

QUANTUM CONCEPT



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Swimming

User's Manual

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Documentation Updates

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Environment



This symbol indicates that this product should not be disposed with household waste. It has to be returned to a local authorized collection system. By following this procedure you will contribute to the protection of the environment and human health. The recycling of the materials will help to conserve natural resources.

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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:

QUANTUM Primary & Secondary includes two complete timing systems and one data 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:

QUANTUM Primary includes one complete timing system.

Harness Primary modules send 5 contacts (Touchpad, Relay Break Detection and 3 buttons) to *QUANTUM*. Only one cable 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

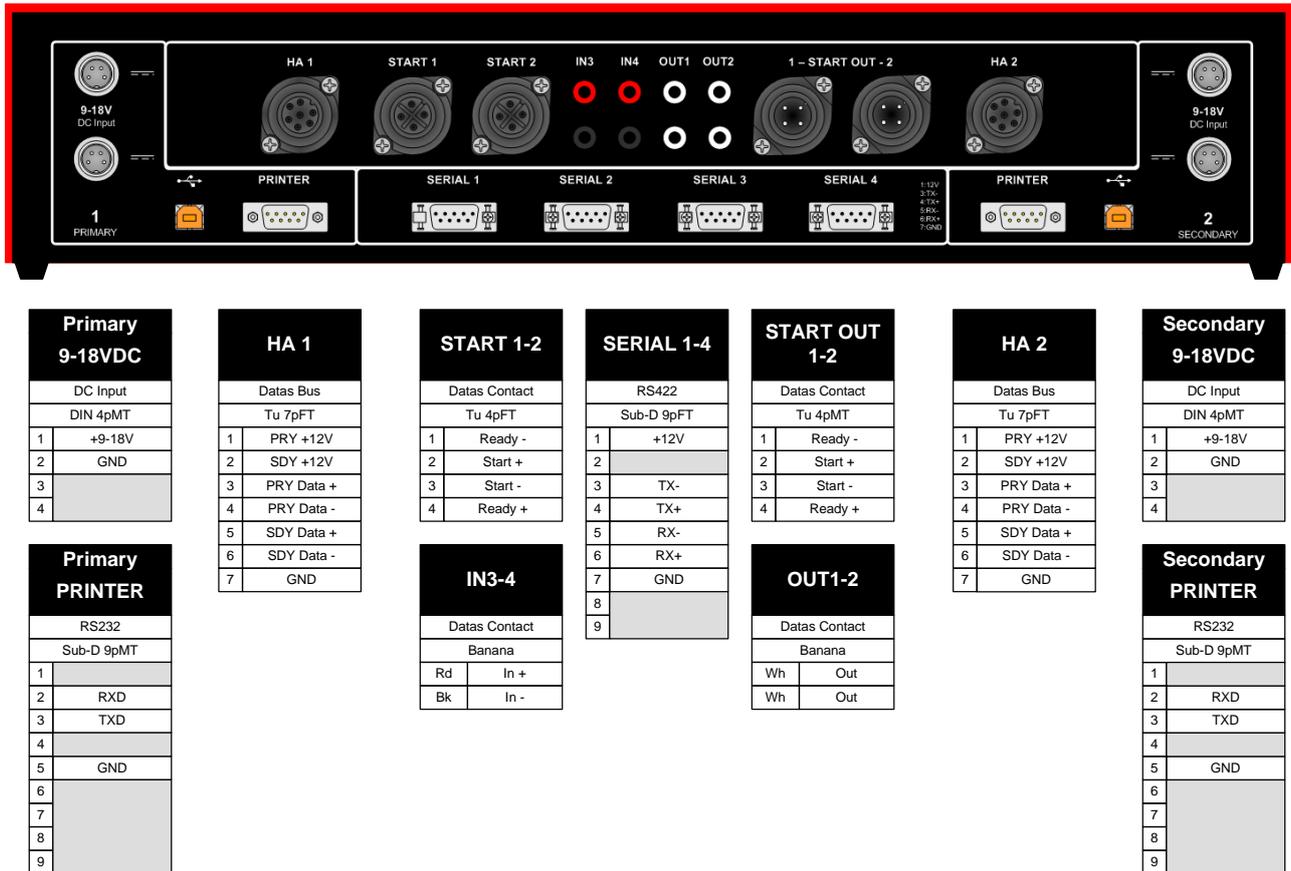


Figure 1 - Quantum Primary & Secondary

6.1.2 Quantum Primary

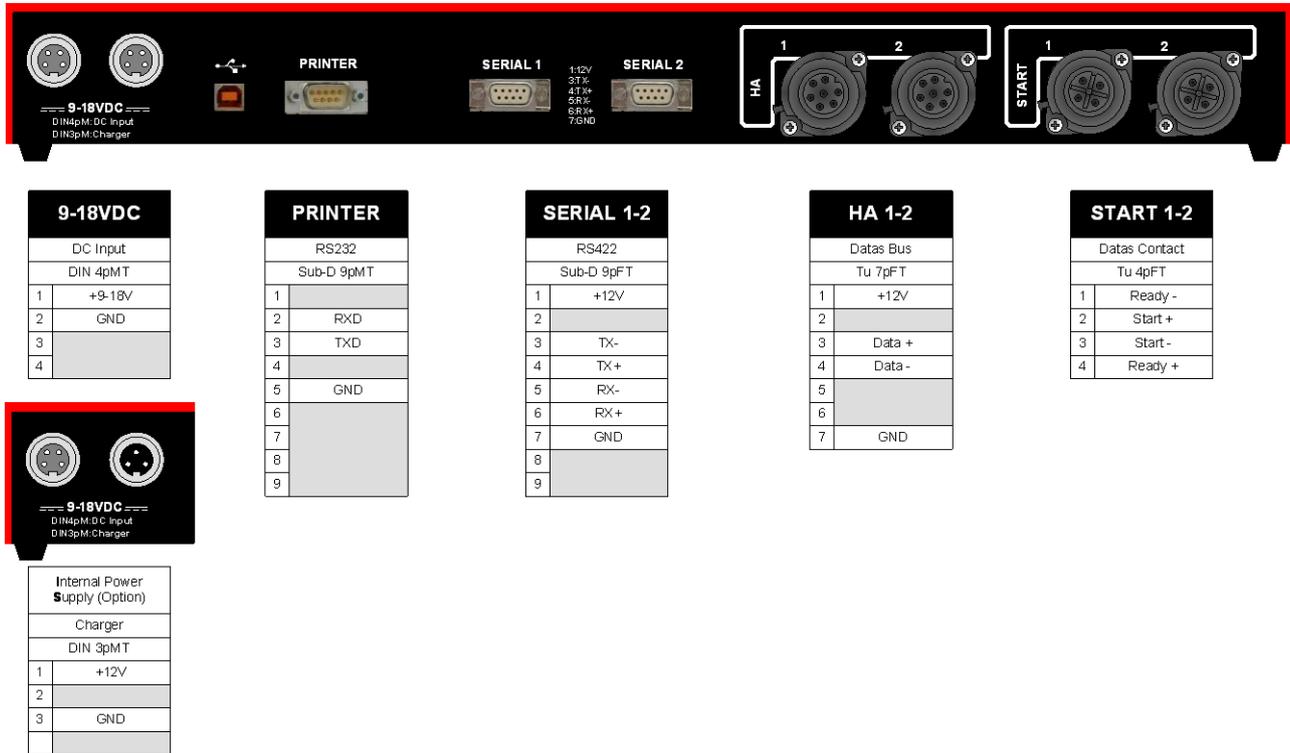


Figure 2 - Quantum Primary

6.1.3 Quantum Power supply

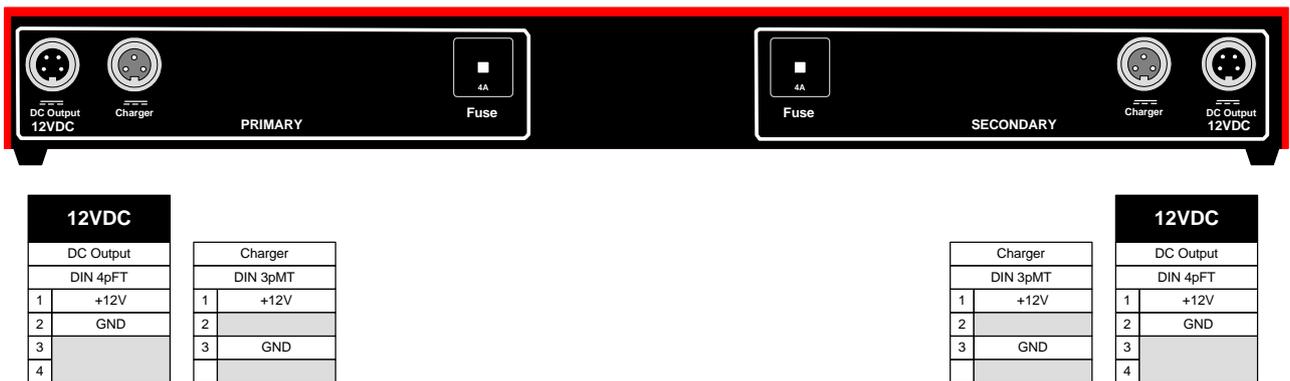


Figure 3 - Quantum Power supply

6.2 Cabling diagrams

6.2.1 Mobile Swimming Level 1 (Finish PRY)

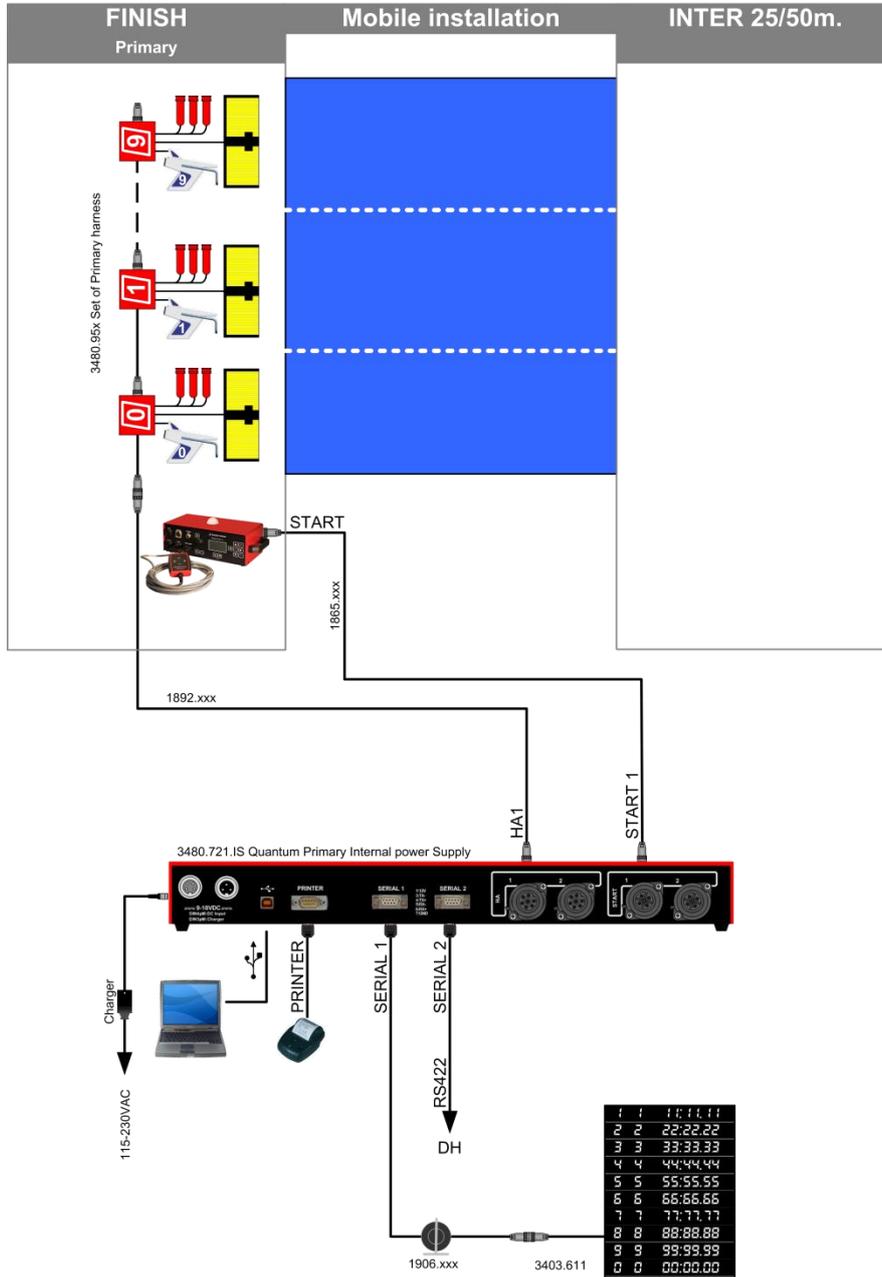


Figure 4 - Mobile swimming level 1

6.2.2 Mobile Swimming Level 2 (Finish PRY / Inter PRY)

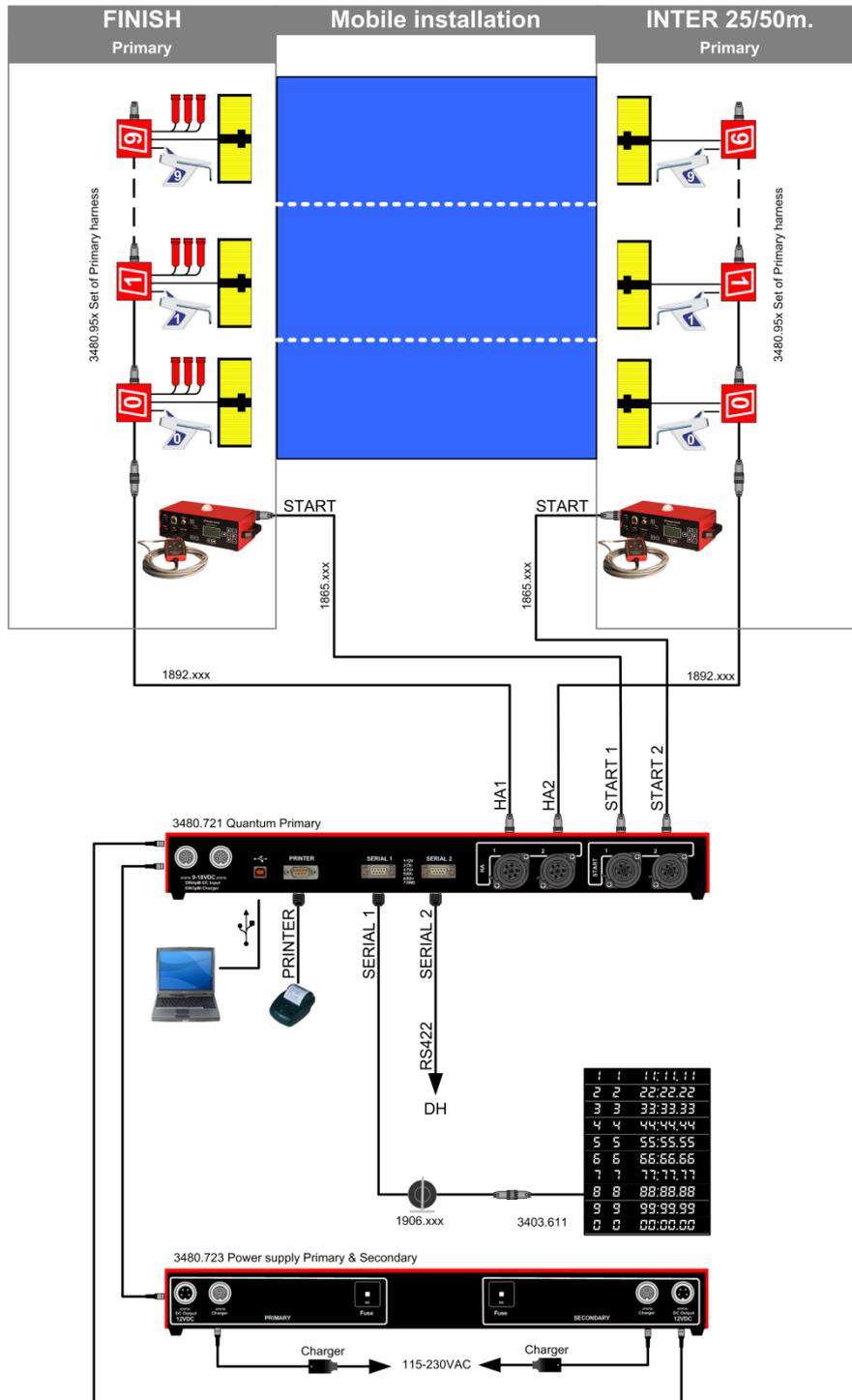


Figure 5 - Mobile swimming level 2

6.2.3 Mobile Swimming Level 3 (Finish PRY & SDY / Inter PRY)

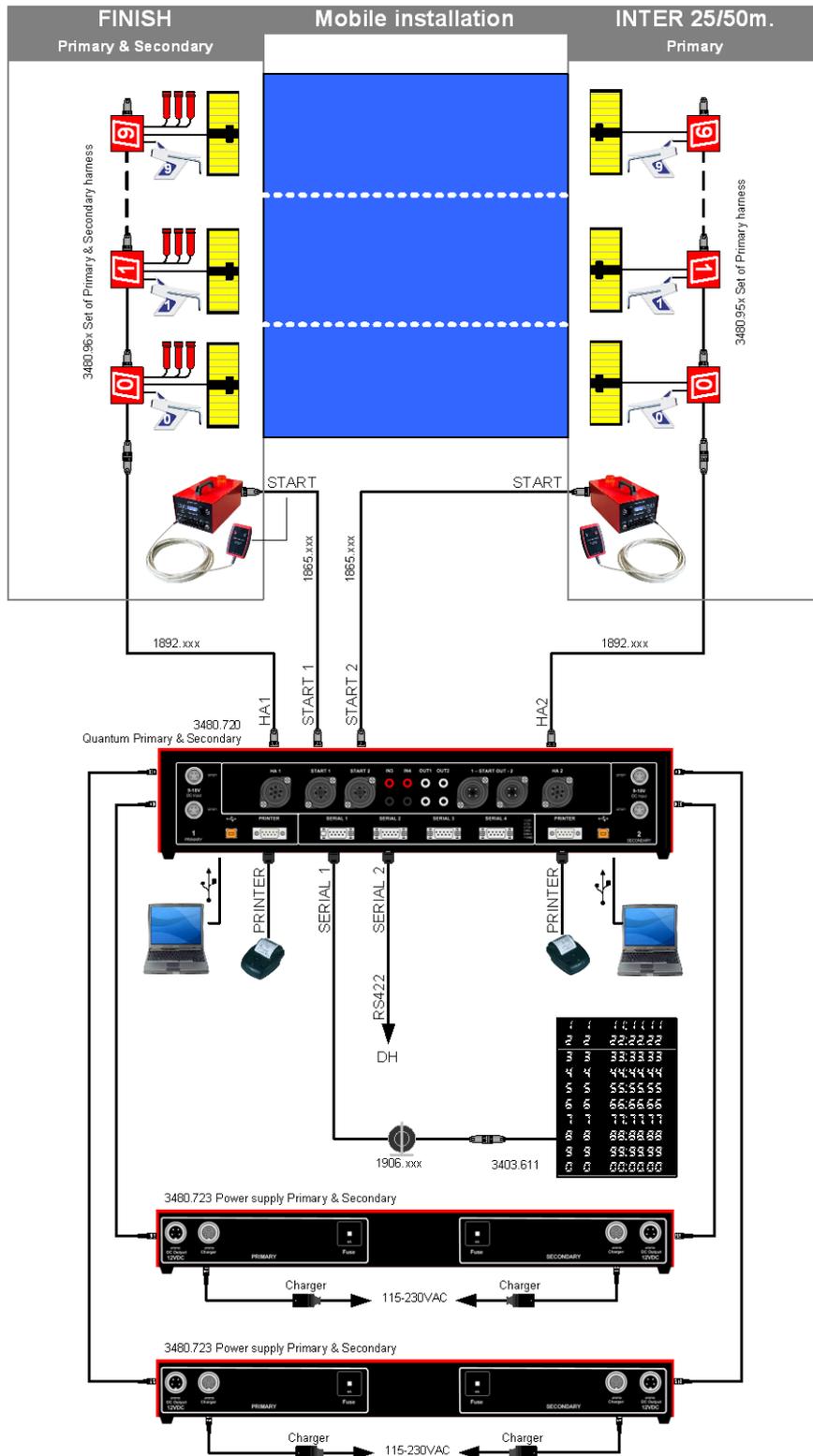


Figure 6 - Mobile swimming level 3

6.2.4 Mobile Swimming Level 4 (Finish PRY & SDY / Inter PRY & SDY)

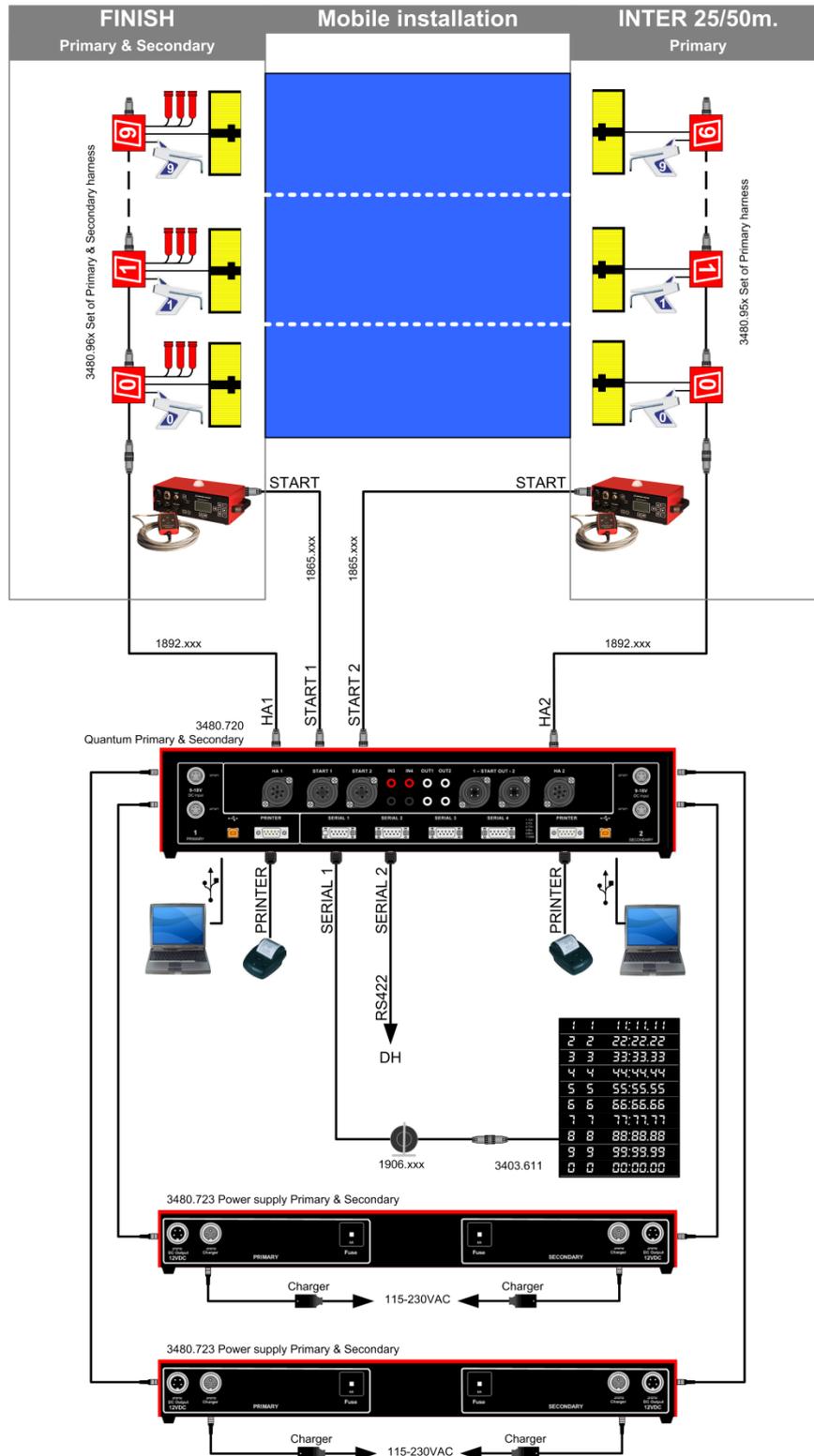


Figure 7 - Mobile swimming level 4

6.2.5 Fixed wiring Swimming Level 1 (Finish PRY)

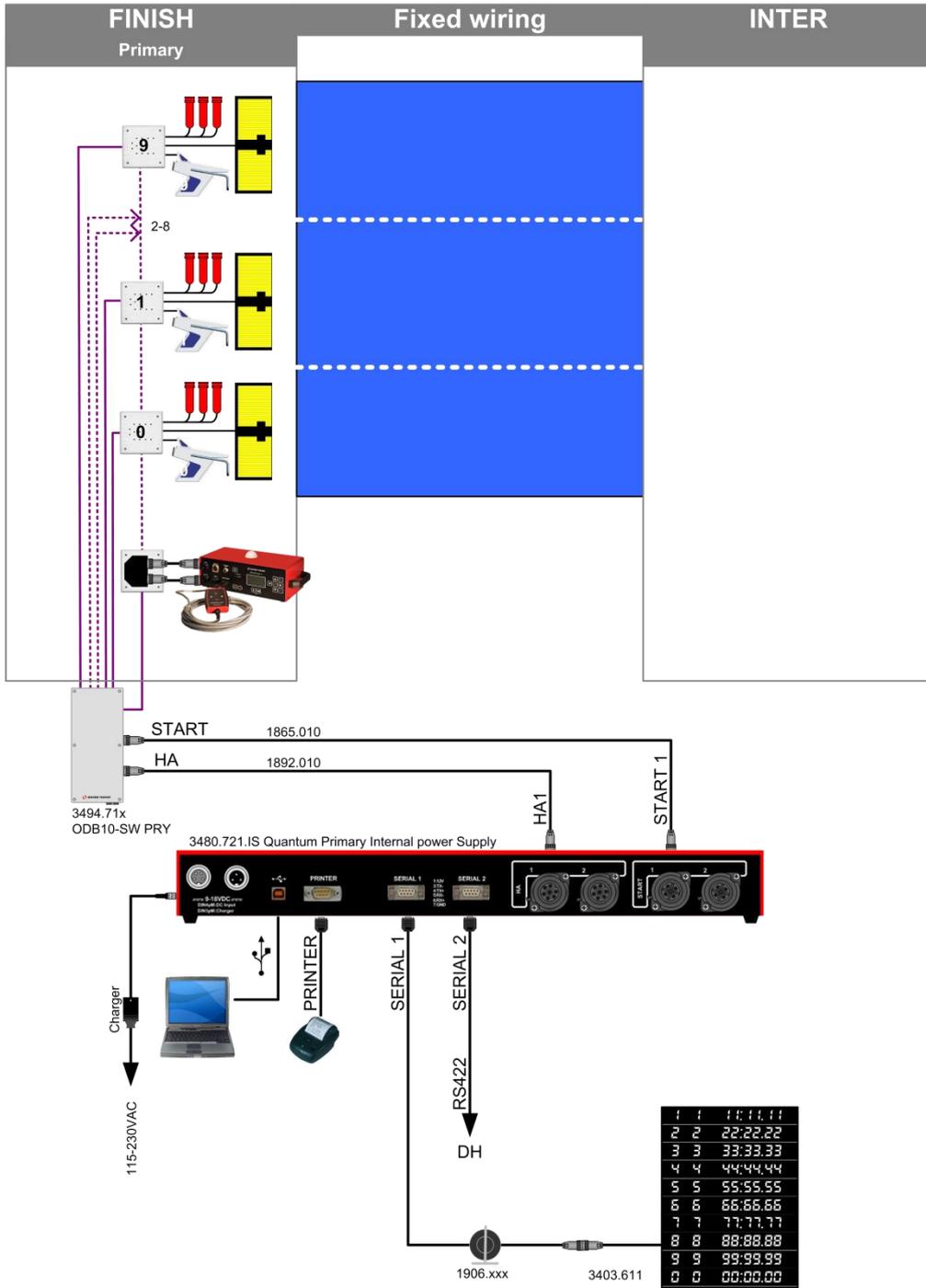


Figure 8 - Fixed wiring Swimming level 1

6.2.6 Fixed wiring Swimming Level 2 (Finish PRY / Inter PRY)

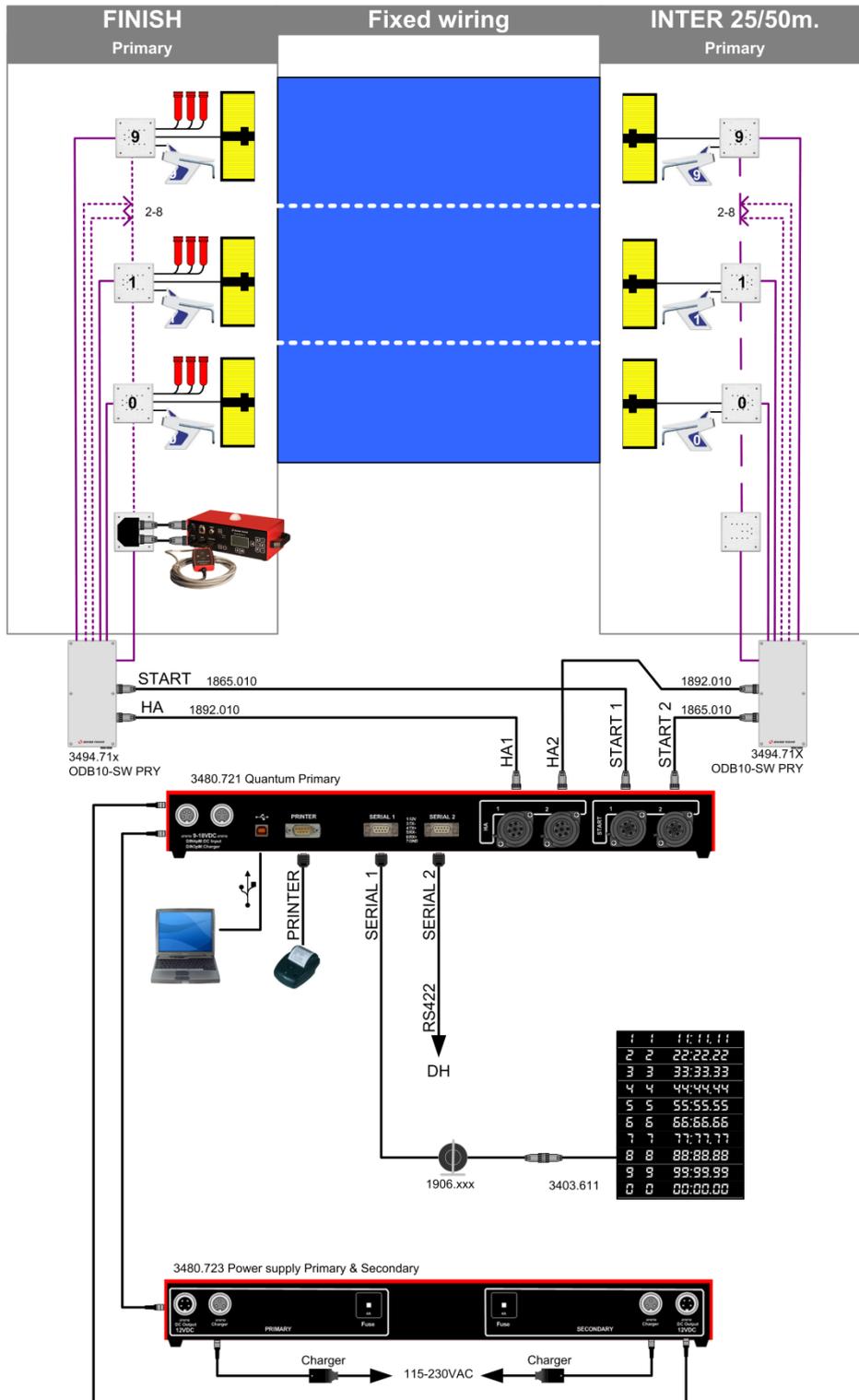


Figure 9 - Fixed wiring Swimming level 2

6.2.7 Fixed wiring Swimming Level 3 (Finish PRY & SDY / Inter PRY)

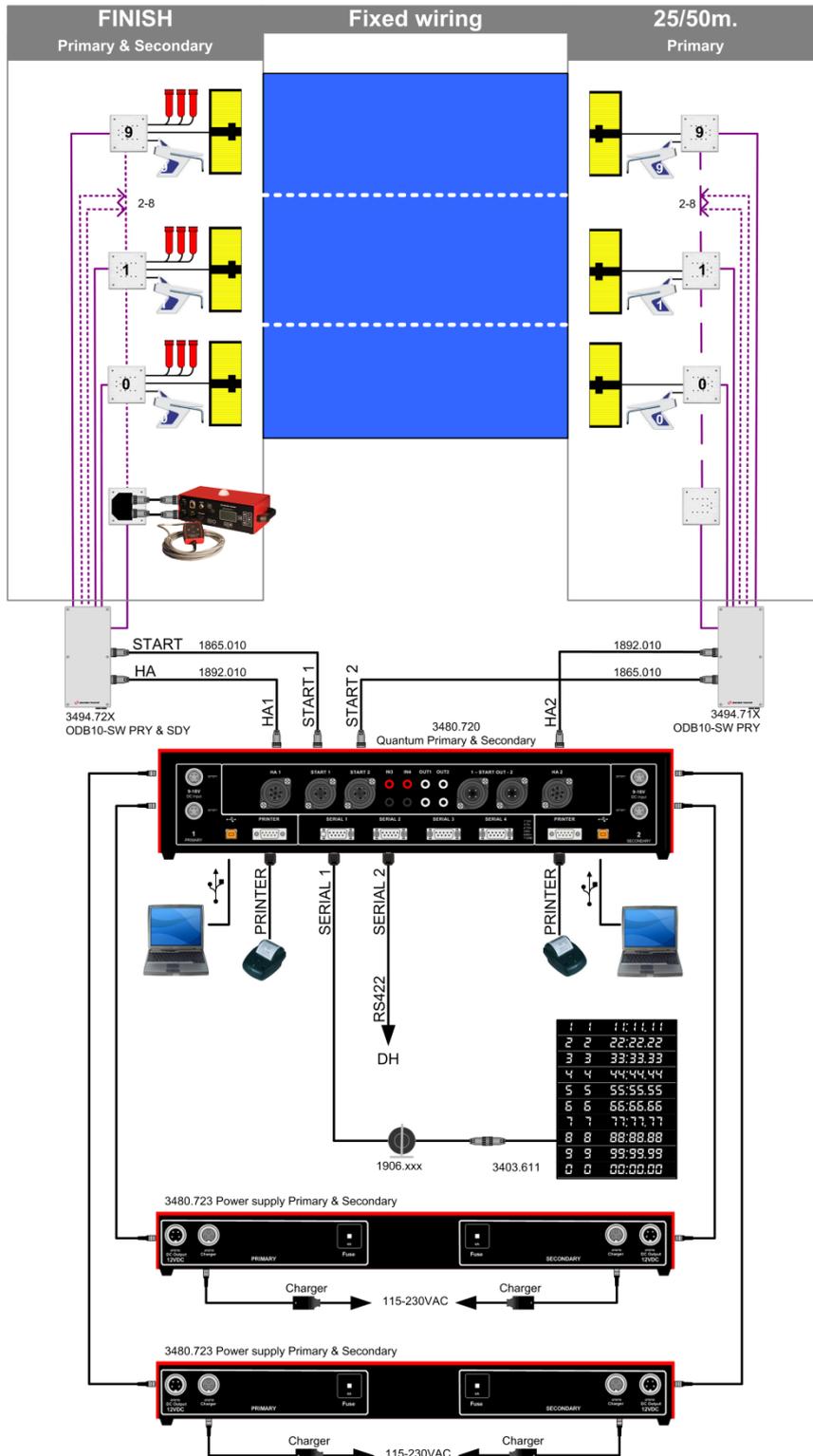


Figure 10 - Fixed wiring Swimming level 3



6.2.8 Fixed wiring Swimming Level 4 (Finish PRY & SDY / Inter PRY & SDY)

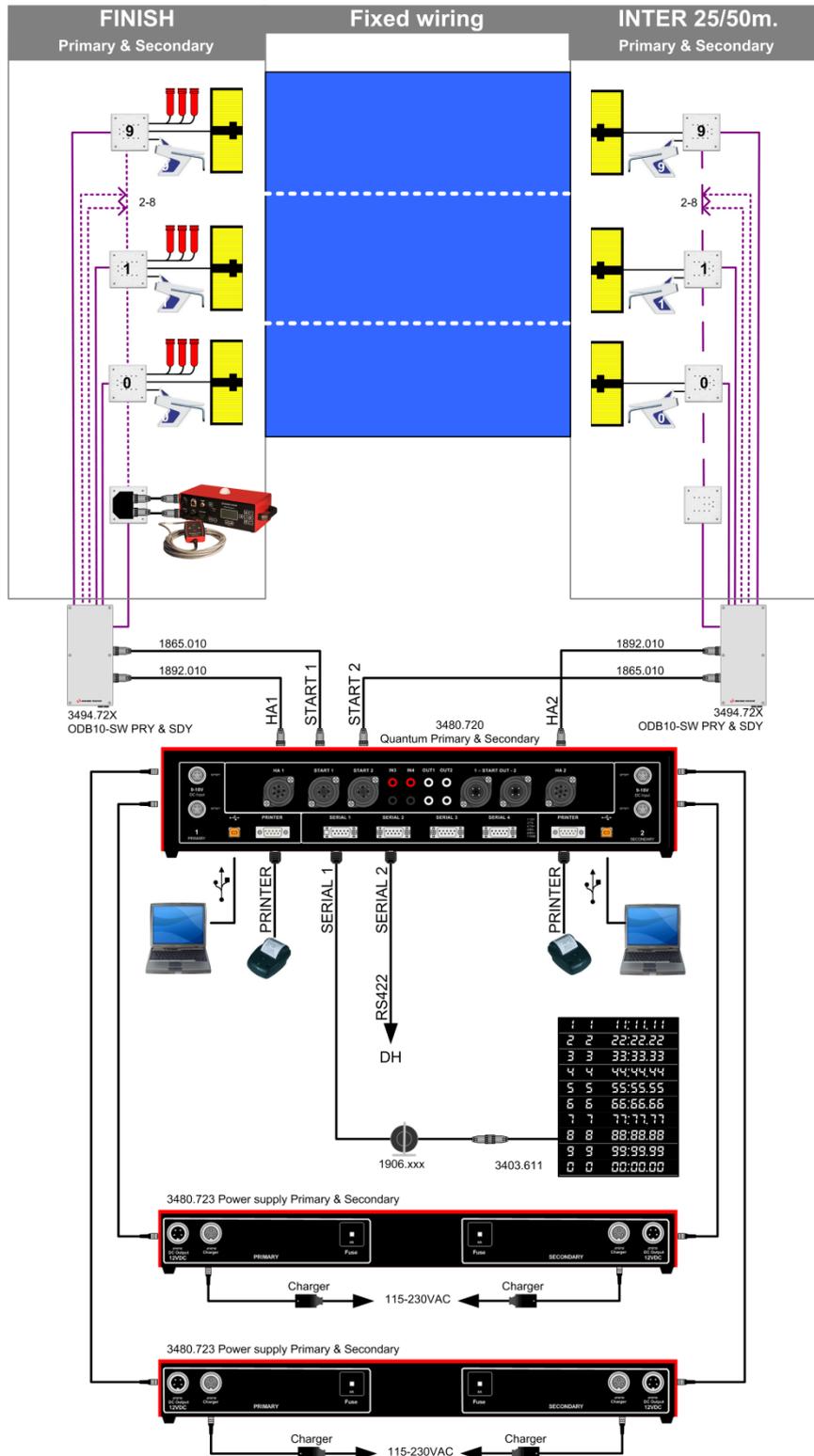


Figure 11 - Fixed wiring Swimming level 4



6.3 Abbreviations and symbols

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6.5 Version history

Version	Date	Modifications since last version
1.0	01.05.2012	Initial version
1.1	15.05.2012	Correction of Serial 1-4 connectors (pins 2-3-4)
1.2	12.05.2014	Removing synchronised swimming (integrated in aquatic concept)
1.3	10.10.2014	Touchpad picture
1.4	20.07.2015	Fig. 4 -> 11 updated

NOTES

