ALGE
TIMING

THE SPORTS TIMING EXPERTS

Rowing & Canoe

ROWING & CANOE

Rowing and canoeing events are usually held on the same regatta courses with the same finish but with different distances. You need similar timing systems, but the structure is usually somewhat different (start and intermediate times are different). The number of lanes might be as well not identical. Of course, the photo-finish system is also used in dragon boat races.

ALGE-TIMING supplies timing systems for regatta courses for more than 30 years. Different systems are available from a simple manual timing system with radio transmission up to systems with intermediate times for each lane and photo finish used for major events.

ROWING & CANOE

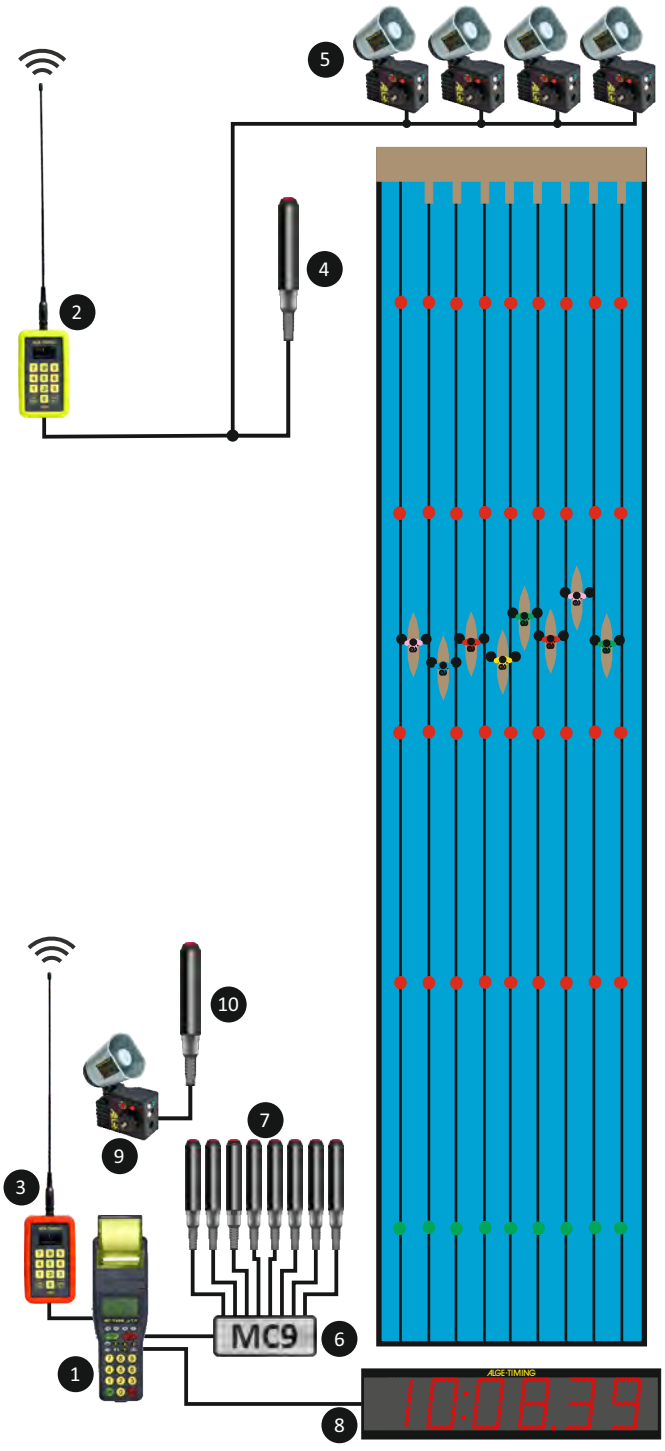
Simple Manual Timing System

This manual timing system is inexpensive, easy to operate and toset up and can be used on a mobile basis. The start is triggered with a hand switch that emits a horn signal of the Startbeep STB1. One or more Startbeeps can be distributed in the start area.

The Timy3 WP in the start area is required for reliable backup of the start time.

The start impulse is transmitted to the finish by radiosystem TED. The Multichannel MC9 is connected to the timing device Timy3 WP at the finish. Up to eight push button 023-10 can be connected (one for each lane). Each push button impulse triggers the timing device and is printed by the integrated printer of the timing device.

It is possible to connect a display board to the timing device Timy3 WP, which shows the running time or the winning time.



1. Timing Device Timy3 WP
2. Teledata TED2-TX transmitter
3. Teledata TED2-RX receiver
4. Push Button 023-10 for start
5. 4 x Startbeep STB1 for start signal
6. MultiChannel MC9
7. 8 x Push Button 023-10 for each lane
8. Display Board D-LINE
9. Startbeep STB1 as arrival horn
10. Push Button 023-10 for arrival horn

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Professional Timing System

The professional timing system with the TimeManager TM allows to output for each lane the time and lane identification for intermediate times and finish times. For a regatta course with nine lanes, this means there are at least 37 timing channels necessary; 1 start channel, 3 x 9 intermediate times and 9 finish times.

The speaker system BANG2 is used by the starter to give commands to the rowers and as well the start signal is output through the BANG2 speakers.

The start is recorded with the IDCam and the start image is immediately displayed on the PC monitor in order to trigger a possible false start.

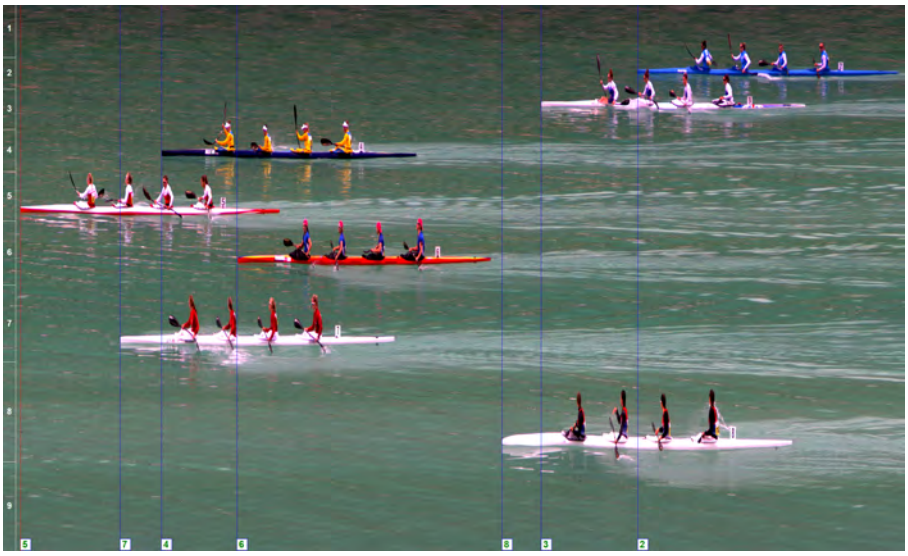
For each lane of the intermediate points and finish line there is a push button. This allows to trigger each timing point separately. Alternative, it is possible to use a photo finish for each intermediate time.

A Bluetooth headset is available for communication between start, intermediate time, finish and timing.

At the finish line, the finish is also recorded and evaluated with an OPTIc3 photo finish system. The times of the photo finish will be used as official time.

With the horn of the Startbeep STB1 by pressing the push button the crossing of a competitor is signalized.

All data is transferred from the timing device to the PC and evaluated. The entire race management and printing of documents (start lists, result lists) is done on this PC.



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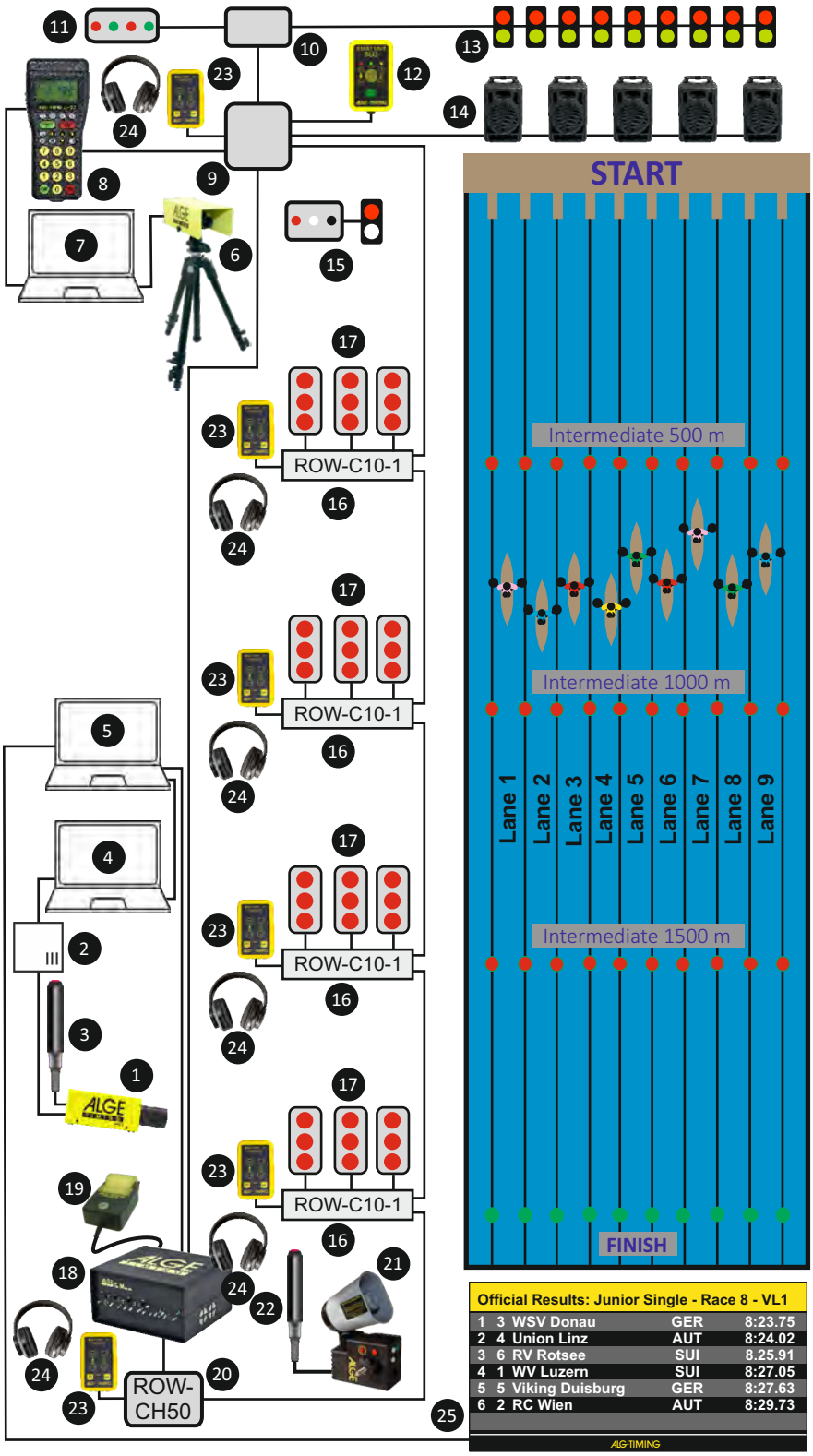
Professional Timing System



1. **Photo Finish Camera OPTIc3**
2. **Power over Ethernet PoE**
3. **Push Button 023-10** to control the photo finish recording
4. **PC for Photo Finish**
5. **PC for Evaluation**
6. **IDCam:** camera for start control)
7. **PC for IDCam-Evaluation**
8. **Timy3 W** (start timing device)
9. **Potential-Free Outpot ROW-PF**
10. **Start Light Controller ROW-SSR**
11. **Start Light Terminal ROW-SST**
12. **Start Unit SU3**
13. **Start Light LED-SPOT**
14. **Start Speaker BANG2**
15. **Start-Ready-Light LED-SPOT-SJ**
16. **Adapter ROW-C10-1** to connect the push buttons ROW3
17. **Push Button ROW3** for 3 lanes
18. **TimeManager TM:** timing device
19. **Printer P5-8** for timing device
20. **Adapter ROW50** extension for 50 timing channels
21. **Startbeep STB1** horn for finish arrival
22. **Push Button 023-10** to activate the finish horn
23. **Speech Amplifier SV5-BT**
24. **Headset HS-BT1**
25. **Display Board** e.g. video wall

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Photo Finish OPTIc3

The photo finish system OPTIc3 takes over the technical market leadership. It has a recording rate of up to 30,000 frames per second (fps) and up to 2,016 vertical pixels. This makes it the perfect timing device for any sport that relies on good photo finish images and accurate results.

Features such as 2-D images, autofocus, automatic iris adjustment, etc. make the system easy to use. The VoIP allows communication with the starter, and the timekeeper communicates without headset via microphone and speaker of the PC.

Technical Facts:

vertical resolution:	up to 2,016 pixels
scan rate (fps):	up to 30,000 frames per second
recording time:	unlimited, depends on PC hardware
timing:	temperature compensated quartz oscillator TCXO, +/-0.06 ppm at 25 °C (0.0002 s/h)
power supply:	PoE+ or10.6 - 13.4 VDC
temperature range:	-20 °C to +50 °C

Standard network
It is a simple way to connect almost every PC via Ethernet or WLAN.

Automatic Iris Adjustment
With the motor zoom of ALGE-TIMING you can access functions such as autofocus and automatic iris adjustment.

Live View
The camera image can be viewed via WiFi on a mobile phone or tablet. This allows to adjust the lens of an OPTIc3 camera that is placed far away from a PC and has no motor zoom in an easy, fast and precise way.

2-D Image Adjustment
With the new 2-D image adjustment (maximum 2,016 x 360 pixels), you can accurately align the camera on the finish line in a very short time.

High-Speed Camera with 2-D Images
With 2-D mode with 100 Hz (100 fps) and full-screen mode, the OPTIc3-PRO is ideal for sports such as swimming and rowing. Since the OPTIc3 has a built-in timing device, exactly synchronized 100 frames per second can be guaranteed.

PC Software
The modern, powerful evaluation software for the OPTIc3 enables quick and easy results. It is also possible to record on one PC and execute the evaluation on another. Following operating systems are supported: Windows 7, Windows 8.x, Windows 10, Windows 11 (x86 or x64).

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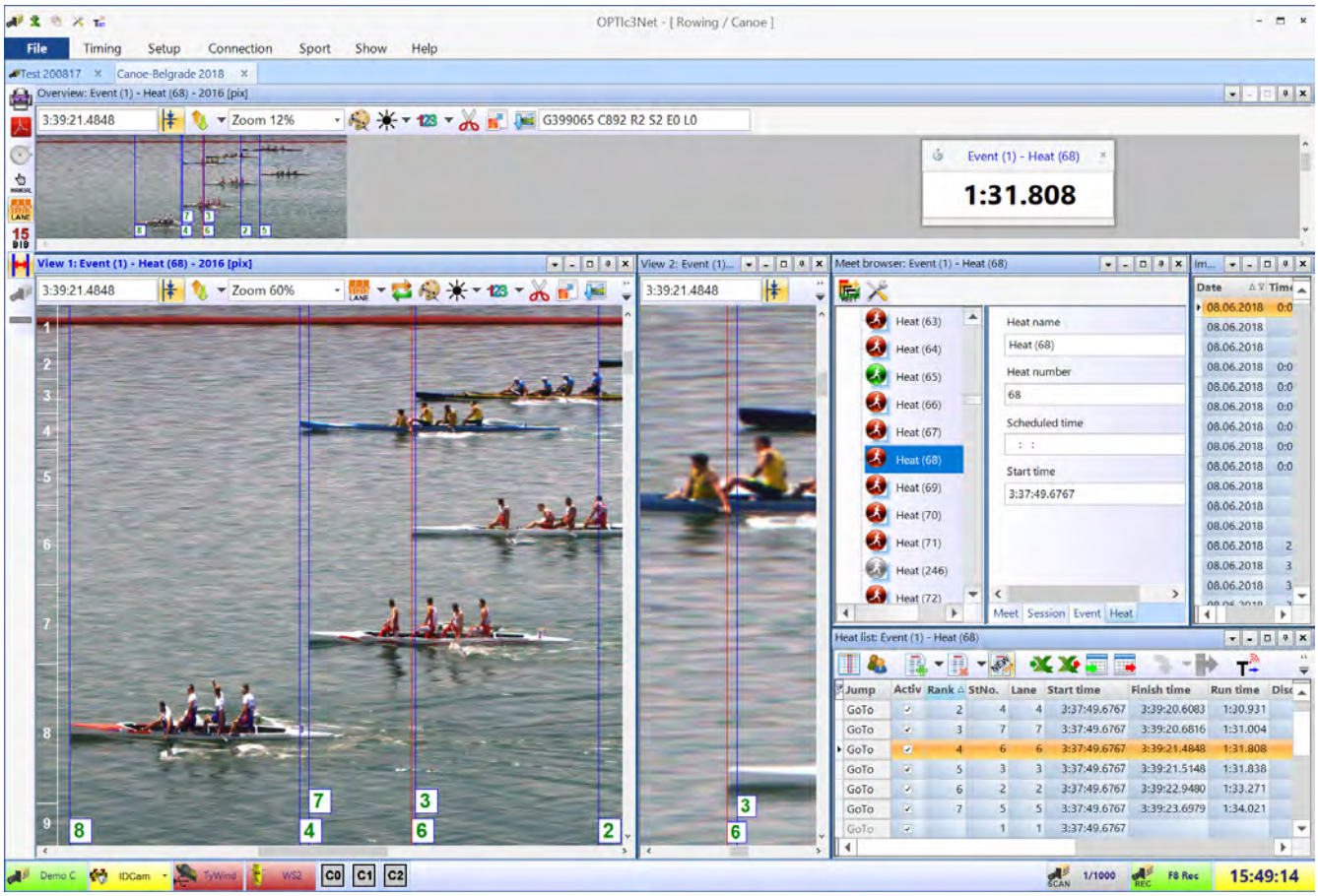
Photo Finish OPTIc3



The photo finish system OPTIc3 is available in two versions

OPTIc3 Basic System

photo finish system for the small budget

- recording: up to 3,000 fps
- resolution: 1,360 pixel vertical resolution
- 2-D image preview to set and adjust the camera
- free updates of the OPTIc3NET software
- an upgrade with all features des OPTIc3-PRO is possible

OPTIc3-PRO

The professional photo finish system that leaves nothing to be desired. The following features are integrated:

- high-speed recording: up to 30,000 fps
- high resolution: 2,016 pixels vertical resolution (48 % more than OPTIc2)
- 2-D image preview to set and adjust the camera
- eXtremLuX: various technologies for image improvement under bad light conditions
- motion detection: automatic recording with motion detection
- integrated WTN: wireless impulse and data transmission
- high-speed camera: It is possible to record 100 frames per second in the 2-D mode with a resolution of 1,024 x 768 or 360 x 2,016 pixels. The proven IDCam software is available for this function.
- VoIP: voice over IP enables communication with the starter without the PC operator having to use a headset
- recording on a PC, evaluation or photo finish control by judges possible on a second PC
- free updates of the OPTIc3NET software

ALPLA

RUDERVEREIN HARD

ALPLA

Results List

Regatta Hard 2018
Hard
Event (1) Heat (54)

Date: 27.06.2018

Session name:	Session (1)	Actual start time:	16:50:45
Number:	1.1.54		

Rank	Lane	Nation	Run time	Diff.
1	5	ROM	1:24.518	Winner
2	6	SWE	1:25.201	0.683
3	4	FIN	1:25.301	0.783
4	2	FRA	1:27.328	2.809
5	1	ITA	1:27.518	2.999
6	3	GER	1:27.714	3.196
7	7	POL	1:27.794	3.276
8	8	BUL	1:27.938	3.419
		Disqualification		
	9	SUI	DNS	

Alma
BÜCHELE
Raiffeisen Meine Bank
McDonald's

Photofinish: ALGE-TIMING OPTIc3
Software: ALGE-TIMING OPTIc3.NET

2020-08-26 / 17:05

ALGE-TIMING

Timing: ALGE-TIMING
http://www.alge-timing.com

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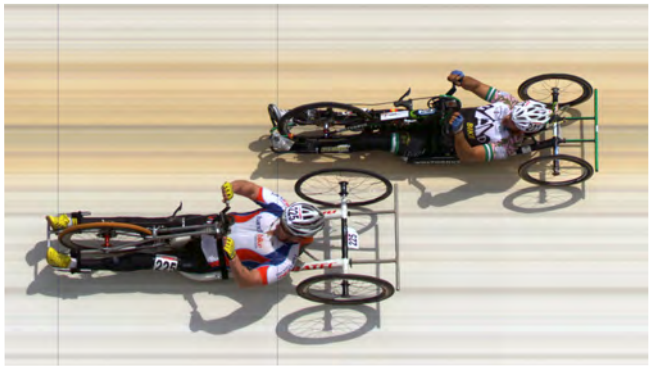
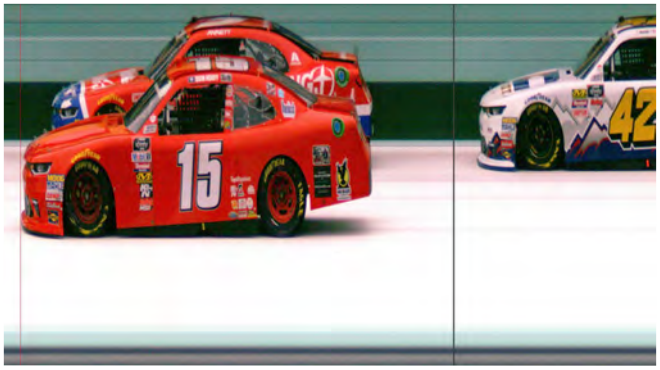
Photo Finish OPTIc3

The OPTIc3 is used for sports where several participants reach the finish at the same time. In addition, the OPTIc3 is the ideal de-vice to monitor the finish arrival. When discussing a result, the picture of the OPTIc3 shows the proof. Here the saying is true “a picture is worth a thousand words”.





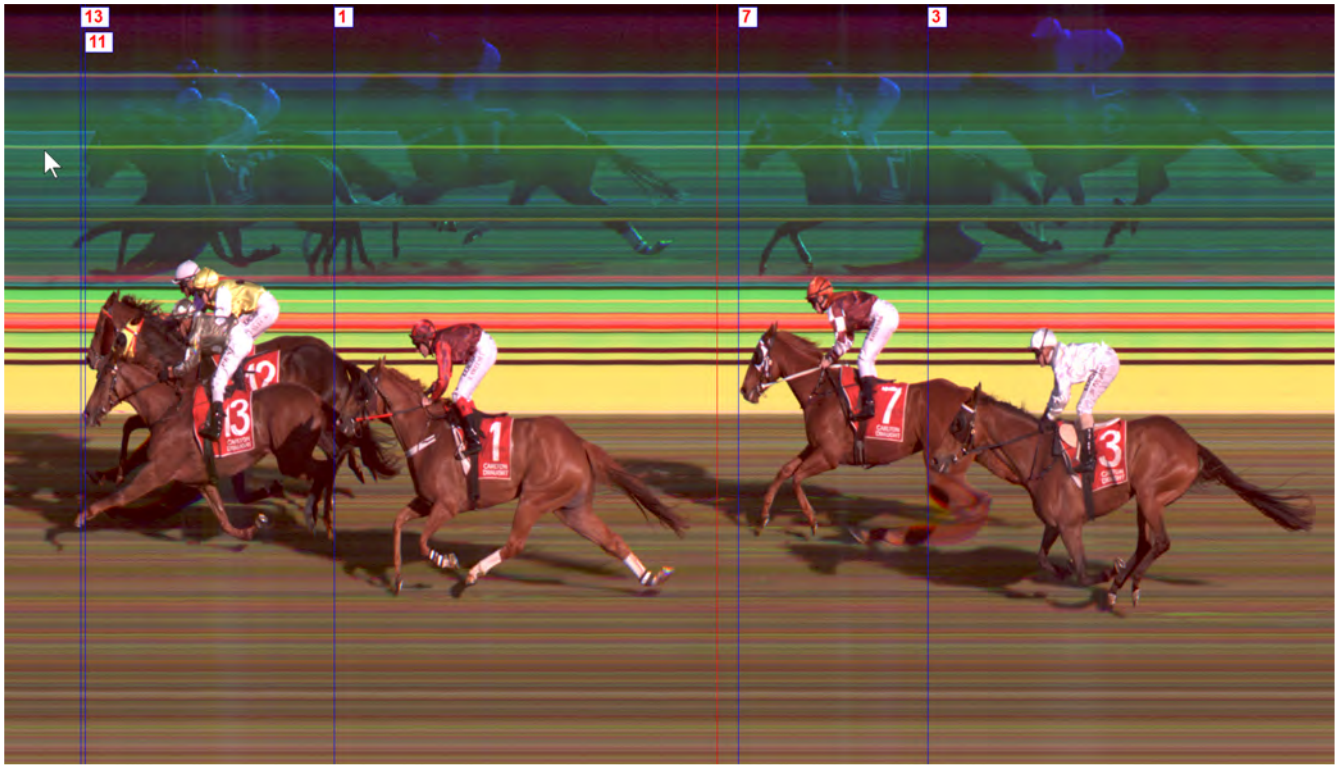


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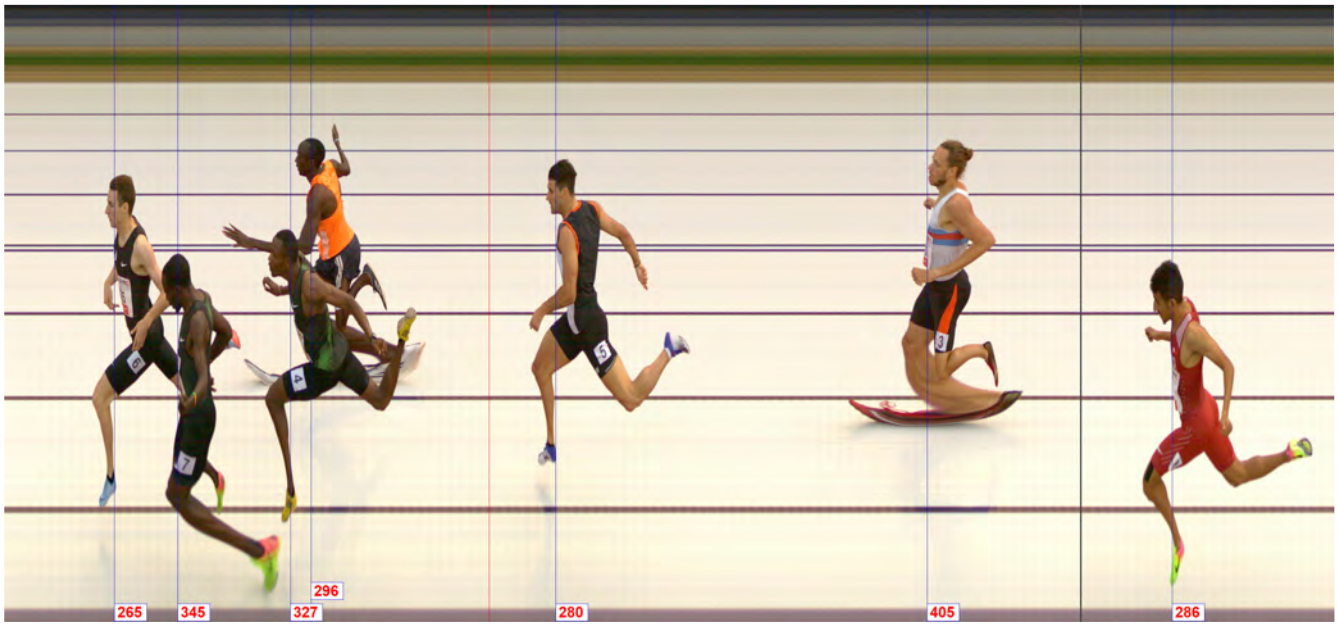
Photo Finish OPTIc3

Sports:

- Track and Field
- Cycling
- Horse Racing
- Motorsport
- Rowing
- Canoe
- Dragonboat
- Inline Skating
- Snowboard
- Ski Cross
- Alpine Skiing
- Cross Country Skiing
- Biathlon
- Short Track
- Speed Skating

Special Solutions:

- Swimming
- Air Race
- Drone Racing
- Crashed Ice
- Timber Sports



Easy camera setting in 2-D mode

The OPTIc3 camera is switchable to a 2-D preview video image mode. This video preview displays a live 2-D image of the camera on the PC monitor. A vertical red line overlays the 2-D preview image.

This line represents the recording line in the line scan mode (competition mode). It allows an easy alignment and setup of the photofinish camera to the finish line. With the autofocus function, the focus can also be adjusted in the 2-D image.

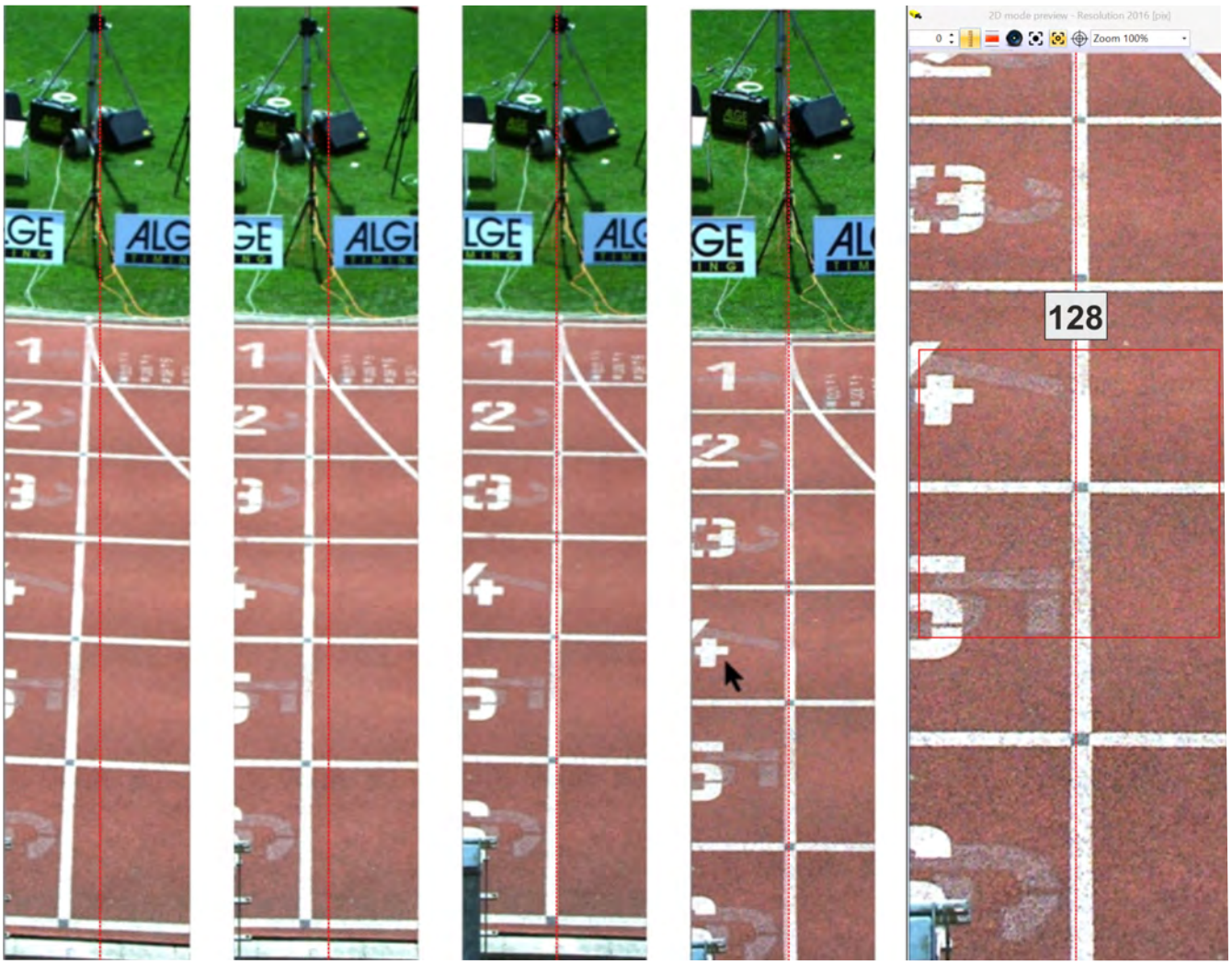


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Photo Finish OPTIc3

The photo finish system OPTIc3 can be extended as desired with practical accessories or equipped for specific requirements of sport events. In addition to the standard accessories, there are also unique special solutions that can be customized

Zoom Lens Z75
manual zoom lens
C-Mount ⅔ “, 12.5- 75 mm / F1.2

Motor Zoom MZ75C
control of focus, zoom and brightness from the PC
C-Mount ⅔“, 12.5 – 75 mm / F1.2

Motor Zoom MZ48C
control of focus, zoom and brightness from the PC
C-Mount ½“, 8- 48 mm / F1,2

Wide-Angle Lens L8C
C-Mount ⅔“, 8 mm / F1.4

C-Mount Focal Length Converter Lx1.5
converts the focal length of a lens for 1.5 times

C-Mount Focal Length Converter Lx2
Doubles the focal length of a lens

Gearhead 410
three-dimensional, mechanical gearhead for a precise adjustment of the camera to the finish line

Gearhead 410-E3
three-dimensional, electrical gearhead for a precise three-dimensional adjustment of the camera to the finish line directly from the PC (no further cabling necessary)

Tripod STATIV6
tripod with a maximum height of 3.66 m

Tripod TRIMAN
tripod with a maximum height of 2.4 m

Tripod TRI-PRO
tripod with a maximum height of 2.67 m

Weather Protection Cover WPC3-75
for OPTIc3 camera with the lenses Z75, MZ75C, MZ48C and L8C

Carrying Case KL-OPTIc3
case with foam insert to transport and store an OPTIc3 system safely

Ethernet Cable K-RJ45G03
CAT6 patch cable with 3 m

Ethernet Cable K-RJ45G10
CAT6 patch cable with 10 m

Ethernet Cable K-RJ45G20
CAT6 patch cable with 20 m

Cable Reel KT-RJ45G90
cable reel with 90 m CAT6 Ethernet cable for the OPTIc3 (with this cable, the POE can also feed the camera)

Power over Ethernet PoE
power supply for the OPTIc3 camera via Ethernet cable (POE is included with the OPTIc3 camera- power supply 90- 240 VDC)

Gigabit-SWITCH PoE+
with 8 RJ45 sockets and integrated Power over Ethernet (PoE+)

Power Bank PS-KP
Universal device that feeds almost all ALGE-products, the lithium battery has a capacity of 18 Ah, and a 12 VDC and 2 USB outputs

Radial Polarizing Filter PF55
(on request) polarization filter to attenuate refection (e.g. from water)

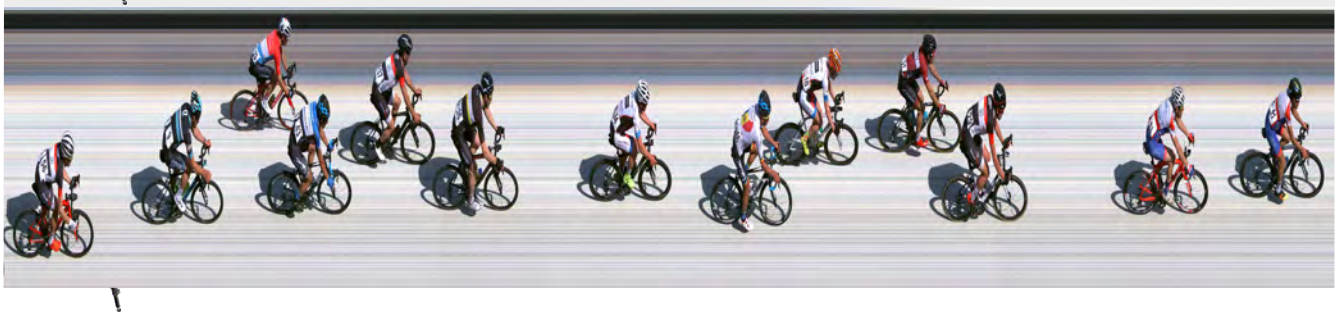

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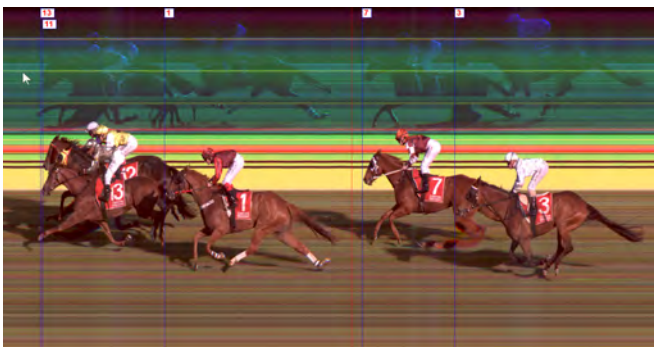
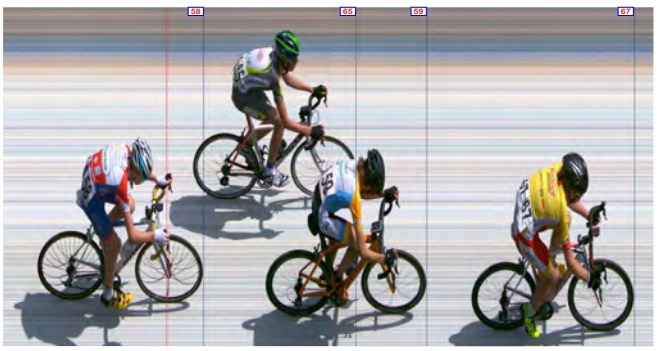
Photo Finish OPTIc3

Technical Data	OPTIc3	OPTIc3-PRO
Pixel (vertical):	1360 pixel	2016 pixel
Recording Speed (fps):	100 - 3,000 fps	100 - 30,000 fps
Voice over IP (VoIP):	optional	yes
Light Amplification eXtremLux:	optional	yes
Line Doubling:	optional	yes
Wireless Timing Network:	optional	yes
High Speed Video (100 pictures per second)	optional	yes
Sensor Type:	CMOS	
Time Base:	temperature compensated quartz oszillator TCXO: +/- 0.006 ppm at 25 °C (0.0002 s/h)	
PC Connection:	Gigabit Ethernet / WLAN	
Lens Mount:	C-Mount / F-Mount with adapter	
Distance Camera to PC:	CAT6 cable: up to 100 m Fibre Optic: up to 2000 m (with converter)	
Connection for Electronic Gear Head:	yes	
Option for ALGE-TIMING Motor Zoom:	yes	
Remote Control for Zoom:	yes (for ALGE-TIMING motor zoom)	
Remote Control for Iris:	yes (for ALGE-TIMING motor zoom)	
Remote Control for Focus:	yes (for ALGE-TIMING motor zoom)	
Autofocus:	yes (for ALGE-TIMING motor zoom)	
Automatic Brightness Adjustment:	yes (for ALGE-TIMING motor zoom)	
White Balance:	automatic and PC software	
Gamma Adjustment:	PC software	
Recording Time:	unlimited, depending on the PC hardware	
Recording Speed Adjustment (fps):	software (adjustable at any time)	
Timing Impulse Inputs:	3 (start, intermediate time, finish)	
Connection for Display Board:	RS232 / RS485 / Ethernet	
USB Interface:	2	
Recording and Evaluation:	possible on 2 different PC	
Transponder Integration:	optional	
Power Supply:	Ethernet with PoE+ power supply PS12A (10.6- 13.4 VDC)	
Tripod Thread:	3/8 inch	
Operating Temperature:	-20 to 50 °C	
Measurements (excluding lens):	180 x 120 x 80 mm (L x W x H)	
Weight (excluding lens):	1.5 kg	

Connections

2 x start input (banana socket)
1 x finish input (banana socket)
2 x DIN socket (3 input channels)
1 x display board RS232 (banana socket)
1 x display board RS485 (banana socket)
1 x motor zoom
1 x gear head
2 x USB (e. g. for WLAN)
1 x RJ45 (Gigabit Ethernet)
1 x power supply (9 – 13.4 VDC)





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Start Control with IDCam

The IDCam records reliable the start of the regatta and saves the start sequence with a series of high-resolution images that includes the time of day and running time on a PC.

The system permanently records images and saves them in a buffer on the PC. It overwrites the butter with new images every few seconds.

The start signal starts the recording of the images by the IDCam. The pre-run and post-run time of each start can be set. Because of the buffer it is now possible to have the picture sequence previous to the start recorded as well.

The recorded images help to control the false start detection. Immediately after the start, the image that is closed to the start signal is displayed.

The IDCAM is the ideal addition to any ALGE-TIMING timing device.

number of images:	up to 30 frames per second
image resolution:	2,592 x 1944 pixels (5 MP)
connections:	camera IDCam to PC: Ethernet CAT5 cable up to 100 m timing device with PC: RS232 or USB
recording time:	unlimited, depends on storage capacity of PC
PC operating system:	Windows 7, 8 or 10
power supply:	PoE: 90- 280 VAC

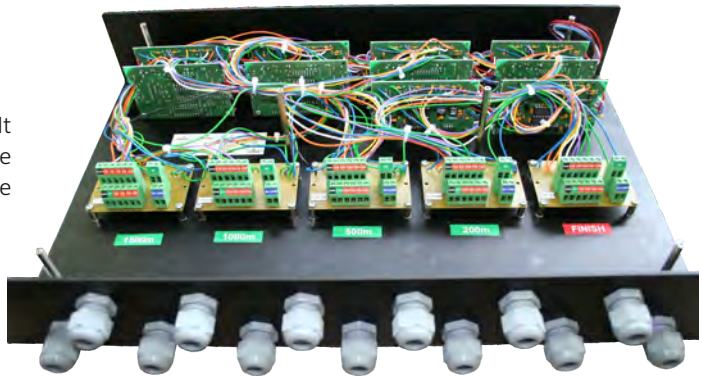
TimeManager TM

The TimeManager TM is a timing device that is controlled by a PC. It is designed for the use of many timing channels. The operation area is mainly in swimming, bobsleigh, sledding and rowing.

It is a high-precision timing device with temperature compensated crystal oscillator and built-in amplifier and has a possibility to measure up to 241 timing channels. A built-in rechargeable battery pack ensures that the TM continues to function in case of a power failure. The connection to the PC is made via a USB-interface.

ROW-CH50

The ROW-CH50 adapter is plugged into the TimeManager. It contains the connections for 50 timing channels. For the cable that leads to the finish, intermediate times and the start there are clamps built-in.



A look inside the ROW-CH50

ROWING & CANOE

Timy3

The ALGE-TIMING Timy3 is a compact ti ming device with unique high-quality technology. The Timy3 impresses with an ergonomic design and absolute reliability, thanks to its robust design.

Despite its handy dimensions, the Timy3 has a large and easy-to-use silicone keypad, which can be used in any weather conditions, even with gloves on. The printer is integrated into the Timy3 WP and logs times of the entire competition. The Timy3 has an internal wireless modem of the WTN Wireless Timing Network series.
The Timy3 can be connected via radio to all devices of the WTN series, and, for example, can receive start impulses, intermediate times and finish impulses, control a display board and send data to a PC with result soft ware. The low power consumption allows it to be used even in cold weather with internal batteries independent from mains.

The Timy3 is equipped with all necessary interfaces for communicati on with external devices, a USB interface, an interface fora display boar00d, an RS232 and an RS485 interface.

Display
The Timy3 has a monochrome LCD graphic display with 128 x 64 pixels and backlight. With this, displaying up to 8 lines of text is possible. Different character sizes, and also graphic symbols for easier operation, can be displayed. The display has an extended tempera-ture range for use in extreme weather conditions (up to-20°C).

Keyad
Despite its compact dimensions, the Timy3 has a large and easy-to-use silicone keypad, with 26 keys. Even with gloves on, an easy use is ensured.

Accuracy
The Timy3 works on a ti me of day basis and records it with an accuracy of 1/10,000 seconds. That means that calculated net times of a precision of 1/1,000 seconds are exactly calculated. Highest accuracy at any temperature is guaranteed by a temperature-compen-sated quartz.

Printer
The Timy3 WP has an integrated ther-mal printer. This quiet and extremely fast printer allows easy and simple pa-per change. The transport roller is con-nected to the paper cover and saves the tedious threading of the paper.

Memory
Approximately 30,000 times can be stored with the corresponding bib and ti ming channels. The soft ware is stored in a flash memory. Updates of the soft-ware are available free of charge, via the Internet.

Casing
Particular emphasis was placed on er-gonomics and stability. The aim of the development was to bring a ti mer with all the advantages of modern tech-nology into a handy and shock-proof casing. The Timy3 is suitable both as a hand-held ti ming device and as a table device.

Connections
Regarding the wide range of possible connections with external devices, the Timy3 offers unequalled opportunities in its class and size. For example it is possible to connect several devices by the RS485 interface to work as a network.

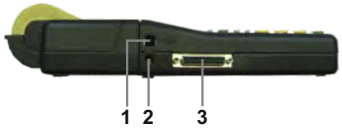
Radio Network - Wireless Timing Network WTN
An integrated WTN module allows to com-municate with all devices of the WTN series (WTN wireless radio, WTN-PB wireless push butt on, PR1aW photo-cell, WTN-DB and Windspeed WTN-WS score-board).

Software
There is a great number of programs for the Timy3. The device is able to cover the entire spectrum for ti me meas-urement starting from a hand ti mer up to the main ti mer at major events.

Timy3 Software

Backup:	timing device to measure time of day (e.g. backup or reference timer for PC)
Stopwatch:	universal timing program which is able to time more than one run (net time/total time)
TrackTimer:	timing for events which have lanes (e.g. athletics and swimming)
LapTimer:	timing program with split and sequential time
PC-Timer:	professional timer (time of day) to work with a PC
Timeout:	timing program with timeout function (e.g. show jumping)
Dual Timer:	timing program with two courses, either with simultaneous or separate start
Parallel-Diff:	timing program for parallel slalom
TV Timer:	simple timing program to control a display board or TV time insert
Speed Climbing:	timing program for speed climbing
Training Light:	universal training software with intermediate times and one racer on course
Training REF:	training software with intermediate times and more than one racer on course
Swim Trainer:	training program for swimming
Speed:	speed measurement in km/h, m/s, or mph
Commander:	terminal to control ALGE-TIMING display boards
Terminal:	terminals for judges (e.g. ski jumping, figure skating, diving, artistic swimming)
CycleStart:	start control, lap counting and backup timing for pursuit cycling
Track & Field:	to measure the windspeed for athletics with a connected anemometer WS2 and to control a concentration clock
Jumping:	training program for jumping exercises
Start-Liner:	to control the ASC3 for cross country and Nordic combination
Voting:	judge terminal for artistic swimming and diving

Timy3 W timing device without printer



Connections:

1- 1 x USB
2- 1 x power supply 8- 22 VDC
3- 1 x D-Sub 25-pin
4- 1 x pair of banana sockets- scoreboard
- 9 time measuring channels
- RS232 (PC connection)
- display board
- RS485 (network)
- power supply (8- 24 VDC in/out)

5- 1 x pair of banana sockets- start input
6- 1 x pair of banana sockets- finish input
7- 1 x DIN socket for photocell

Technical Data

Crystal frequency:	TCXO, +/-1 ppm (+/-0.00036 s/h)	Power supply:	internal: NiMH power pack 7.2 V/2 Ah or 6 x AA alkaline (only for Timy3 W)
Time resolution:	1/10,000 s		external: power supply PS12A, 12 V battery or 8- 22 VDC
Timing:	9 timing channels, external extension possible	Power consumption:	without printer about 100 hours
Program memory:	flash memory with 16 Mbit		with printer about 47 hours
Data memory:	RAM with 4 Mbit (about 30,000 times)	Charging time:	approx. 14 hours
Display:	monochrome LCD graphic display with backlight, 128 x 64 pixels, extended temperature range	Printer:	graphic thermal printer, max. 5 lines per second
Keypad:	silicone keypad, 26 keys	Temperature range:	-20°C to +60°C
Radio module WTN:	built-in 2.4 GHz radio, 15 adjustable frequencies and power output from 10 to 100 mW, 5 timing channels, for distances up to 350 m	Measurements:	Timy3 W: 204 x 91 x 50 mm Timy3 WP: 307 x 91 x 65 mm
		Weight (no battery):	Timy3 W: 450 g Timy3 WP: 650 g (without battery & paper)

ROWING & CANOE

Start Speaker BANG2

The electronic start system BANG2 allows a simple, unproblematic start. It consists of a transportable amplifier speaker box (active speaker with 80 W_{max}). The timing system gets the start impulse from the BANG. When the BANG2 is activated a start sound (imitated gunshot) is activated. If the BANG2 is triggered a second time within 5 seconds, a false start sound is generated.

The starter can use the BANG2 for oral commands for the athletes using the ALGE-TIMING communication system or a radio microphone BANG-HS.

The start sound is triggered by a push button (closing contact). If a flash is needed for disabled competitors or to have a more precise manual timing, a start trigger e-Start or FLASH-XL can be used. The electronic startgun e-Start has an integrated flash.

Advantages of the Start System BANG2

•Start system is always ready, no reloading of a gun necessary.

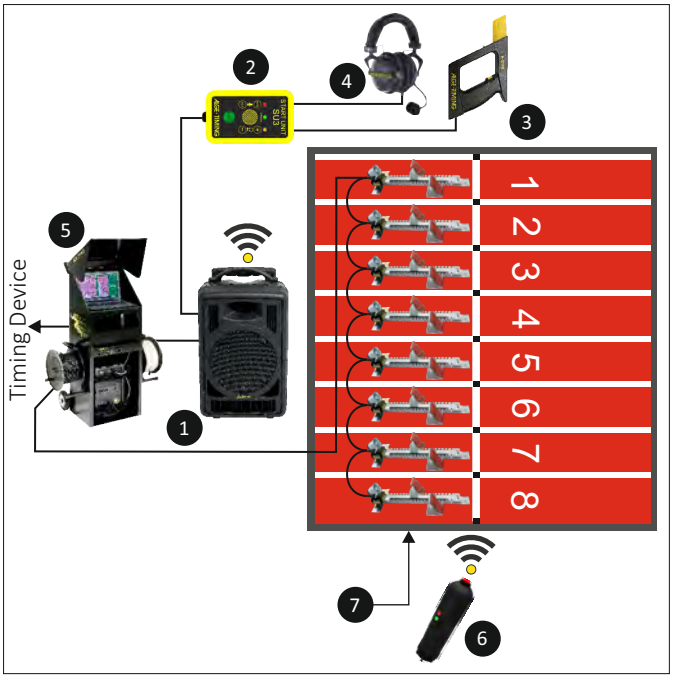
- No starting problems due to unloaded startguns or bad blanks.
- No costs for expensive blanks.
- There is no cleaning of guns necessary after the end of a race day.
- No legal problems with the use of the start system (in many countries a gun license is necessary for a startgun).
- No problems to transport the start system (in many countries the gun and ammunition must be transported in separate vehicles).
- When using the “StartUnit3”, it is possible to communicate with the time keeper and to make announcements over the speakers of the start system (e.g. StartJudge SJ) and the BANG2.
- The BANG2 works with cable or radio (WTN)

1 .....cable connection for BANG to timing devices
2 .....receiver for wireles headset BANG-HS
3 .....display for device adjustment
4 .....operator keyboard for device adjustments
5 .....Wireless Timing Network WTN
6 .....Amplifier for Speaker (connection and adjustments)
7 .....On/Off switch
8 .....Power supply for mains (100-240 V~)

ROWING & CANOE

Start Speaker BANG2

1 BANG2
2 Timy3 WP
3 e-Start W
4 BANG-HS



1 BANG2
2 Start Unit SU3
3 e-Start
4 Headset HS3-2
5 Start Judge Sj2
6 False Start Push Button WTN-PB
7 Starting Block with Sensor SJS2

The start system BANG2 is ideal to combine with existing ALGE-TIMING devices. It is possible to use one or more BANG2 speakers in a start system. Attached we will show two setup possibilities:

The upper picture to the left shows a BANG2 connected by radio with the electronic start impulse device e-Start W. The e-Start W replaces a traditional startgun. If you trigger it, the start impulse is transmitted by radio to the BANG2 and it outputs the start sound. At the same time the start impulse is transmitted to the timing device (e.g. Timy3 WP). The starter can give oral commands (e.g. ready, take your marks) to the competitors using the wireless headset BANG-HS.

The start system BANG2 can also be implemented into an athletic false start system (see lower picture to the left). When the impulse device e-Start is triggered the BANG2 and the speakers of the false start system StartJudge SJ2 output the start sound. If the starter triggers the e-Start again within 5 seconds the speakers release a false start sound. With the radio push button WTN-PB the recaller can activate a false start signal as well.

Technical Data:

Output Power:	80 W_{max} / 50 W_{RMS}
Speaker System:	bass (20 cm / 8“)
	tweeter(2.5 cm / 1“)
Frequency Range:	20 – 20,000 Hz
Mic-Input:	6 mV
Line-Input:	800 mV
Timing Input/Output:	2 x LTW-socket (7-pin, male)
	1 x banana socket (green / black)
Equalizer, Bass:	±15 dB/100 Hz
Equalizer, Treble:	±10 dB/10 kHz
Power Supply:	Mains: 100-240 V~/50- 60 Hz/2 A
	Battery: 2 x 12 V/5.2 Ah (built in)
Operating Temperature:	0°C to +40°C
Measurements:	305 x 510 x 265 mm (L x H x W)
Weight:	12,5 kg

Radio Module WTN for Timing:

Transmitting Frequency:	2.4 GHz band
	16 adjustable teams
Transmitting Power:	10 mW
Range:	approx. 300 m (line of sight)

Receiver for headset BANG-HS:

Receiver Module:	PLL multifrequency receiver
Carrier Frequency:	863- 865 Mhz
	devided in 16 frequencies
Operating Range:	about 30 m (line of sight)

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Startbeep STB1

(e.g. for triggering a timing device)

The Startbeep STB1 is a universal, start acoustic device. Due to its sturdy construction, the STB1 is very simple and user-friendly to operate.

Startbeep STB1

- Nine fixed programmed start intervals can be selected with a switch: 10, 15, 20, 30, 40, 45, 60, 90,and 150 seconds.
- A freely programmable start interval can be selected between 6 and 99:59 minutes with step switch.
- special program for the 3-second countdown in speed climbing
- countdown start by internal or external push button
- countdown with or without standby signal (ten seconds before start)
- In the horn mode, the Startbeep can be used asa start gun replacement, triggered by an internal or external push button.
- it can be synchronized with other timing devices
- start output, potential-free closed contact

Technical Data

Electronics:	µP-controlled in CMOS
Working temperature:	-25°C to +45°C
Power supply:	9 V Alkaline battery or external power supply
Connections:	potential-free closing contact for synchronizing or triggering of a timing device · external push button · external power supply · on/off switch · internal push button
Sound converter:	horn loudspeaker, swivelling
Housing:	polyamide, glass fiber reinforced (impact resistant)
Fastening:	chain fastening e.g. for mounting on a post
Weight:	1 kg
Dimensions:	132 x 205 x 88 mm
Operating duration:	up to 80 hours

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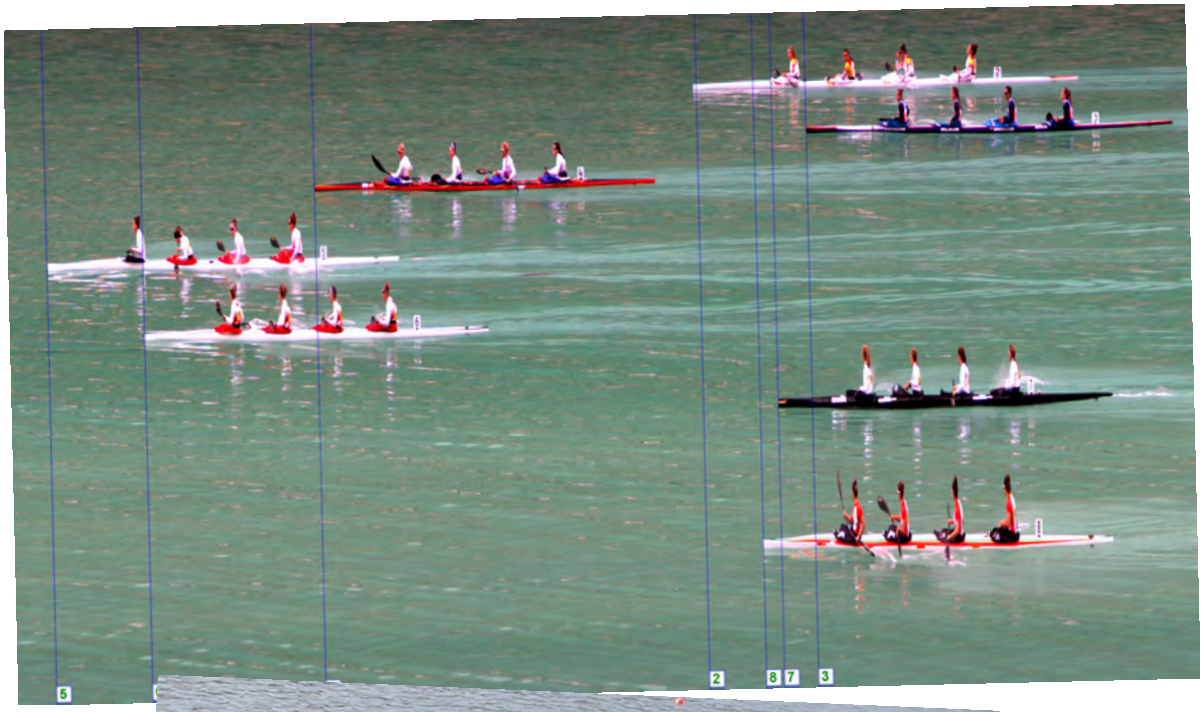

ALGE-TIMING
Rotkreuzstrasse 39
6890 Lustenau, Austria

https://alge-results.com

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