QUANTUM CONCEPT

Swimming
User’s Manual

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1 INTRODUCTION

**QUANTUM Aquatics** is an intelligent aquatics timer with inputs/outputs interface and onboard memory buffers. All timing events are recorded through each input port and are identified with a unique data code. Data from the timer interface is transmitted to the associated computer (desktop or notebook) through an USB port.

All data processing then takes place in that computer.

The quantity of data stored (i.e. number of races or competitions) is only limited by the size of the hard drive, enabling results from previous races to be recalled for examination on the computer's display, for re-transmission to the scoreboard or re-printing of the results.

Printed data is available in two formats.

The timer concept shall enable start lists and event data including titles and records to be loaded into the main timer database.

This enables a full result list to be generated by the timer, including competitor names.

This data is available for transmission to the main results printer or to a numeric, alphanumerical or matrix scoreboard.

The timer interface is operated from a twelve volt DC power pack.

The addition of battery powered computers and A4 printer allows the competition to continue even in the event of a total mains power failure.

This feature also allows the timing system to be operated safely from the pool side.

The timing includes a primary and a secondary interface and a data switcher and is supplied with computer and appropriate software.
2 PRIMARY & SECONDARY

QUANTUM Aquatics are available in 2 versions:

Primary & Secondary:

Primary & Secondary includes two complete timing systems and one datas switcher to select information from 1st or 2nd system.
Harness Primary & Secondary modules send 10 contacts (2xTouchpad, 2xRelay Break Detection and 2x3 buttons) to QUANTUM. Only one cable is connected from QUANTUM to first Primary & Secondary harness (Mobile installation).

Primary:

Primary includes one complete timing system.
Harness Primary modules send 5 contacts (Touchpad, Relay Break Detection and 3 buttons) to QUANTUM. Only one able is connected from QUANTUM to first Primary harness (Mobile installation).
3 CHARACTERISTICS

Technical characteristics are:

- Timing system: Capacity 23:59:59.99, repetitive
- Resolution: 1, 1/10, 1/100th sec / sampling 1/10,000
- Ageing renewable: ± 4ppm (10 years)
- Stability (0-45°C): ± 0.1ppm
- Power supply: External battery 9-18 VDC (NiCd, Lead/Acid or other)
- Power consumption (typical): 0.5 A (Primary) 1.1 A (Primary & Secondary)
- Working temperature: 0°C - 60°C
- Relative humidity: 20%-80% (non-condensing)
- Certification: CE standard specifications
4 MAINTENANCE

To prevent any risk of damage, repairs must be done by qualified personnel.

In order to assure the viability and longevity of your QUANTUM timing system, the following precautions should be taken:

- Protect the QUANTUM from heat and direct exposure to the sun by using a sunshade.

- Protect the QUANTUM from humidity and water sprays by keeping it away from the starting blocks or by using a protective waterproof cover.

- Shut down the system and all its components before plugging and unplugging cables (except when connecting a backup power supply).

- Clean the QUANTUM after every competition and dry it before storing in an adequately protected location.

QUANTUM delivered with a Calibration Certificate of 4 years validity. After this period, please send your QUANTUM to your reseller for recalibration.
5 CONNECTIONS

Before the QUANTUM timing system can be used, a power supply and the link to the control PC must be connected. Other connections depend on the specific sport and on the peripherals being used.

5.1 Powering

Connect a QUANTUM battery power supply (or any 12 volt battery) to the DC Input (9-18VDC). The second power supply of the QUANTUM (or an external battery) can be connected to the second DC Input (9-18VDC).

**USE ONLY POWER SUPPLIES & CHARGERS CLASS II** (logo 🔄). Class II supplies do not rely on an earth connection to protect against shock hazard.

Ensure correct battery polarity.
The battery charger must be disconnected before connecting the battery of the QUANTUM.

One of the two batteries can be disconnected for replacement at any time without interfering with the operation of the system, even during an actual timing.

5.2 Computer

Connect the QUANTUM USB to one of the USB ports of the PC, using a 9051.1316 USB cable. Configure the serial port with the software.

5.3 Scoreboard

**QUANTUM** Primary & Secondary: Connect the scoreboard to SERIAL1-3
**QUANTUM** Primary: Connect the scoreboard to SERIAL1-2

**Calypso:** If there is a mobile cabling between **QUANTUM** and Calypso, use cable 1906.050 (50 meters) or 1906.100 (100 meters) and adaptation cable 3403.611.

**Piccolo:** If there is a mobile cabling between **QUANTUM** and Piccolo, use cable 1906.050 (50 meters) or 1906.100 (100 meters).

Configure the serial port(s) with the software.
5.4 Data Handling

**QUANTUM** Primary & Secondary: Connect the data handling to **SERIAL1-4**

**QUANTUM** Primary: Connect the data handling to **SERIAL1-2**

Configure the serial port with the software.

5.5 Control Printer

Connect the serial printer to the **PRINTER** terminal of the **QUANTUM** by using the delivered cable.

5.6 Start System (Swimming)

Connect the **START** terminal of the **QUANTUM** to the start system (StartTime 3481.900 or 901).

**START1** is used for FINISH and **START2** on the other pool side.

5.7 Harness (Swimming)

Place the harness modules in front of each lane (the module number must correspond to the lane number). Connect the input interfaces (touchpads, start blocks, hand contacts) to the harness modules. Connect the harness modules with each. Finally, connect the nearest module to the **HA1** and/or **HA2** terminal of the **QUANTUM** by using a 1892.025 cable. It is possible to extend distance with cables on winder (1892.050 or 1892.100)

The pool setup is configured by the software.

CONNECT TERMINATOR CONNECTOR 3480.770
IN THE LAST HARNESS MODULE (END OF LINE)
6 APPENDIX

6.1 Connections

6.1.1 Quantum Primary & Secondary

Figure 1 - Quantum Primary & Secondary
6.1.2 Quantum Primary

Figure 2 - Quantum Primary

6.1.3 Quantum Power supply

Figure 3 - Quantum Power supply
6.2 Cabling diagrams

6.2.1 Mobile Swimming Level 1 (Finish PRY)

Figure 4 - Mobile swimming level 1
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**Figure 5 - Mobile swimming level 2**
6.2.3 Mobile Swimming Level 3 (Finish PRY & SDY / Inter PRY)

Figure 6 - Mobile swimming level 3
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Figure 7 - Mobile swimming level 4
6.2.5  Fixed wiring Swimming Level 1 (Finish PRY)

Figure 8 - Fixed wiring Swimming level 1
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Figure 9 - Fixed wiring Swimming level 2
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Figure 10 - Fixed wiring Swimming level 3
6.2.8 Fixed wiring Swimming Level 4 (Finish PRY & SDY / Inter PRY & SDY)

Figure 11 - Fixed wiring Swimming level 4
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<td>Correction of Serial 1-4 connectors (pins 2-3-4)</td>
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<td>1.2</td>
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