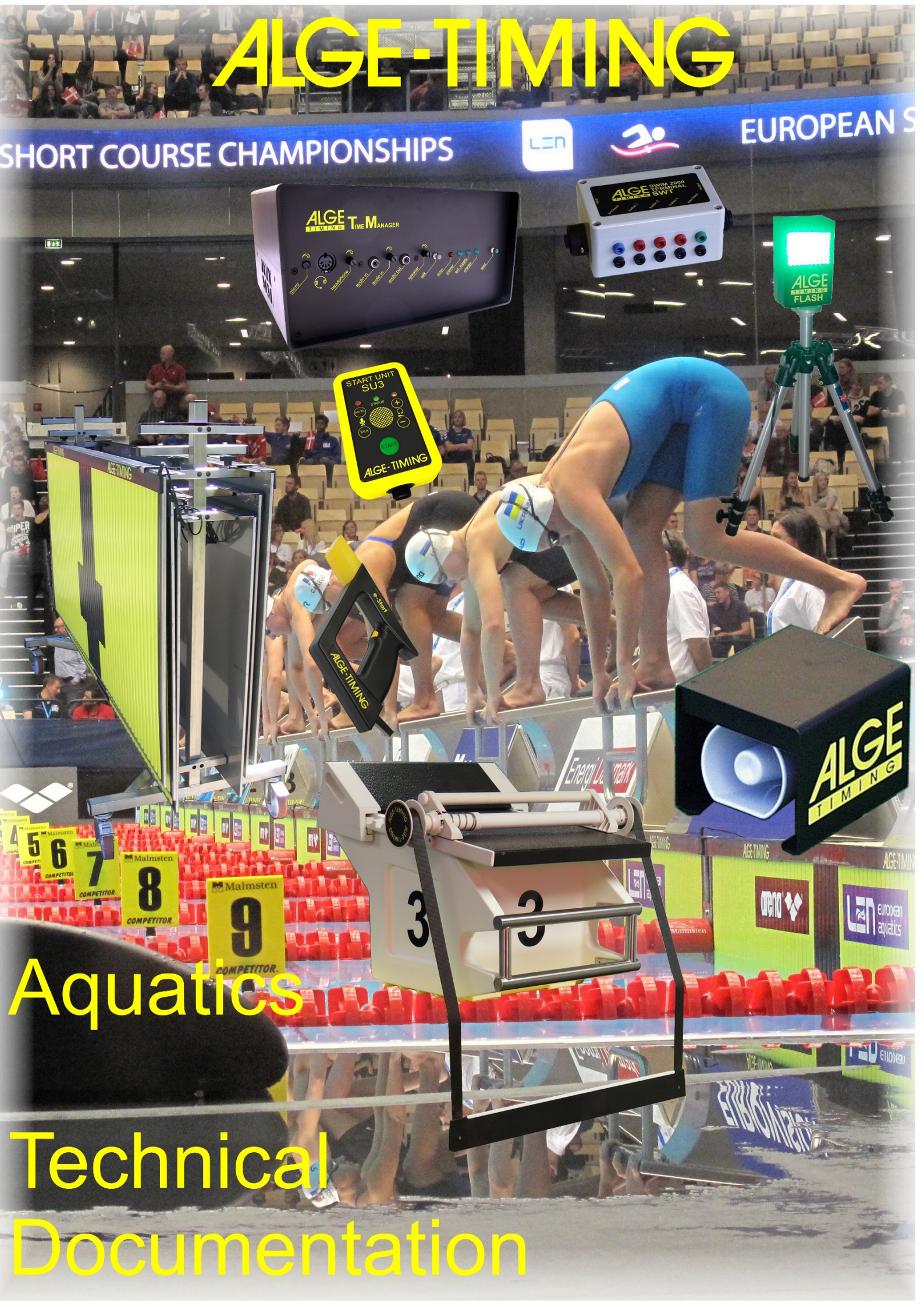
ALGE-TIMING

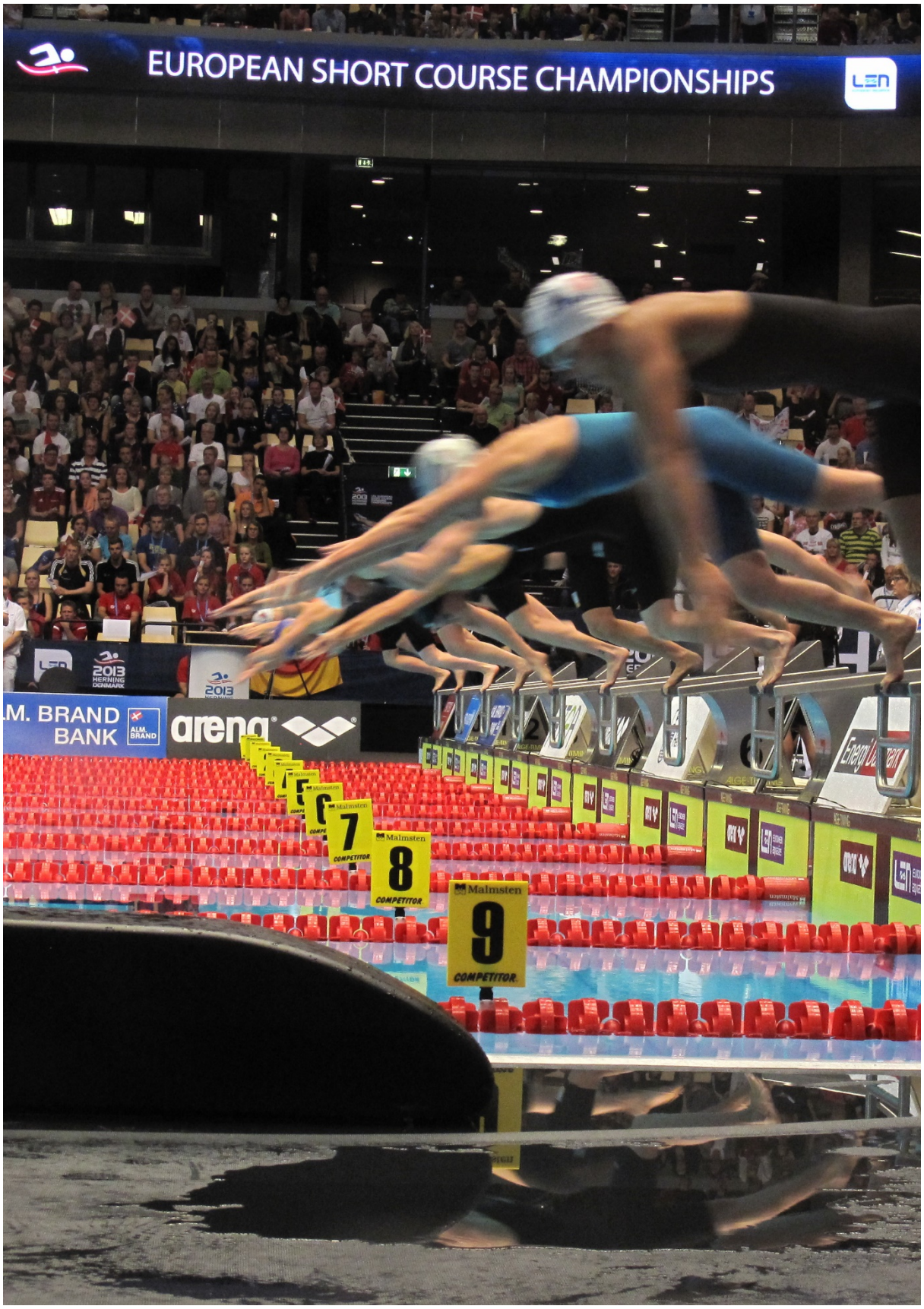


Aquatics

Technical Documentation

Table of Contents

Version: 23-11-02


EUROPEAN SHORT COURSE CHAMPIONSHIPS
LEN
2013
HERNING
DENMARK
M. BRAND
BANK
ALM. BRAND
arena
Malmsten
7
COMPETITOR
Malmsten
8
COMPETITOR
Malmsten
9
COMPETITOR

1 The State-of-the-Art Timing for Aquatics

The ALGE timing system for aquatics is the most comfortable timing and scoring system available. The system complies with the rules of FINA, USWP, USA Swimming, US Diving, USA Synchro, AAU, SSCH, NFHS and NCAA.

1.1 Deviation to Real-Time

The FINA does not have any requirements regarding the allowed deviation from the real-time for timing devices. The ALGE TM-SWIM has a temperature compensated quartz oscillator with a frequency of 10,000 MHz and an allowed frequency deviation of +/-2.5 ppm at – 25 to + 50° C and +/-0.01 ppm at + 25° C.
All timing channels have the same time reference and the internal precision is 1/10,000 second. More than 140 channels can be monitored by one TM-SWIM.

1.2 Cross Current Reducing Touchpads

Since the new generation of ALGE-TIMING touchpads allows the water flowing through - as opposed to conventional touchpads - the flow conditions in the pool are only slightly influenced. This leads to fairer conditions for all lanes.

1.3 Special Anti-Slip Touchpads

ALGE-TIMING put a lot of time and energy into perfecting the touchpads. With its completely closed rear panel and the nubby structure of the lamellas, the touchpad obtains an unbeatable slip resistance and stability. Our touchpads are entirely maintenance-free.

1.4 Electrical Safety

The ALGE swim system is developed to meet the most advanced specifications concerning electrical safety and electromagnetic disturbance. On request, we can send you an official test result and a CE certificate.
Even the flashlight is based on LED technology and therefore is in the range of safe voltage ranges for low-voltage devices. This ensures the safety of the swimmers even if the device falls into the pool.
If necessary, the whole timing system can operate a full day without mains.

2 Guidelines for Competition Pools

This guideline should help the architects, consultants and system integrators planning a swimming pool suitable for competitions with fully automatic timing. With the timing system TM-SWIM, ALGE-TIMING has created a new dimension for timing and evaluation.

2.1 Swimming pool

All regulations for the swimming pool should be taken from the FINA handbook. Be sure to check the newest regulations on the FINA homepage worldaquatics.com.

2.1.1 Dimensions of the Pool

It has to be taken into consideration if touchpads are to be used on one or both ends of the pool. Including installed touchpads the lengths has to be within 50.000 m (25.000 m) and 50.010 m (25.010 m). The width of the lanes should be 2.5 m.
When building the pool you have to specify already if you will use single or double sided touchpads!

2.1.2 Tolerances for the Length of the Pool

The permissible tolerance for 50 m (25 m) pools is - 0.000 m and + 0.010 m. This accuracy has to be observed from 0.3 m above water level until 0.8 m below water level.
Important! The length tolerances have to comply including installed touchpads.

2.1.3 Depth

A minimum depth of 1.35 m is to be observed for all sides fitted with starting blocks. The depth is to be complied with from 1.0 until at least 6.0 m from the start side. Everywhere else, the depth of the water must not fall below 1.0 m.

2.1.4 Walls

Start and turn walls have to be parallel to each other and at right angles to the water surface. Side walls must be parallel to each other and at right angles to the start and turn walls. The pool walls should be especially anti-slip down to at least 0.8 m under the water level in order to ensure a safe turn.
ATTENTION: start and turn walls must not be equipped with any protruding parts such as nozzles or light fittings.

2.1.5 Lanes

Lanes shall be at least 2.5 m wide with additional spaces of at least 0.2 m for both outside lanes.

2.2 Starting Platforms

Starting platforms are to be fixed and must not spring. The height of the platform above water surface has to be between 0.5 and 0.75 m. The jumping platform must be at least 0.5 x 0.5 m and have an anti-slip surface. Maximum slope must not exceed 10°. The platform shall be constructed in such a way that the swimmer can hold on to its sides and front. In case the jumping platform is thicker than 0.04 m, handles with a width of at least 0.1 m at the sides and 0.4 m at the front are recommended. Handles for backstroke should be mounted 0.3 to 0.6 m above the water level both vertical and horizontal. The handles must not protrude over the pool's edge.

2.3 Timing Room

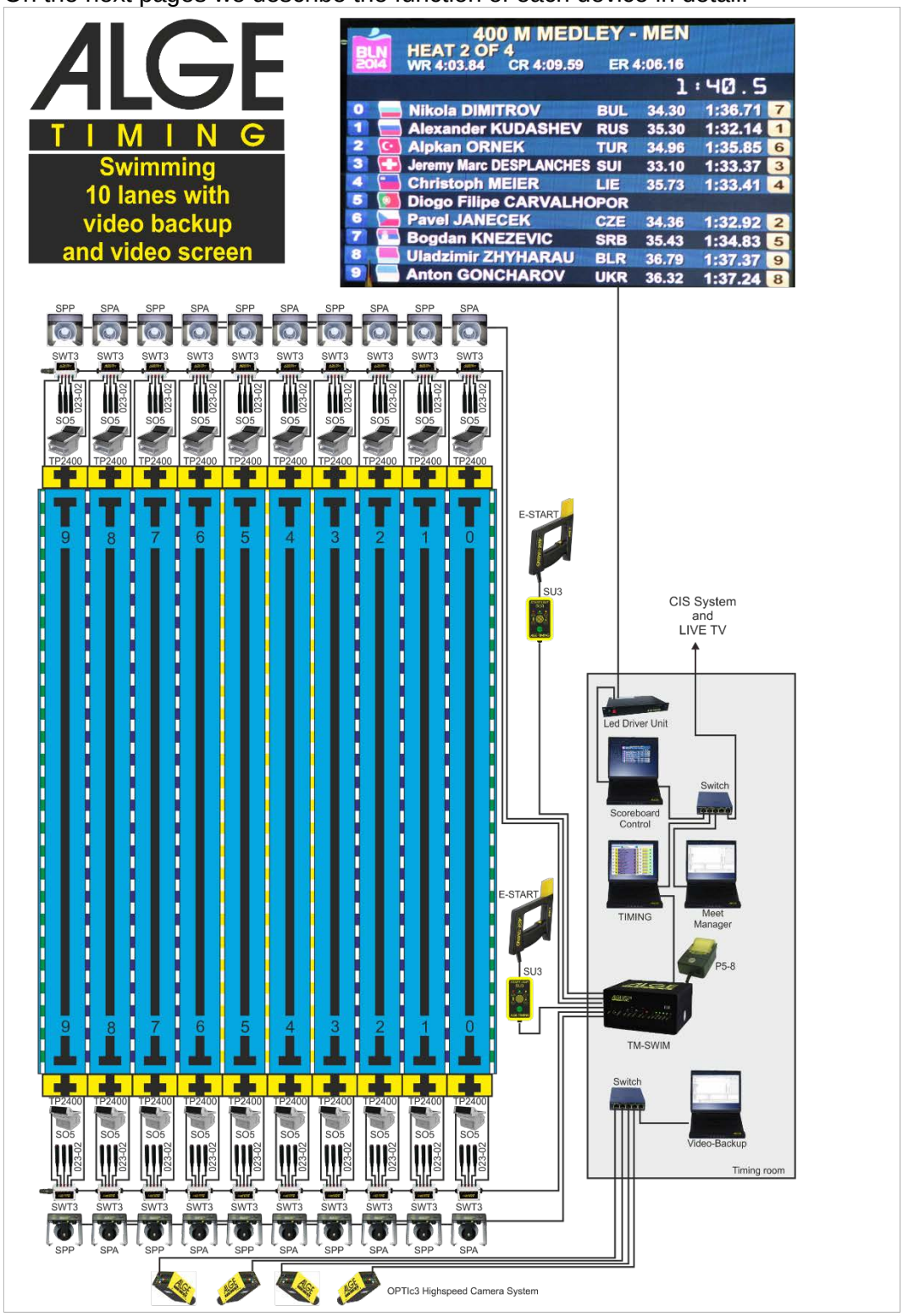
The FINA dictates a special timing room only for Olympic Games and World Championships. This is described in detail under point FR4.7.2.
An air-conditioned room with at least 6 x 3 meters is required. It shall be positioned between 3 and 5 meters in front of the finish side and dispose of an unhindered sight to the finish side.
We also recommend a timing room for smaller events. The size should be at least 3 x 2 meters and the position 3 to 5 meters in front of the finish side.

3 Technical description

3.1 Swimming

3.1.1 Timing System

The figure below shows the system diagram of a complete system for competitive swimming. On the next pages we describe the function of each device in detail.



3.1.1.1 TM-SWIM TimeManager for Swimming

The TM-SWIM was developed by ALGE-TIMING especially for aquatic sports. The demands for a device with an integrated USB interface were the main reason for the changeover from the SWC to the TM-SWIM. It combines the most powerful electronic with the rugged design typical for ALGE devices.
The built-in amplifier and rechargeable battery make this device unreachable for its competitors.
The TM-SWIM is the most modern timing device; the computer that is connected by USB or RS232 is only display and keyboard of this device. In case of a computer breakdown the TM-SWIM can store up to 10,000 times in the internal memory. These times can be restored at any time on the computer or they can be printed directly on the P5-8 online printer.

3.1.1.1.1 Technical Data

Measuring range:	23 hours, 59 minutes, 59.9999 seconds
Time reference:	TCXO 10 MHz (temperature compensated quartz oscillator)
Frequency deviation:	temperature range - 25 to 50° C: +/- 2,5ppm (+/- 0,009s/h) with aging +/- 1 ppm per year at 25° C adjusted to +/- 0.1 ppm
Maximum resolution:	1/10,000 second for all channels
Power supply:	internal: 12 V gel cell battery external: 100 - 240 V 50/60 Hz or 12 - 18 V DC
Dimensions:	256 x 215 x 136 mm
Weight:	4 kg

3.1.1.1.2 Connections and Interfaces

The TM-SWIM has several interfaces and connections for peripheral devices. All interfaces and connections are fully protected against electrostatic damage!

Front

Back

3.1.1.2 P6-8 Online Protocol Printer

The printer P6-8 is directly supplied by the TM-SWIM. The following information is printed in chronological order:

- event number and name
- heat number
- sex
- start time, intermediate and final time
- all impulses that are not inside a race in daytime
- character size: 3 mm height and 24 characters per line
- printing speed: 5 lines per second
- thermal paper printer

3.1.1.2.1 Technical data

Technology:	thermal paper 63 mm
Power supply:	directly from TM-SWIM with 12 V
Dimensions:	160 x 89 x 67mm
Weight:	0.2 kg

3.1.1.3 SWT3 Swim Terminal

The SWT3 swim terminal is used to obtain all the timing impulses around the pool. All SWT3 are identical and can be used in any lane. The TM-SWIM automatically recognizes the number of connected swim terminals. The terminals are connected with the cable set SWCBLxx to the TM-SWIM.

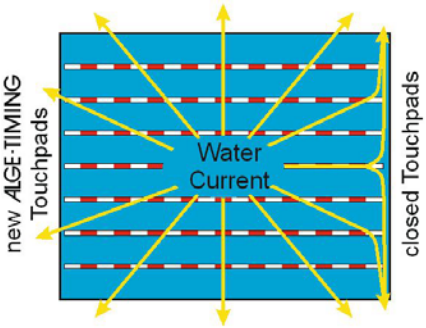
At each terminal five peripheral devices can be connected as following:

- 1 x touchpad, dual edge trigger system
- 3 x manual button
- 1 x relay judging pad

3.1.1.3.1 Technical data

Power supply:	directly from TM-SWIM with 12 V
Dimensions:	159 x 84 x 59 mm
Weight:	0.3 kg

3.1.1.4 TP2400C Touchpad



The ALGE Touchpad TP2400C is without doubt the most rugged and fail-safe touchpad available on the market. The touchpad is constructed in a sandwich construction as follows:

The complete front-side is covered with PVC lamellas that pass on the pressure of the swimmers to one of the four tape switches which are placed between these lamellas and the protecting full size stainless steel backside.

A sensitivity adjustment is not necessary as the four tape switches guarantee an extremely constant sensitivity on the complete area.

We also manufacture touchpads with the size of 1890 x 906 x 10 mm (TP1890) and customized touchpads. The secret of the incomparable grip are the specially designed lamellas from ALGE-TIMING. They have a rough surface with thousands of very small nubs.

The new touchpad allows the water to flow through it. This guarantees optimal water currents in overflow swimming pools. Other touchpads block the current at the end of the pool so the current moves to the side at the end of the pool.

3.1.1.4.1 Technical Data TP2400C

Type:	TP2400C
Dimensions:	2400 x 906 x 10 mm
Weight:	25 kg
Sensitivity:	2.5 to 3 kg
Sensors:	4 tape switches
Material:	stainless steel 1.4404 and PVC lamellas
In accordance with:	FINA, SSCH, AAU and NCAA requirements

3.1.1.4.2 Technical Data TP1890C

Type:	TP1890C
Dimensions:	1890 x 906 x 10 mm
Weight:	21 kg
Sensitivity:	2.5 to 3 kg
Sensors:	4 tape switches
Material:	stainless steel 1.4404 and PVC lamellas
In accordance with:	FINA, SSCH, AAU and NCAA requirements

3.1.1.5 Caddy

The storage trolley is made of stainless steel 1.4404 and can carry up to 12 touchpads TP2400C.

3.1.1.5.1 Technical data

Dimensions:	850 x 1200 x 1200 mm
Weight:	30 kg, without touchpads!

3.1.1.6 Push Button 023-02

Especially rugged waterproofed push buttons with banana plugs are used for manual timekeeping.

3.1.1.6.1 Technical data

Dimensions:	20 x 100 mm
Weight:	100 g

3.1.1.7 SU3 Start Unit

The SU3 is the start device that is operated by the starter. It has a built-in microphone and a speech amplifier.
With a small potentiometer the starter can adjust the feedback according to the local requirements.
The SU3 is connected with the cable reel KT199Z10 directly to the TM-SWIM or to the FLASH XL.

3.1.1.7.1 Technical data

Functions:	Start – Announcement - Ready
Dimensions:	75 x 120 x 35 mm
Weight:	150 g

3.1.1.8 E-START

The electronic starting gun e-Start provides absolute accuracy and synchronization of the start signal, visible flash, and start tone. It replaces traditional starting guns. Problems due to transporting firearms are history as well.

3.1.1.8.1 Technical Data

Light source:	high power LED flash
Power supply:	directly from TM-SWIM with 12 V
Dimensions:	150 x 250 x 35 mm
Weight:	0.3 kg

3.1.1.9 FLASH XL

The FLASH XL is used as visual start signal for the competitors and the public. The advantage of a visual start signal is the non-existing delay at all positions in the pool.
Due to the LED technology this flashlight meets all safety regulations in the pool area as it works only in low-voltage ranges.

3.1.1.9.1 Technical Data

Type:	FLASH XL
Dimensions:	80 x 120 x 40 mm
Weight:	0.4 kg
Battery:	4 x AAA, not required in swimming
Light source:	100 super bright green LED

3.1.1.10 SPA2 and SPP2

The speaker system that is used by ALGE complies with the electrical safety rules of equipment in pool areas.
The SPA2 is permanently charged by the TM-SWIM if the TM-SWIM is connected to mains.
All SPA2s are connected in series to the TM-SWIM with the cable set SWSPA8. At each SPA, also one SPP is connected.

3.1.1.10.1 Technical Data

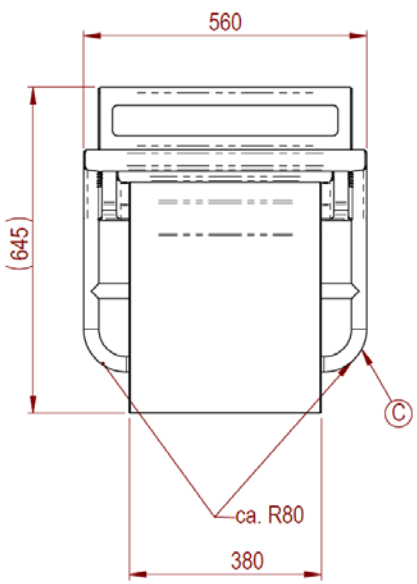
Type:	SPA2
Dimensions:	250 x 180 x 180 mm
Weight:	3 kg
Battery:	12 V/2.2 Ah
Material	Stainless steel 1.4004, powder-coated
Max. Output power:	2 x 20 W

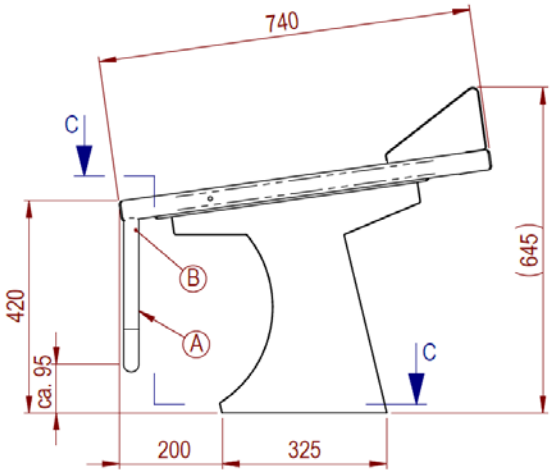
3.1.1.11 SO7 Starting Block

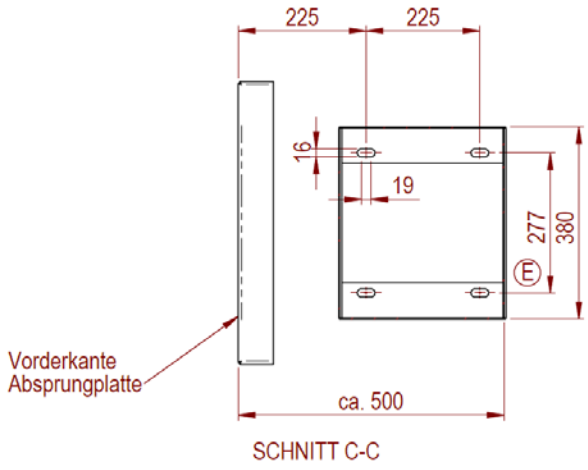
Each SO7 is made of stainless steel 1.4404. It provides relay take off judging and take off time (statistic data).
The SO7 is designed for constant use in outdoor and indoor swimming pools.
With the adjustable track start aid you give the swimmers the possibility of the best performance for the start.

3.1.1.11.1 Technical Data

Dimensions:	740 x 560 x 400 mm
Measurement system:	integrated sensor for timing
Weight:	40 kg
Material:	stainless steel 1.44004, surface treated







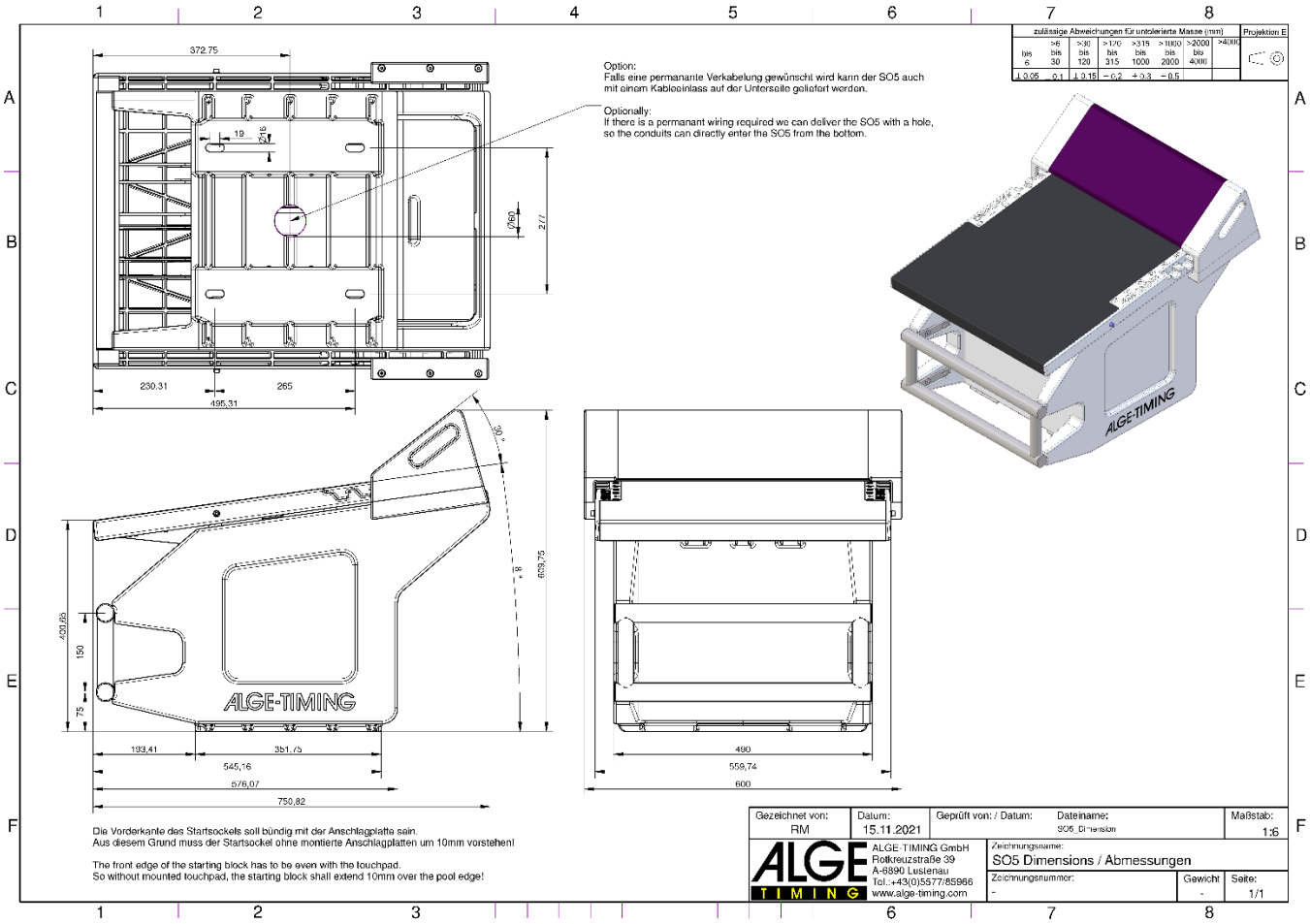
SCHNITT C-C

3.1.1.12 SO5 Starting Block

Each SO5 is made of LDPE plastic. It provides relay take off judging and take off time (statistic data).
The SO5 is designed for constant use in outdoor and indoor swimming pools.
With the adjustable track start aid you give the swimmers the possibility of the best performance for the start.

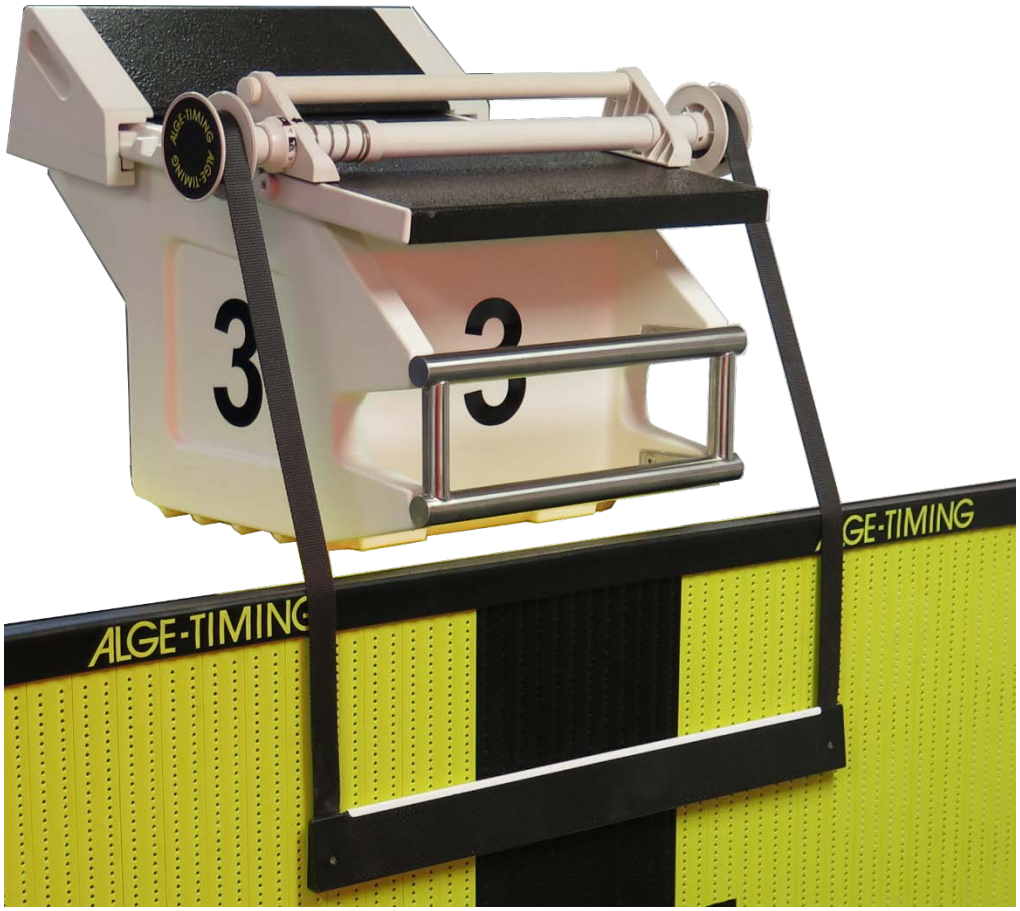
3.1.1.12.1 Technical Data

Dimension: 740 x 560 x 400 mm
Measurement system: integrated sensor for timing
Weight: 25 kg
Material: LDPE and other, surface treated



3.1.1.13 BSA Backstroke Start Aid

The Backstroke Start Aid is fully compatible with the ALGE-TIMING SO3, SO4, and SO5 and with any other brand of starting blocks.
Each unit consists in a lower part (which must lean against the end wall of the pool) including a footrest designed to support the swimmer's push at the start and an upper part to hook the assembly to the starting platform.
The upper part also includes a rotating mechanism to set the unit to the swimmer's own starting position and to his size.
A return spring allows a "one hand" easy adjustment, also for the athlete in water.
The upper handlebar allows easily grabbing the unit for a quick removal after the start.



3.1.1.13.1 Technical Data

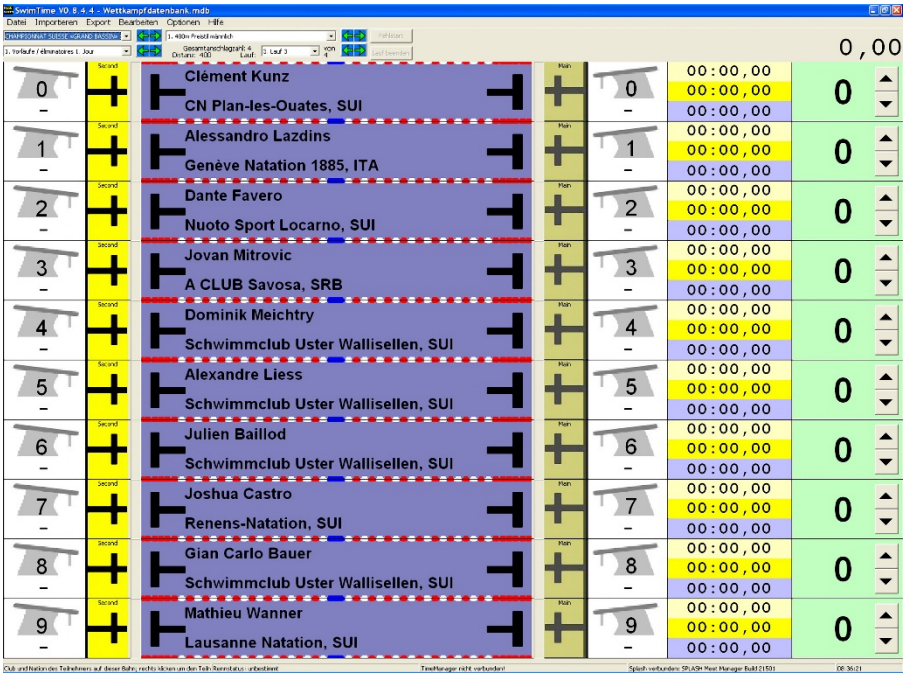
Dimensions:	900 x 200 x 150 mm
Adjustments:	in 2 cm steps plus and minus
Weight:	3 kg

3.1.2 Computer Software

ALGE-TIMING is using an open protocol to connect to meet management Systems from different suppliers. Following Software has already been tested in our company.
Splash meet manager from swimrankings.net (from Version 2011)
Meet Manager from hytek.active.com (from Version MM4.0)

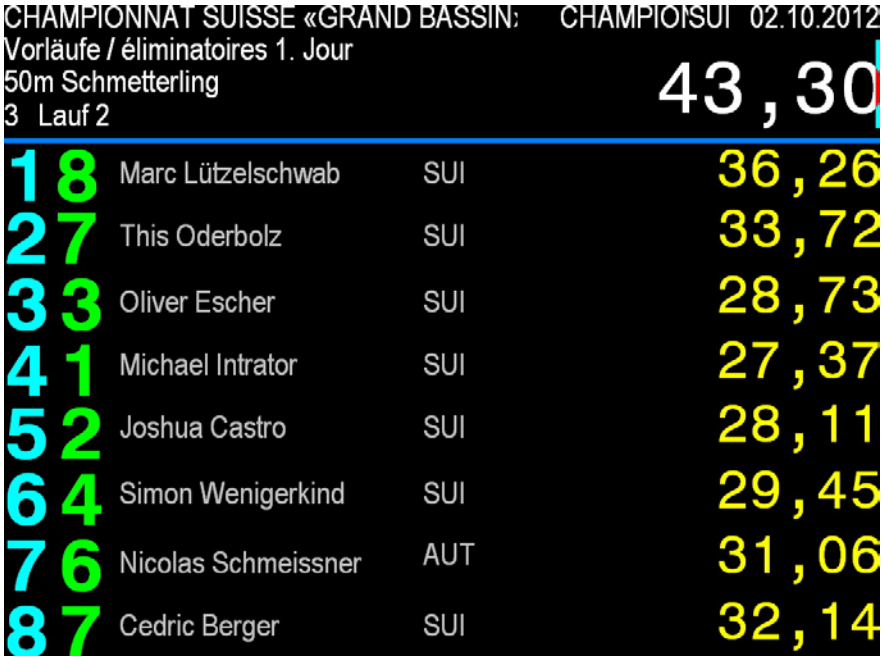
3.1.2.1 SwimTime Timing Software

The timing software serves as display and keyboard for the highly accurate timing device ALGE TM-SWIM. Due to the Windows user interface the user can easily supervise all processes of the timing.



3.1.2.2 Software for Speaker Info

Free software for speaker information is delivered with the system. All data is received through Ethernet from the SwimTime computer.

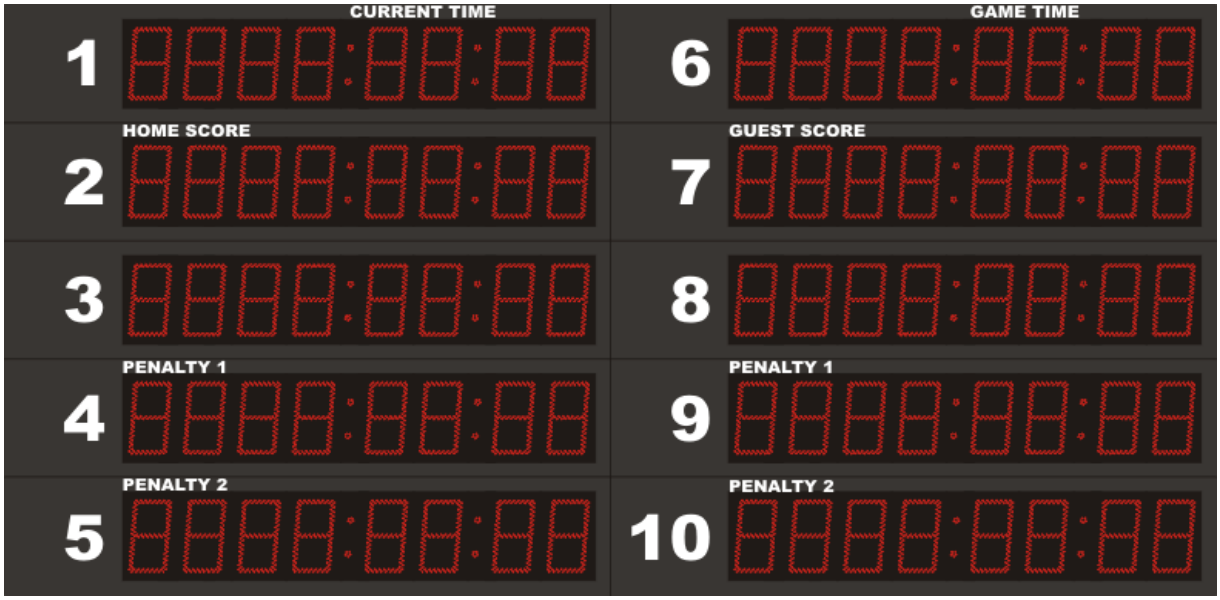


3.2 Scoreboard Systems

The scoreboard is the interface between the audience and your sport event. Therefore, it is of extreme importance to choose the suitable product. ALGE-TIMING probably offers one of the widest ranges of different scoreboards. From bi-stable electromagnetic technology to numeric LED-Scoreboards and full color video walls, ALGE-TIMING can deliver the perfect solution for your pool.
As all display boards are developed at ALGE-TIMING, 100 % compatibility is guaranteed.

3.2.1 Numeric LED Scoreboards

Especially over the last few years, the LED display systems have been capturing the hearts of our customers. The luminous LEDs can also be applied as real outdoor scoreboards. We supply the LED scoreboards with figure heights of 57, 100, 150, 250, 450, and 600 mm.



3.2.2 D-RTNM LED-Matrix Scoreboards

The D-RTNM scoreboards are often used in combination with our numeric D-LINE scoreboards to show the event name, heat number or other information.
In small swimming pools they can be used also as a standalone solution.

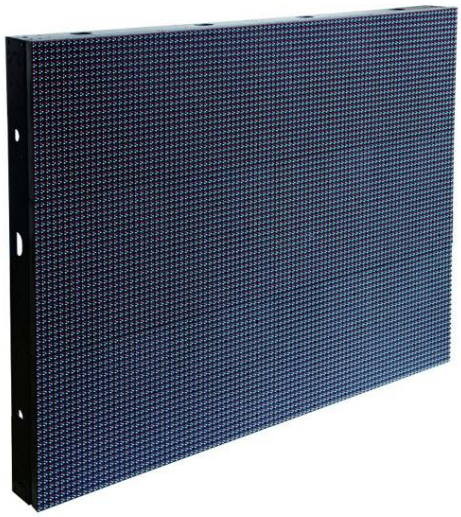
3.2.3 LED Video Display System

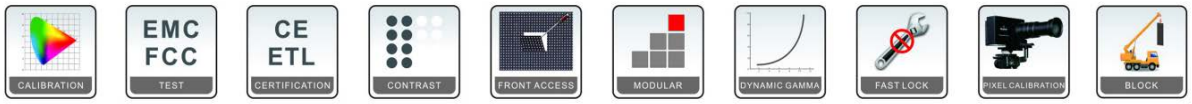
ALGE-TIMING also supplies high-quality LED video display systems designed for operation in sport complexes. Applicable for indoor and outdoor venues, these display systems meet the highest requirements.

3.2.3.1 ALGE EII Video Walls

These video walls are perfectly suited for both bigger size and lower budget system for indoor and outdoor pools. There are many sizes and pixel pitches available. High quality DIP type Chinese LEDs or even LEDs from Cree or Nichia are used for these video screens.

- outdoor - front/back maintenance - fixed installation or rental



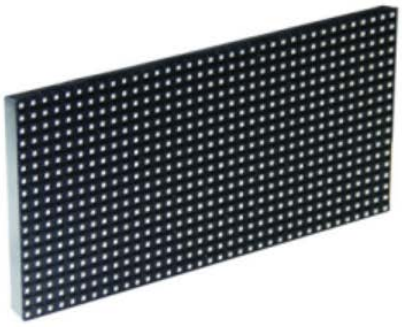


3.2.3.1.1 Specifications of E II Cabinets

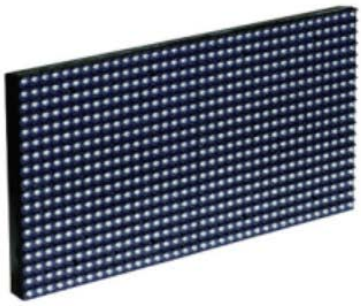
Model	E2-10	E2-13,3	E2-16	E2-20	E2-13,3	E2-16	E2-20	E2L-10,6	E2L-16
Pixel pitch (mm)	10	13.33	16	20	13.33	16	20	10.66	16
Pixel configuration	1R, 1G, 1B								
Application	OUTDOOR (optionally with INDOOR brightness)								
Led Module Specifications									
Resolution (pixel) H x W	16 x 32	24 x 24	20 x 20	16 x 16	24 x 24	20 x 20	16 x 16	18 x 36	12 x 24
Size (mm) H x W	160 x 320	320 x 320							192 x 384
Cabinet Specifications									
Resolution (pixel) H x W	80 x 64	72 x 96	60 x 80	48 x 64	96 x 48	80 x 40	64 x 32	90 x 144	60 x 96
Size (mm) H x W	800x640 x122	960x1280x122			1280x640x122			960x1536x130	
Weight of cabinet (kg)	20	42			32			49	
Technical Data									
Power consumption per cabinet (W max.)	350	850			560			850	
Brightness (cd/m²)	> 6000 (for indoor > 2000)								
Viewing angle (°)	110 / 50								
IP rating	front IP67, back IP54								
Grey level per color	16 bit								
Frame frequency (Hz)	> 60								
Refresh frequency (Hz)	> 1000								
Nominal LED lifetime	up to 100,000 hours								

3.2.3.2 ALGE EIII Video Walls

These video walls are perfectly suited for high resolution system for indoor and outdoor pools. There are many sizes and pixel pitches available. High quality SMD 3-in-1 Chinese LEDs or even LEDs from Cree or Nichia are used for these video screens.

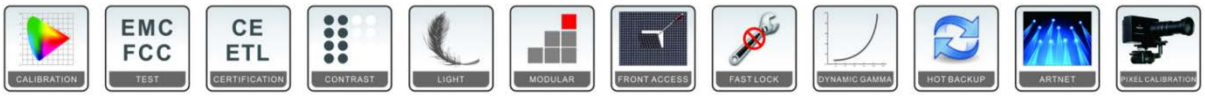


module without lens



module with lens (S)

backside in aluminum for excellent heat dissipation



3.2.3.2.1 Specifications of E III Cabinets

Model	E3-6,4	E3-8	E3S8,7	E3S-10,6	E3S12	E3S16
Pixel pitch (mm)	6.4	8	8.7	1.6	12	16
Pixel configuration	3 in 1 SMD					
Application	OUTDOOR (optionally with INDOOR brightness)					
Led Module Specifications						
Resolution (pixel) H x W	30 x 60	24 x 48	22 x 44	16 x 36	16 x 32	12 x 24
Size (mm) H x W	192 x 384					
Cabinet Specifications						
Resolution (pixel) H x W	120 x 120 150 x 120	96 x 96 120 x 96	88 x 88 110 x 88	72 x 72 96 x 72	64 x 64 80 x 64	48 x 48 60 x 48
Size (mm) H x W	768 x 768 x 120 960 x 768 x 120					
Weight of Cabinet (kg)	20, 25					
Technical Data						
Power consumption per cabinet (W max.)	500, 600W					
Brightness (cd/m²)	> 6000 (for Indoor > 2000)					
Viewing angle (°)	140 / 120					
IP rating	front IP67, back IP54					
Grey level per color	16 bit					
Frame frequency (Hz)	> 60					
Refresh frequency (Hz)	> 1000					
Nominal LED lifetime	up to 100,000 hours					

3.2.3.3 ALGE Vision Video Walls

The vision smart module can record module ID, temperature, network status, voltage, brightness, color information, module type and firmware version, etc. It enables user to monitor the operating status of each module.
High quality SMD 3-in-1 Chinese LEDs or even LEDs from Cree or Nichia are used for these video screens.

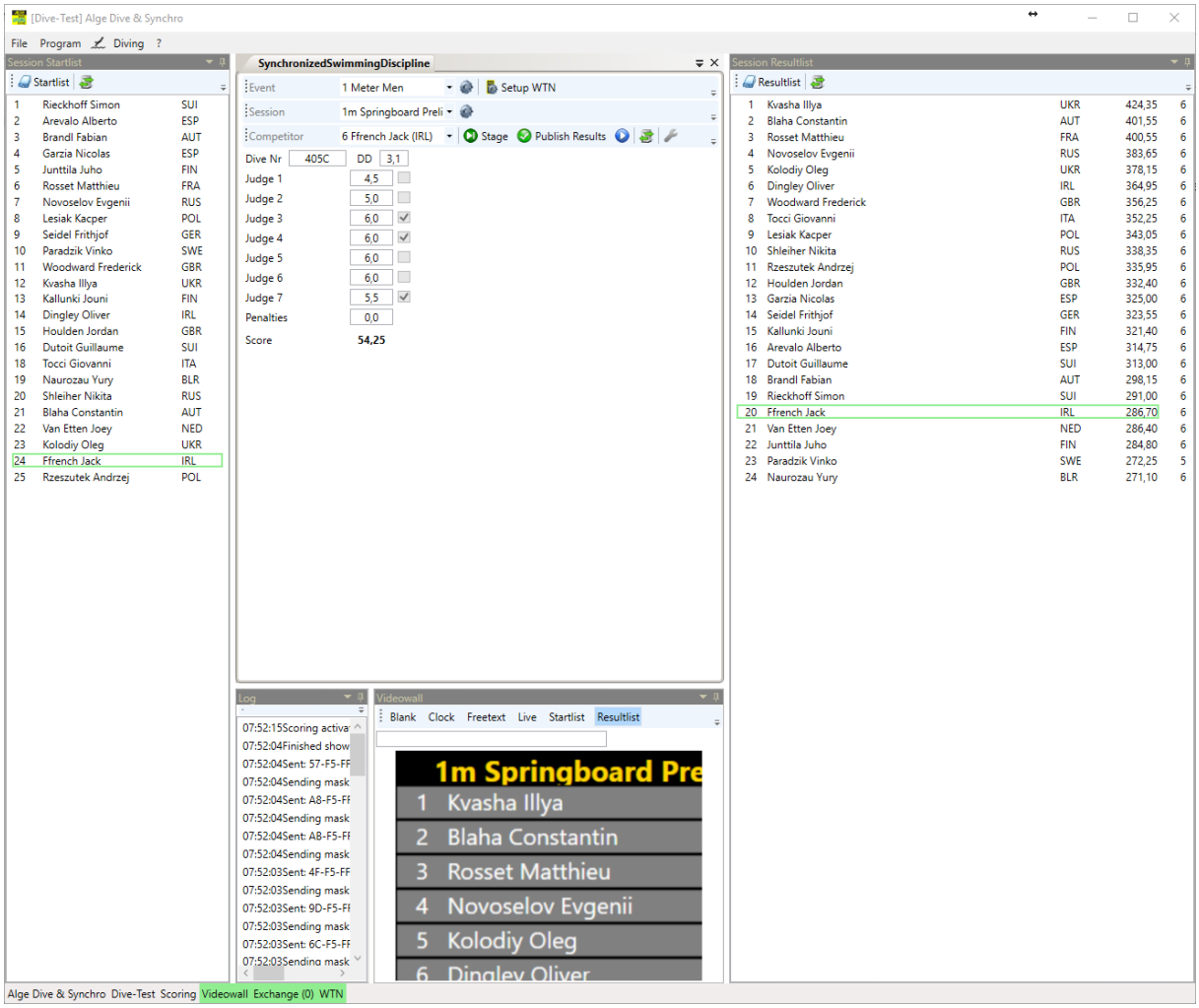
3.2.3.3.1 Specification of Vision Module

Model	Vi-3,9	Vi-4,9	Vi-6,4	Vi-8	Vi-12	Vi-10
Pixel Pitch (mm)	3,9	4,9	6,4	8	12	10
Pixel Configuration	3 in 1 SMD					
Application	OUTDOOR (optionally with INDOOR brightness)					
Led Modul Specifications						
Resolution (Pixel) H x W	60 x 80	48 x 64	60 x 60	48 x 48	30 x 30	40 x 40
Size (mm) H x W	238,5 x 318		384 x 384			400 x 400
Weight of Module (kg)	1		2			2,2
Technical Data						
Power Consumption per Cabinet (W max./avg.)	550W/m² / 185 W/m²					
Brightness (cd/m²)	>6000 (for Indoor >2000)					
Viewing Angle (°)	120 / 120					
IP Rating	front IP66					
Grey level	16 bit					
Frame Frequency (Hz)	>60					
Refresh Frequency (Hz)	1920					
Nominal LED Lifetime	up to 100.000 hours					

3.3 Diving

ALGE-TIMING offers wireless and wired solutions for diving.

3.3.1 Software for Diving



3.3.2 Diving with WTN

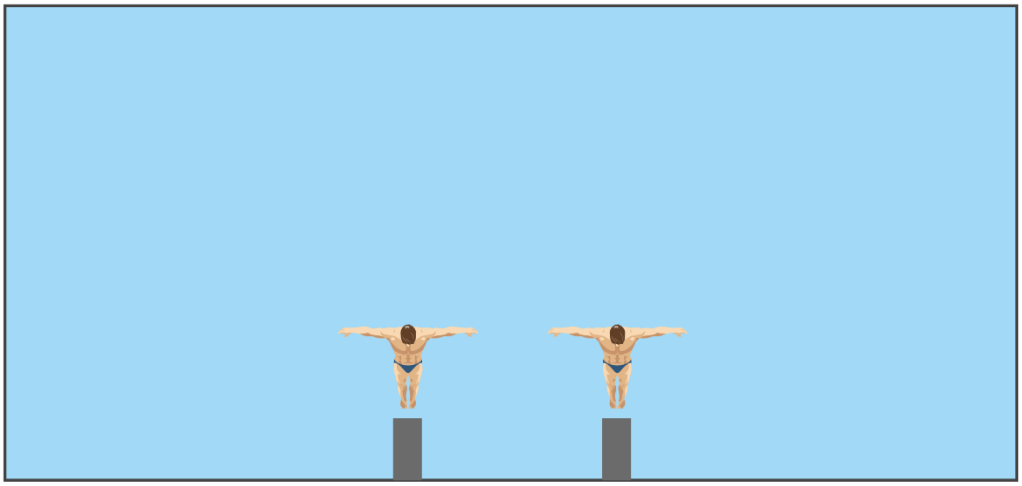
ALGE TIMING

Judging system for DIVING WTN

BLN 2014

Synchronized 3m - MEN
FINAL

1	Ilia ZAKHAROV	RUS		464.64
	Evgenii KUZNETSOV			
2	Patrick HAUSDING	GER		438.15
	Stephan FECK		26.49	
3	Oleksandr GORSHKOVOZOV	UKR		433.98
	Illya KVASHA		30.66	
4	Michele BENEDETTI	ITA		400.59
	Giovanni TOCCI		64.05	
5	Christopher MEARS	GBR		391.98
	Jack LAUGHER		72.66	



WTN for each judge

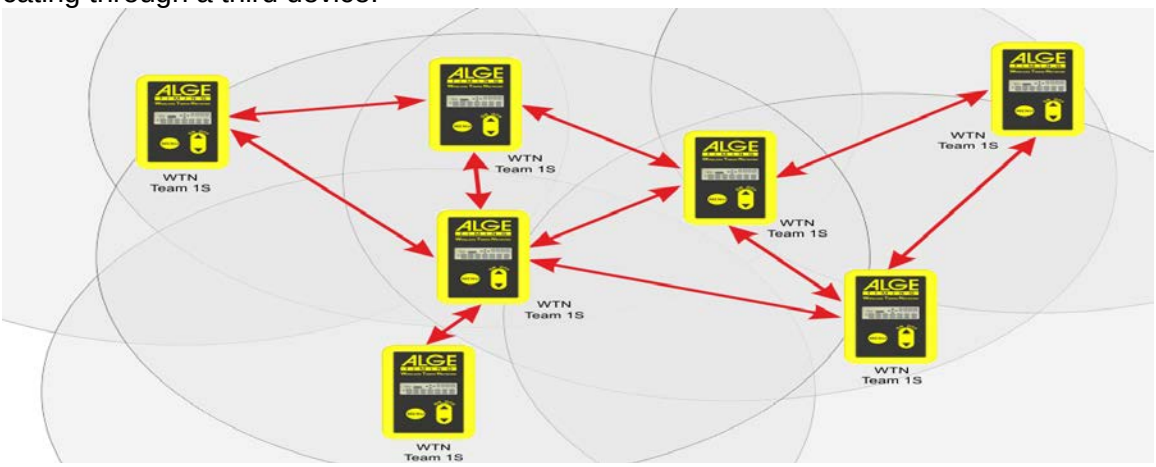
Printer

Meet Managment

WTN
with cable USB-WTN

3.3.2.1 WTN Terminal for Judges

The ALGE WTN is a compact radio system for timing and judging which is equipped with the most updated technology.
A radio network consists of two or more devices of the WTN series (a max. amount of 32 WTN devices in a network allowed). In such a network every device communicates with every other device inside the network. It is possible to extend the range of the radio system by communicating through a third device.



The network is designed in such a way that you can transmit data to a display board (e.g. ALGE GAZ or D-LINE), serial RS232 data (e.g. to a PC) and timing impulses at the same time.
When designing the Wireless Timing Network the ALGE development team concentrated on features that make ALGE devices unique, but also on features that stand for ALGE products: easy operation, highest reliability, rugged casing. Up-to-date technology, integrated in a solid case, results in exceptional features.
Attention: Before using the device make sure that you are allowed to operate it in your country. The radio power output must be adjusted so that it is legal to use it in the country you operate it in.

EU: max. 10 mW is allowed
USA: max. 100 mW is allowed

3.3.2.1.1 Technical Data

Dimensions:	80 x 140 x 43 mm
Radio system:	2.4 GHz, Standard 802.15
Range:	up to 300m
Weight:	150 g

3.3.3 Diving with Timy3 W

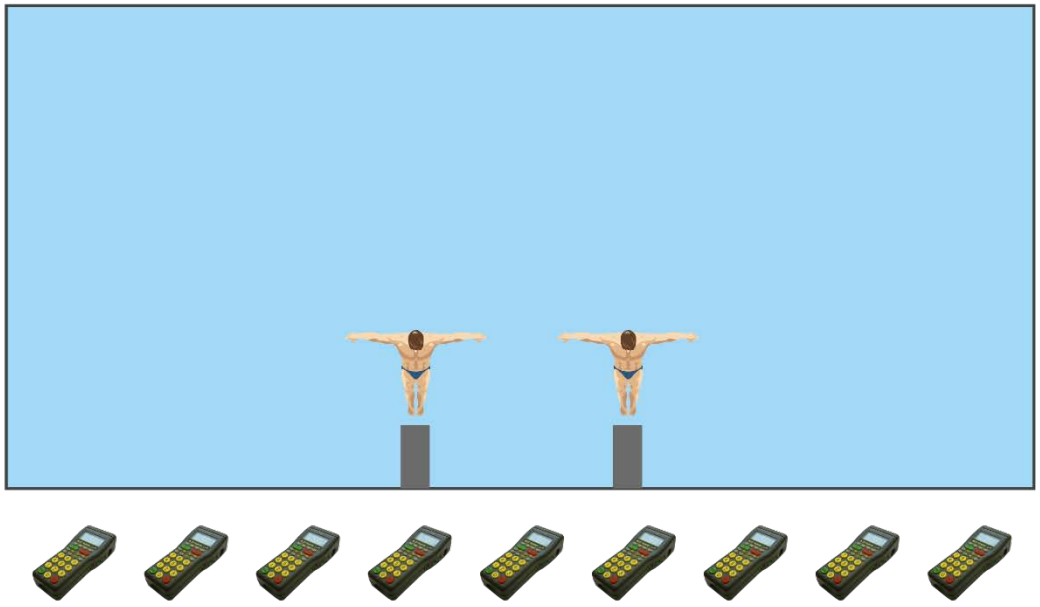
ALGE TIMING

Judging system for DIVING TIMY3 W wireless

BLN 2014

Synchronized 3m - MEN
FINAL

1	Ilia ZAKHAROV	RUS		464.64
	Evgenii KUZNETSOV			
2	Patrick HAUSDING	GER		438.15
	Stephan FECK		26.49	
3	Oleksandr GORSHKOVOZOV	UKR		433.98
	Illya KVASHA		30.66	
4	Michele BENEDETTI	ITA		400.59
	Giovanni TOCCI		64.05	
5	Christopher MEARS	GBR		391.98
	Jack LAUGHER		72.66	



TIMY3 W
for each judge

Printer

Meet
Managment

WTN
with cable USB-WTN

3.3.3.1 TIMY3

The TIMY3 is a unique timer for training sessions and also a judge´s console. The possibilities are almost unlimited.

3.3.3.1.1 Timy3 Software for Swimming

Commander: terminal to control a display board

SwimTrainer: special program for training at up to 2 lanes very easy handling for the trainer measures the following data:

- **Force-Time** time when the swimmer first applies horizontal pressure on the block
- **Reaction time**: time when the swimmer leaves the block
- **Touch 1** first touch
- **Turntime** time from touch to release of the pad
- **Power time:** duration of the force on the starting block
- **Reaction time** Relay-Takeoff-Time time from touch to release of the block

3.3.3.1.2 TIMY3 Models

TIMY3 W

The TIMY3 W is a timer without printer. Equipped with a temperature compensated quartz oscillator it satisfies timing tasks with the highest precision. The extended temperature range allows operating the TIMY3 down to – 20° C (- 4° F).

TIMY3 WP

The TIMY3 WP is a timer with integrated printer. Equipped with a temperature compensated quartz oscillator it satisfies timing tasks with the highest precision. The extended temperature range enables operating the TIMY3 down to – 20° C (- 4° F).

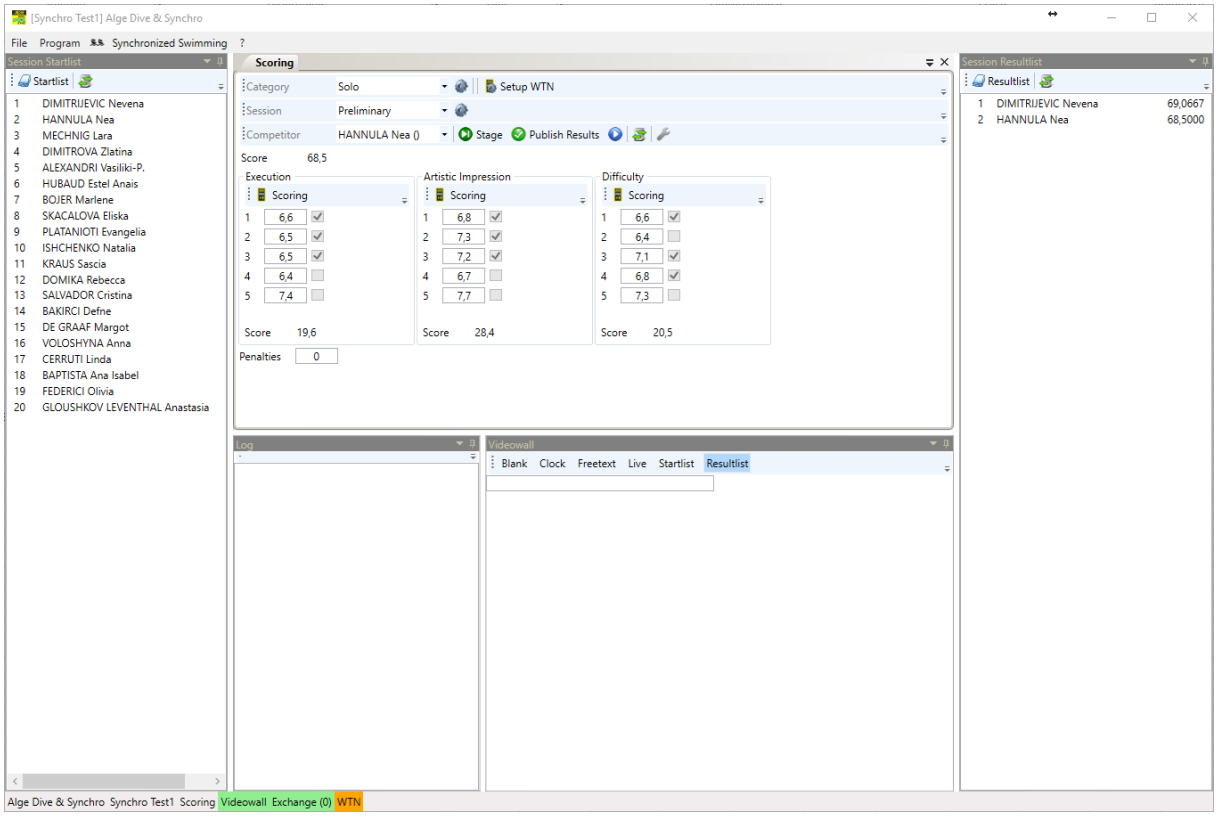
3.3.3.1.3 Technical Data

Processor:	Siemens C161 with 3.3 V technology
Crystal Frequency:	12.8 MHz with TCXO or standard quartz
Time Resolution:	1/10,000 s
Program Memory:	FLASH Memory with 8 MBit
Data Memory:	RAM with 2 MBit (about 13,000 times)
Display:	monochrome LCD graphic display 128 x 64 pixel, available with standard or with extended temperature range
Radio system:	2.4 GHz, Standard 802.15
Range:	up to 300m
Keyboard:	silicon keyboard, 26 keys
Connections:	1 x DIN-socket for photocell (7) 1 x banana socket pair – start input (5) 1 x banana socket pair - finish input (6) 1 x banana socket pair – display board (4) 1 x D-Sub 25-pin (3) 9 timing channels RS 232 (PC-connection) display board RS 485 (network) power supply (7–15 VDC out) 1 x USB (1) 1 x power supply (7 - 15 VDC in) (2)
Channel Extension:	each extension 8 channels, max. 99 channels
Power Supply:	Internal: 6 x AA-Alkaline 6 x 2 Ah or 6 x AA-NiMH 6 x 1.5 Ah External: Power Supply PS12, 12 V battery, or 7-15 VDC
Power Consumption:	data measured at 20°C (68°F) Alkali: without printer about 50 hours NiMH: without printer about 38 hours Alkali: not possible with printer NiMH: with printer about 4500 lines
Charging Duration:	about 14 hours
Printer:	graphic thermal printer, max. 5 lines per sec.
Temperature Range:	TIMY3 W: - 5 to 60° C TIMY3 WP: - 20 to 60° C (- 4 to 140° F)
Measurements:	TIMY3 W: 204 x 91 x 50 mm TIMY3 WP: 307 x 91 x 65 mm
Weight:	TIMY3 W: 450 g (without battery) TIMY3 WP: 650 g (without battery and paper)

3.4 Synchronized Swimming

ALGE-TIMING offers wireless and wired solutions for synchronized swimming.

3.4.1 Software for Synchronized Swimming



3.4.2 Synchronized Swimming with WTN

ALGE TIMING

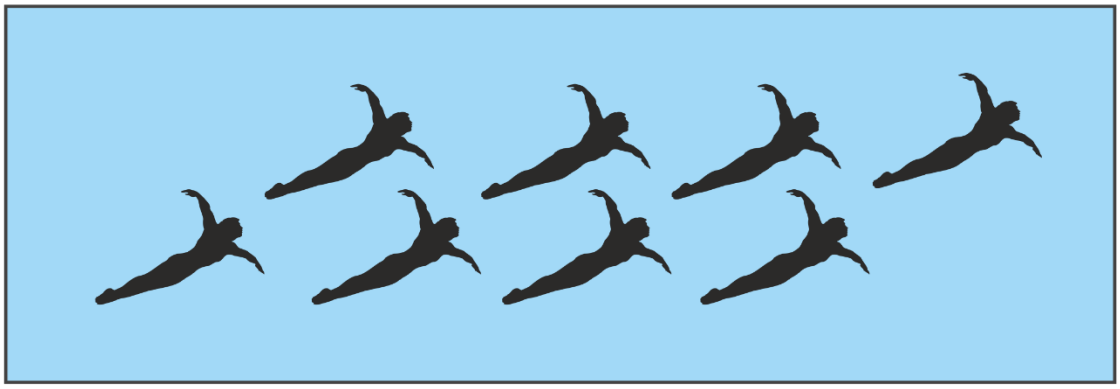
Judging system for synchronized swimming with WTN

BLN 2014

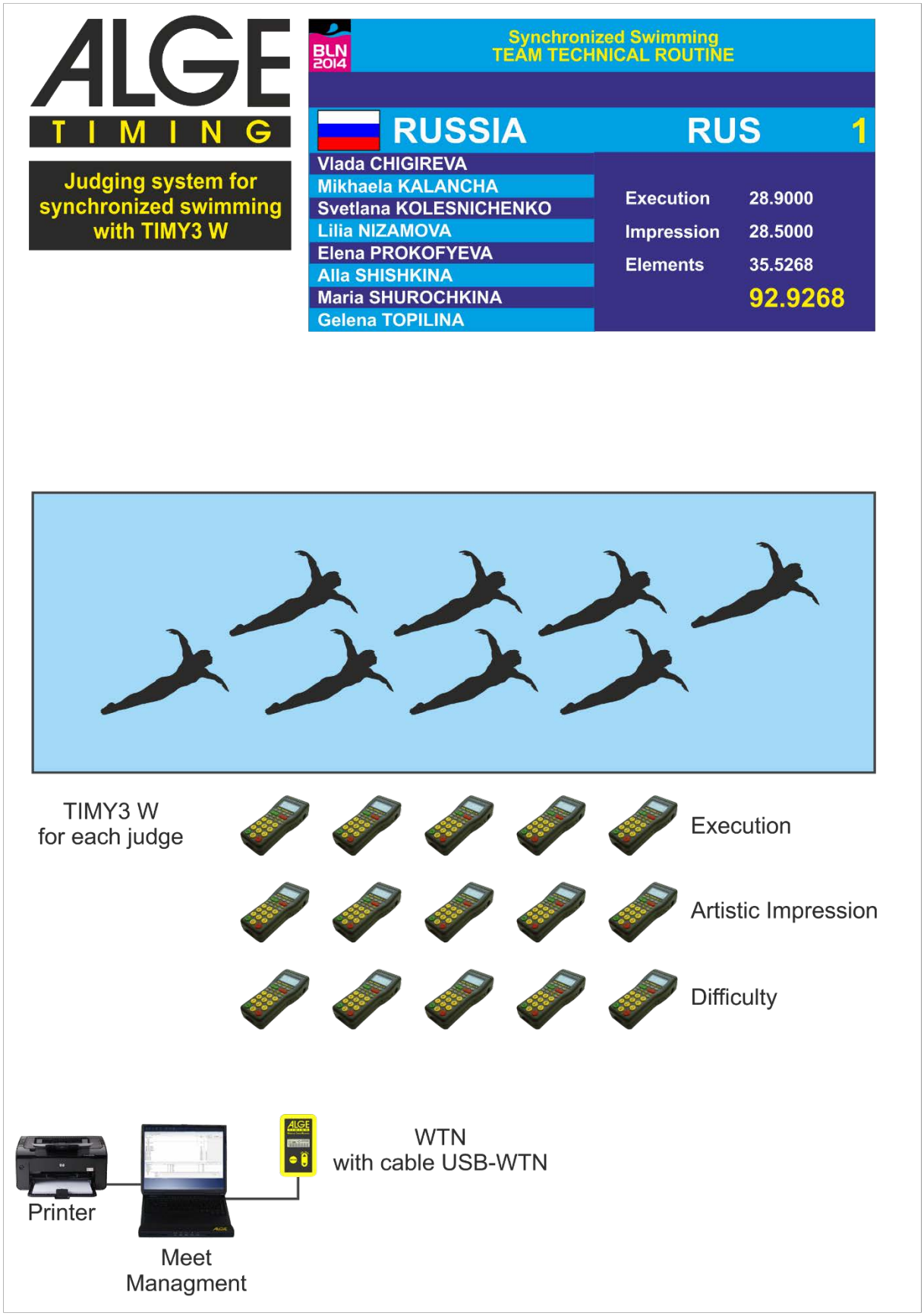
Synchronized Swimming
TEAM TECHNICAL ROUTINE

RUSSIA	RUS	1
Vlada CHIGIREVA		
Mikhaela KALANCHA		
Svetlana KOLESNICHENKO		
Lilia NIZAMOVA		
Elena PROKOFYEVA		
Alla SHISHKINA		
Maria SHUROCHKINA		
Gelena TOPILINA		

Execution	28.9000
Impression	28.5000
Elements	35.5268
	92.9268



3.4.3 Synchronized Swimming with Timy3 W



3.4.3.1 TIMY3

The TIMY3 is a unique input device for points and timing. The possibilities are almost unlimited.

3.4.3.1.1 TIMY3 Software for aquatic sports

Terminal: terminal for judges, e. g. ski jumping, figure skating, diving, synchronized swimming

Commander: terminal to control a display board

SwimTrainer: specially developed for Training

3.4.3.1.2 TIMY3 Models

TIMY3 W

The TIMY3 W is a timer without printer. Equipped with a temperature compensated quartz oscillator it satisfies timing tasks with the highest precision. The extended temperature range enables operating the TIMY3 down to - 20° C (- 4° F).

TIMY3 WP

The TIMY3 WP is a timer with integrated printer. Equipped with a temperature compensated quartz oscillator it satisfies timing tasks with the highest precision. The extended temperature range enables operating the TIMY3 down to - 20° C (- 4° F).

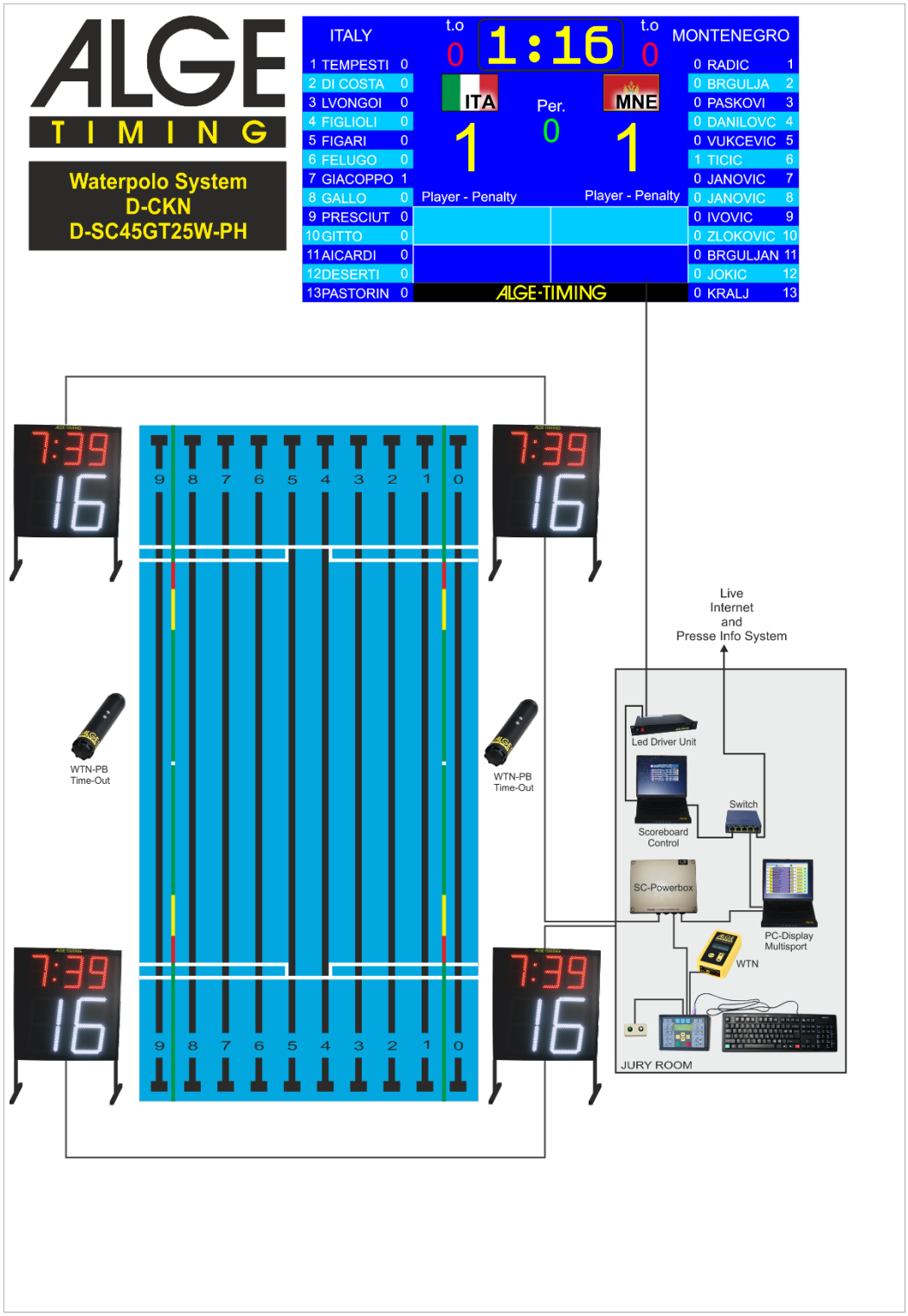
3.4.3.1.3 Technical Data

Processor:	Siemens C161 with 3.3 V technology
Crystal Frequency:	12.8 MHz with TCXO or standard quartz
Time Resolution:	1/10,000 s
Program Memory:	FLASH Memory with 8 MBit
Data Memory:	RAM with 2 MBit (about 13,000 times)
Display:	monochrome LCD graphic display 128 x 64 pixel, available with standard or with extended temperature range
Radio system:	2.4 GHz, Standard 802.15
Range:	up to 300 m
Keyboard:	silicon keyboard, 26 keys
Connections:	1 x DIN-socket for photocell (7) 1 x banana socket pair – start input (5) 1 x banana socket pair - finish input (6) 1 x banana socket pair – display board (4) 1 x D-Sub 25-pin (3) • 9 timing channels • RS 232 (PC-connection) • display board • RS 485 (network) • power supply (7–15 VDC out) 1 x USB (1) 1 x power supply (7 - 15 VDC in) (2)
Channel Extension:	each extension 8 channels, max. 99 channels
Power Supply:	**Internal:** 6 x AA-Alkaline 6 x 2 Ah or 6 x AA-NiCd 6 x 1 Ah or 6 x AA-NiMH 6 x 1.5 Ah **External:** Power Supply PS12, 12 V battery, or 7-15 VDC
Power Consumption:	data measured at 20°C (68°F) Alkali: without printer about 50 hours NiCd: without printer about 25 hours NiMH: without printer about 38 hours Alkali: not possible with printer NiCd: about 3000 lines NiMH: about 4500 lines
Charging Duration:	about 14 hours
Printer:	graphic thermal printer, max. 5 lines per sec.
Temperature Range:	TIMY3 S and P: -5 to 60°C (23 to 140°F) TIMY3 W and WP: -20 to 60°C (-4 to 140°F)
Measurements:	TIMY3 S and W: 204 x 91 x 50 mm TIMY3 P and WP: 307 x 91 x 65 mm
Weight:	TIMY3 S and W: 450 g (without battery) TIMY3 P and WP: 650 g (without battery and paper)

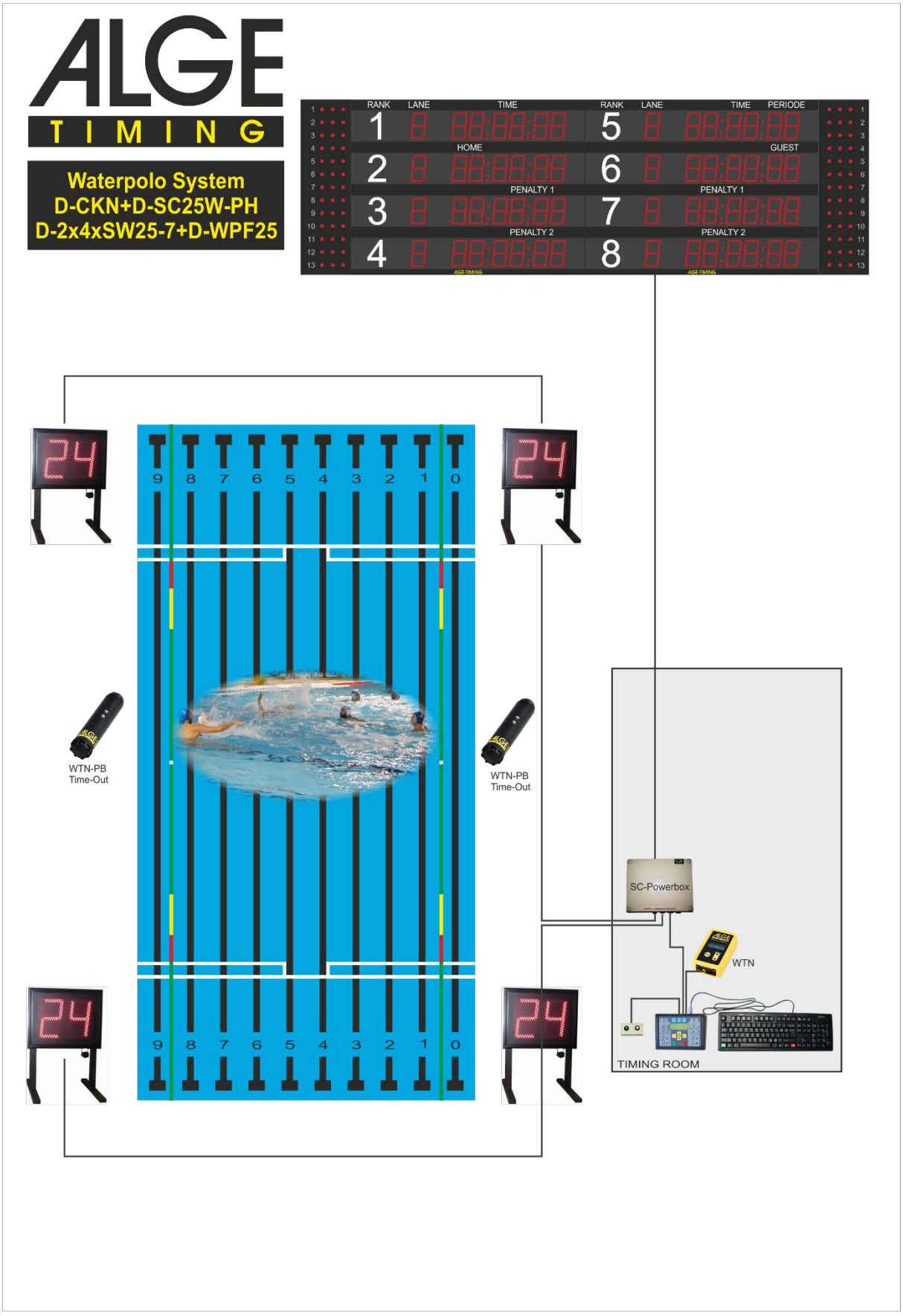
3.5 Water Polo System

Depending on the scoreboard you choose, the solutions for a water polo system can vary as shown on the next schematic pictures. Most of the times water polo is shown on the same display board as swimming.
However, it is also possible to use a scoreboard especially designed for water polo.

3.5.1 Water Polo with Video Wall

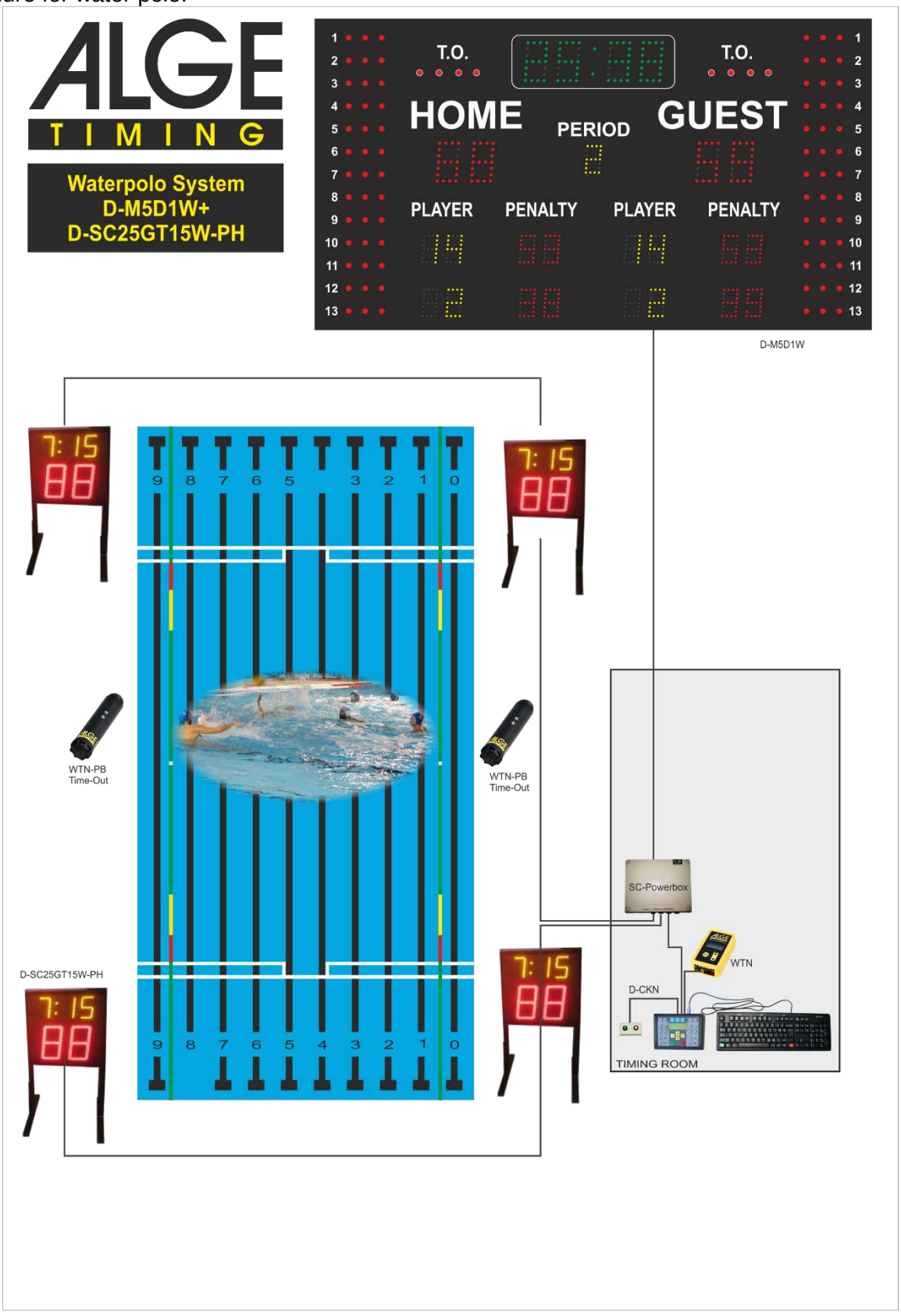


3.5.2 Water Polo with Swimming Display



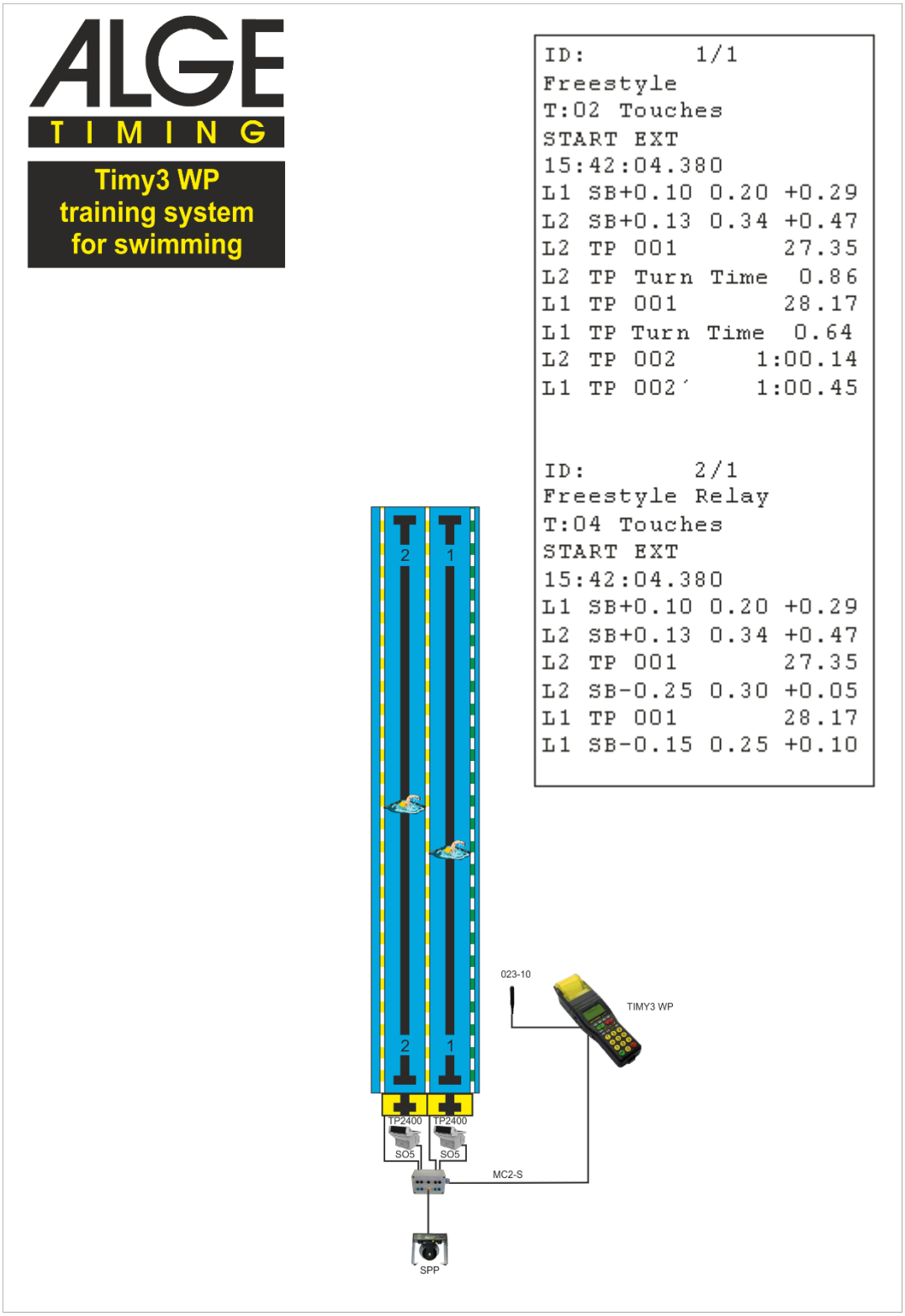
3.5.3 Water Polo with Water Polo Scoreboard

There are many different water polo scoreboards available. Please also see the separate brochure for water polo.



3.6 Training System

With the Timy3 WP, we offer a unique timing system for training purposes. Unlike the competition systems, this system is a handheld device which is normally operated directly by the trainer alongside the pool.
But even though it is a handheld device it is capable of measuring more data than any other system.



4 Notes

ALGE-TIMING GmbH
Rotkreuzstraße 39
A-6890 Lustenau
Austria
Tel: +43-5577-85966
Fax: +43-5577-85966-4
office@alge-timing.com
www.alge-timing.com