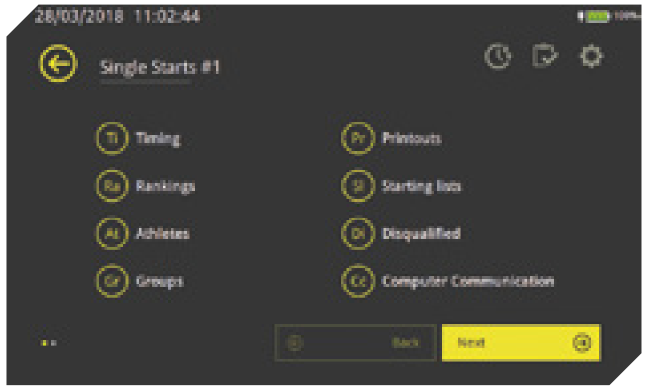
Operational continuity for REI2 users
- The three START-LAP-STOP zones are retained
- In addition to the original 5 function keys F1…F5, there are now an additional 6 side function keys, each with a specific task (A…F)
- Addition of a dedicated MENU key

OS

OPERATING SYSTEM

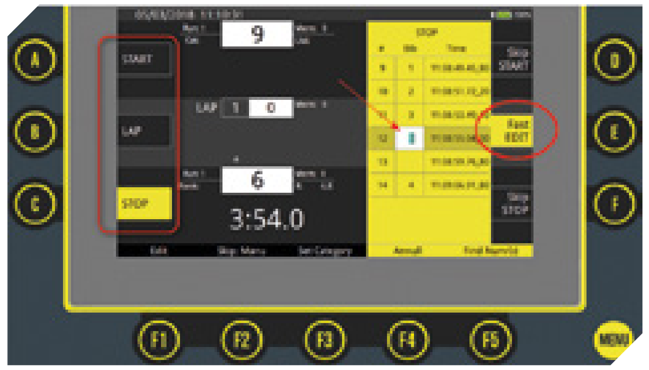
The ReiPro's operating system is based on a customised version of Linux that uses the Yocto Project Framework optimised for embedded systems.





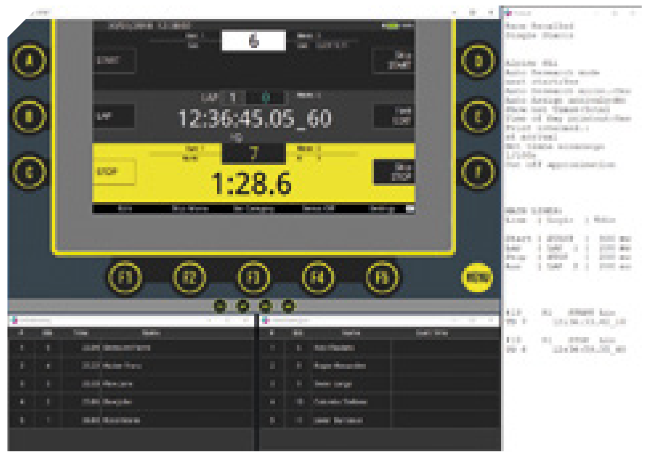
FAST EDIT

A new event correction mode: allows you to monitor starts, laps and finishes without losing track of the general progress of the race. The assignment/editing of a bib to a timer is made particularly simple by the use of the touch screen.



PC SIMULATOR

Thanks to the cross-platform architecture of the development environment used, the same identical software that runs on the ReiPro will also run on a PC platform. As well as the display window that can be used both with a mouse and keyboard, the printer outputs and two windows for the start list and results are simulated. A feature that is very useful for the purposes of demos, training tests or even just to take a quick preview…



PROGRAMS

SIMPLE STOPWATCH

- Management of light athletics events, ideal for displaying times and lap speeds.
- Countdown management
- Cycling
- Carving events management
- Motorsport
- Possibility to stop/restart the timer with scoreboard display (basketball, time out).

SINGLE STARTS

- Events such as alpine skiing, mountain bike races, downhill races, hillclimbs etc..
- Possibility to manage an unlimited number of competitors on the track
- Application of the BIBO rule for start list inversion
- Materials test: for the measurement of average and top speeds, for acquisition of air temperature and humidity and snow temperature. Suitable also for the acquisition of wind speed data.

GROUP STARTS

- Particularly suitable for competitions such as cross-country skiing, marathons, cross country runs, cycling etc.

PARALLEL SLALOM

- Possibility to manage races without a start impulse (using only difference between finish times), with single start (starting gates) or double start (two separate start impulses).

EQUESTRIANISM

- Timing for single, one-phase, two-phase and consecutive jump-off in both table A and C in accordance with FEI rules.
- Simple and immediate attribution of time and point penalties.
- Jump-off.
- Points competitions.
- Sophisticated rankings management.

PC-ONLINE

- Use of the chronometer as a time base for remote management via PC.
- Classic car trials: management of one or more impulse acquisition stations (via pressure switch or other sensor type) and pairing of the bib number with the impulse acquired.

SWIMMING

- Race management in manual mode or via the use of touchpads.
- Possibility to automatically detect the lane from which the impulse originates.
- Automatic management of the length counter, with the possibility for manual intervention in the event of missing impulses.
- Sophisticated rankings management.

INDIVIDUAL PURSUIT

- Skating races (including quartets).
- Cycling races in velodromes.

The configurations of all the programs are fully adaptable to any type of competition.

TECHNICAL SPECIFICATIONS

GENERAL	
Weight	2.2 kg
Dimensions	365 x 245 x 78 mm (78mm max, 30mm min)
Operating temperature	-25/+70 °C
TIMING	
Time measurement unit	Selectable between 1s - 1/10s - 1/100s - 1/1000s; -1/10000s Speed: selectable between m/s - km/h - Mph - nots
Measurement resolution	20 x 10^{-6} s (1/50000 s)
Time base	19.2 MHz VCTCXO oscillator, stability ±1 ppm from 30 to +85°C (ageing in first year ±1ppm)
Accuracy	±0.0864 s/day for temperatures from -25° to +70°C
POWER SUPPLY	
Power supply	External DC power supply 12–28V; Internal Li-ion batteries
Battery recharging	Built-in smart recharging device
Uptime	> 8 hours
Power ON/OFF	From the keyboard, with dedicated key
USER INTERFACE	
Keyboard	49-key keyboard, covered with a protective waterproof membrane
Display	High-brightness colour TFT graphical display, visual area 152 x 91 mm (7.0"), resolution 800 x 480 Pixel, excellent/good visibility in sunlight, capacitive touchscreen, software brightness adjustment or automatic adjustment with built-in light sensor
Printer	Thermal printer • Various fonts available • Speed: approx. 8 lines/s • Uses thermal paper
Processing unit	Architecture based on two processors – General CPU and Timing Unit: General CPU (based on SOM, System on Module) • Quad Core Arm9 @800MHz Timing Unit (based on FPGA) • NIOS II/e 32bit RISC processor

CONNECTIONS	
Supply	1 x Amphenol socket • Connection for external power supply
Timing Inputs	1 x Amphenol socket • Start, stop, lap and auxiliary signal inputs 4 x Ø4 mm sockets • Start, stop, lap and auxiliary signal inputs
Analogue I/O	1 x Amphenol socket • 3 x 0–5V analogue inputs for connecting temperature, humidity and wind speed sensors • 1 x 0–5V digital I/O for connecting/driving external devices
Digital I/O	1 x Amphenol socket • 5 x 0–5V digital I/Os for connecting/driving external devices
Serial	3 x Amphenol socket • RS232/485 serial inputs/outputs for connecting to PC, display boards, REI2 NET, LinkGate, etc. (serial interfaces completely isolated from the timer power supply)
Radio	2 x five-pole sockets • Connection to Microgate LinkGate radio transmission system
Linkpod	1 x Amphenol socket • Connection to LinkPod system (up to 80 auxiliary inputs completely isolated from the timer power supply)
Host USB	4 x USB A ports • USB 2.0 connection to "Device" devices
Device USB	1 x USB B port • USB 2.0 connection to "Host" devices
Ethernet	2 x Ethernet ports • 10/100/1000 Mbps Ethernet connection
HDMI	1 x HDMI port • Connection to devices with an HDMI input
Audio	1 x 3.5mm stereo jack • Amplified audio output for direct connection to headphones/ headsets
WiFi+BT	1 x Integrated WIFI/BT + Antenna module • WiFi: 802.11 a/b/g/n • Bluetooth: 4.0 + BLE
GNSS	1 x Integrated GNSS + Antenna module • Simultaneous reception of GPS/QZSS, GLONASS, BeiDou. • Automatic switching from internal antenna to external active GPS antenna; 1 x SMA socket • Connection to external active GPS antenna (optional)

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