

# ALGE-TIMING

The **ALGE OPTIc2** is the next generation of the successful photofinish system OPTIc. The camera uses the latest CCD-line scanning sensor technology. This allows using the camera even at bad light conditions. High recording speed with up to 3000 lines per second and high resolution with up to 1360 pixel.

The OPTIc2 is a computerized color photofinish system with integrated evaluation software.

The color line scanning camera scans every movement at the finish line in true color (24 bit, 16.8 million colors) and stores the data on the hard disk of the computer. The stored picture can at any time be shown on the monitor or can be printed.



## **The Main Features of the ALGE OPTIc2 are:**

- Best picture quality in all light conditions by modern line scanning sensor.
- Highest timing precision by Temperature Compensated Quartz Oscillator TCXO.
- Easy handling with Windows XP
- Unlimited recording time with suitable PC hardware.
- High resolution, 3000 lines per second and 1356 pixel.
- Recording speed is adjustable between 100 and 3000 lines per second.
- Vertical resolution is adjustable: 680, 768, 1024 or 1360 pixel
- Evaluation is possible even before all competitors reach the finish line.
- You can evaluate a finished race while another race has been started.
- It is possible to start a new race before the finished race is evaluated.
- The time of each evaluated competitor is recorded automatically into a flexible result list.
- Camera OPTIc2 for IEEE1394 connection (up to 10 m cable) or OPTIc2o with additional optical cable connection (long distance).
- Possibility to use a desktop-PC or notebook with IEEE 1394 (firewire) interface.
- C-Mount lens adapter as standard (on request Nikon lens adapter possible)
- C-Mount zoom lenses and motorzoom-lenses are available.

## **Which Operating System for OPTIc2 and OPTIc2o:**

The system runs with Windows XP. Windows VISTA does not work at the moment. We wait for some bug fixes of Windows (Service Pack 1) and work on a new driver.

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We offer two different models:

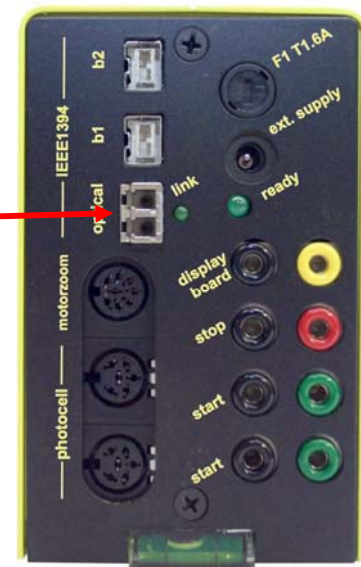
## Photofinish OPTlc2

- Camera OPTlc2 available
- Maximal cable length 10 m with IEEE 1394
- Maximal cable length 30 m with built-in repeater in IEEE 1394 cable (power supply from PC for IEEE1394 necessary (min. 14 VDC)
- For a longer distance you need adapter and optical cable
- **Connections:**
  - 2 x start input (banana socket)
  - 1 x finish input (banana socket)
  - 2 x finish input (DIN-socket)
  - 1 x display board (banana socket)
  - 1 x motor zoom
  - 1 x IEEE 1394a 6-pol
  - 2 x IEEE 1394b 9-pol bilingual
  - 1 x power supply



## Photofinish OPTlc2o

- Camera OPTlc2o available
- Maximal cable length 10 m with IEEE 1394
- Integrated GOF (LC duplex glass optical fiber connector)
- Maximum cable length with fiber optic cable up to 600 m and more
- **Connections:**
  - 2 x start input (banana socket)
  - 1 x finish input (banana socket)
  - 2 x finish input (DIN-socket)
  - 1 x display board (banana socket)
  - 1 x motor zoom
  - 1 x GOF (LC duplex glass optical fiber connector)
  - 2 x IEEE 1394b 9-pol bilingual
  - 1 x power supply




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## OPTIc2 and OPTIc2o Compared to Old System OPTIc

### Advantages of the OPTIc2 and OPTIc2o compared to OPTIc:

- Very light sensitive (works until about 250 Lux)
- Maximum scan rate is 3000 lines per second
- Improved picture quality
- Pixel delay is only 4 pixel
- More cameras to connect

## OPTIc2 and OPTIc2o System Package

### What does the OPTIc2 or OPTIc2o include:

- camera OPTIc2 or OPTIc2o
- integrated motor zoom adapter
- Power supply PS12A
- ALGE OPTIc2 Software CD

### What is not included in the OPTIc2 or OPTIc2o package:

- Lens
- Distribution Box OCD2
- Adapter 087-02
- IEEE 1394 cable
- Fiber optic cable
- Fiber optic adapter
- Telescopic sight
- Tripod
- Gearhead

## OPTIc2 and OPTIc2o Software

At the moment we use an upgraded version of the software of the OPTIc for the OPTIc2. Presently we work on complete new software for the OPTIc2 that will have many new features.

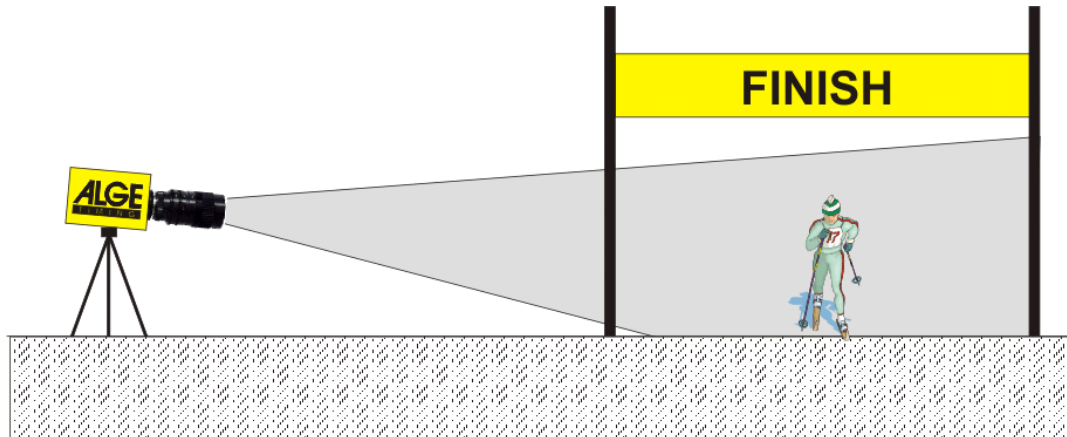
- In the evaluation you will see only one picture for the complete race
- All times are done in time of day (same principle as e.g. TdC 8001)
- Edit start times with drag and drop and never miss a start
- Recording of two cameras at the same time
- Overview picture

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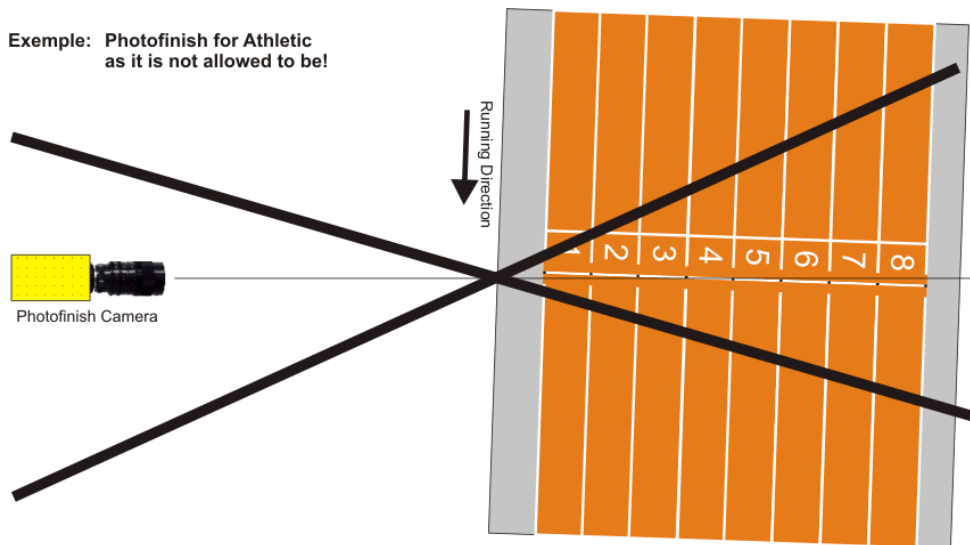
## Setup of the Camera

When you look for the best place for the camera you have to consider:

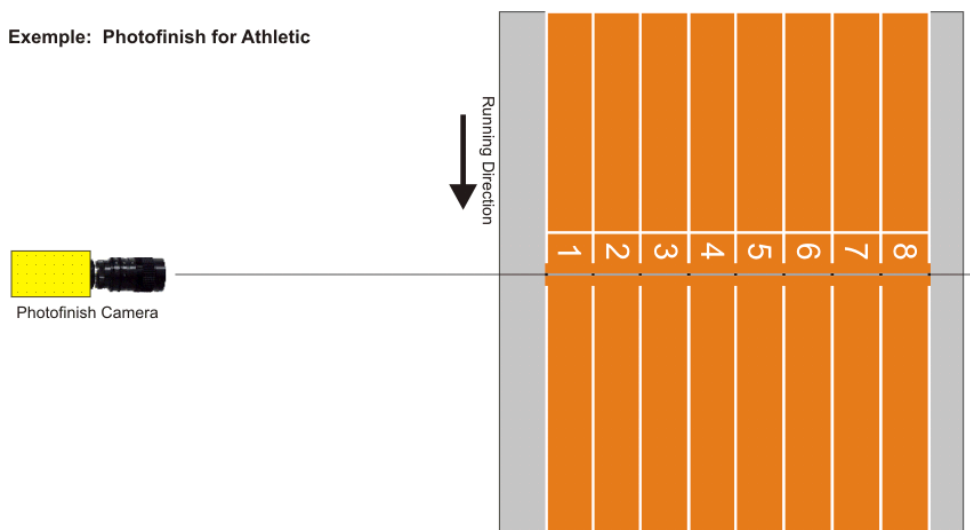
- It must be aligned to the finish line
- The camera must have such an angle to the finish line that the competitors do not cover each other
- The camera angle must cover the complete finish line



Example: Photofinish for Athletic  
as it is not allowed to be!



Example: Photofinish for Athletic



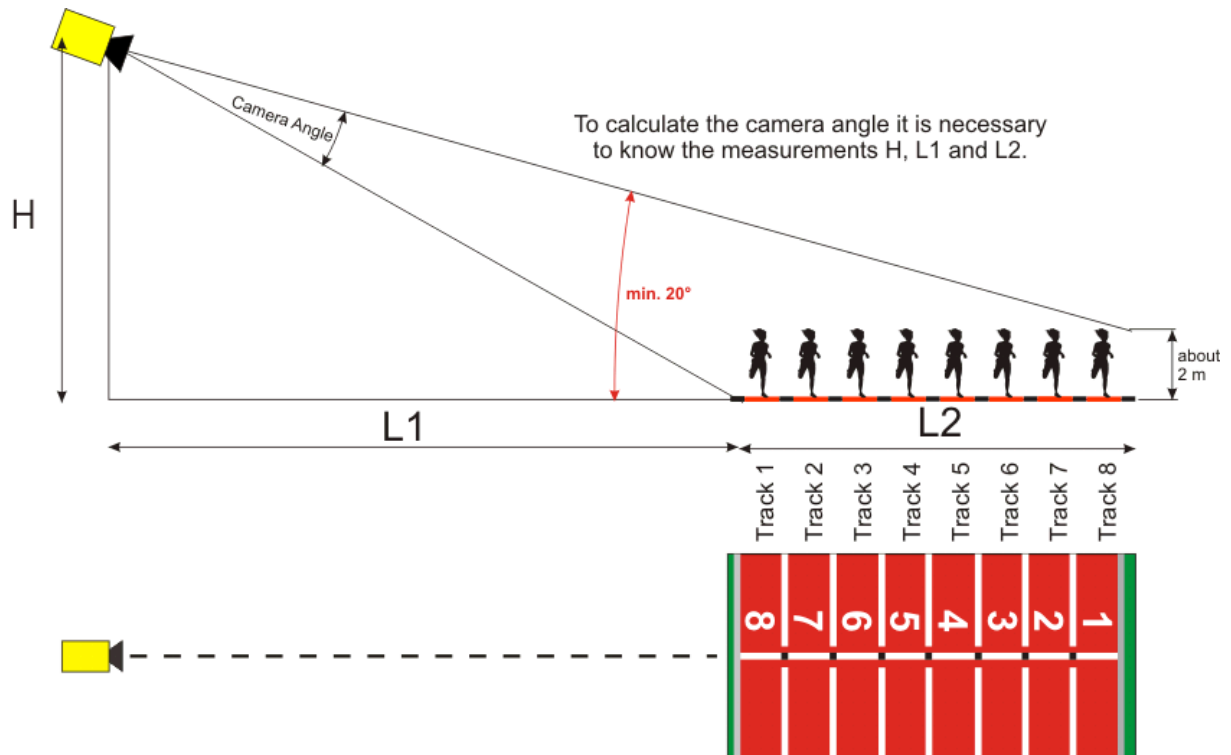
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## Lenses for the Photofinish

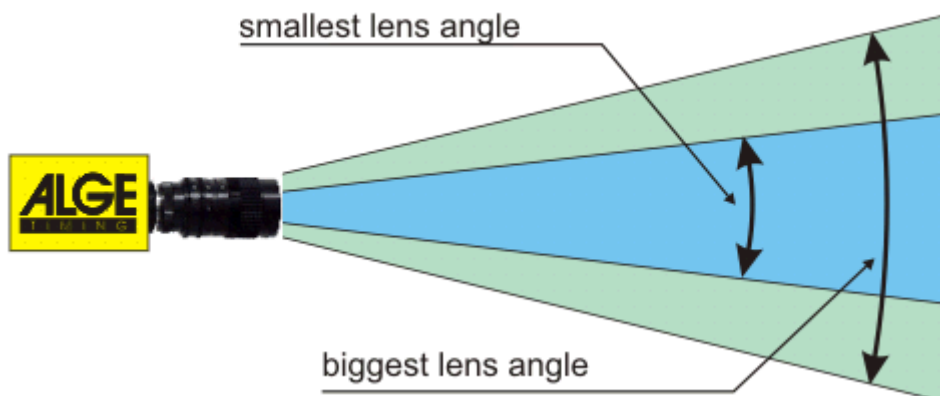
The photofinish includes no lens since each sport has different requirements. **ALGE-TIMING** offers various lenses that optimally suit the camera.

**To select the correct lens for your use you have to know certain elements!**

- What is the distance from camera to closer edge that you need to record (L1)?
- What is the distance from camera to farther edge that you want to record (L2)?
- What is the height of the camera (H)
- From these parameters you can calculate the needed camera angle.



The camera angle is adjustable for a zoom lens. A fix lens has a fix camera angle. Our standard zoom lens Z75 and MZ75 has 12.5 to 75 mm. This means the smallest lens angle is about 7° at 1360 pixel and the biggest lens angle about 31° at 1360 pixel.



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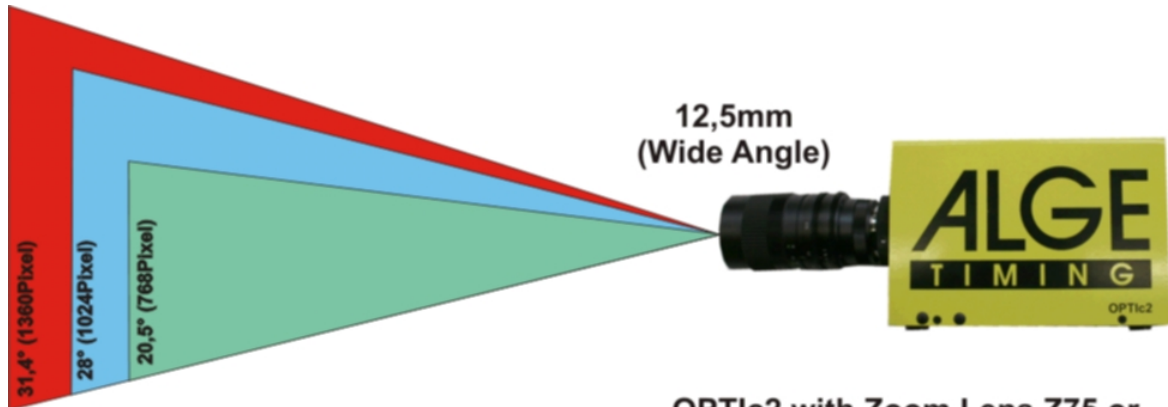
## Universal Lens Z75:

- manual zoom lens
- very light sensitive
- usable for most sports
- 12.5 to 75 mm, F1.2

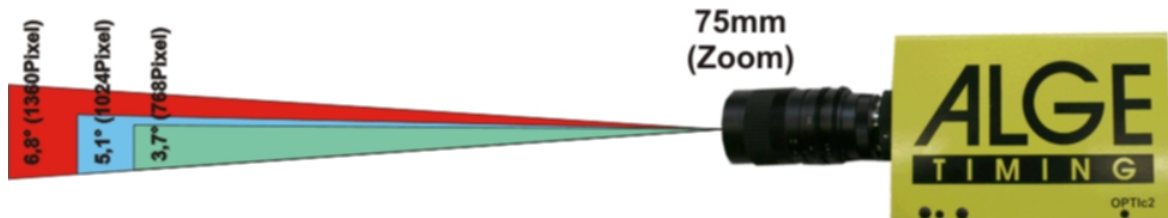


## Motor Zoom Lens MZ75:

- motorized zoom lens
- operated from OPTIc2-PC-software
- very light sensitive
- usable for most sports
- recommended if camera is not reachable by the operator
- 12.5 to 75 mm, F1.2



OPTIc2 with Zoom Lens Z75 or  
Motor Zoom Lens MZ75  
12.5-75 mm  
F=1.2

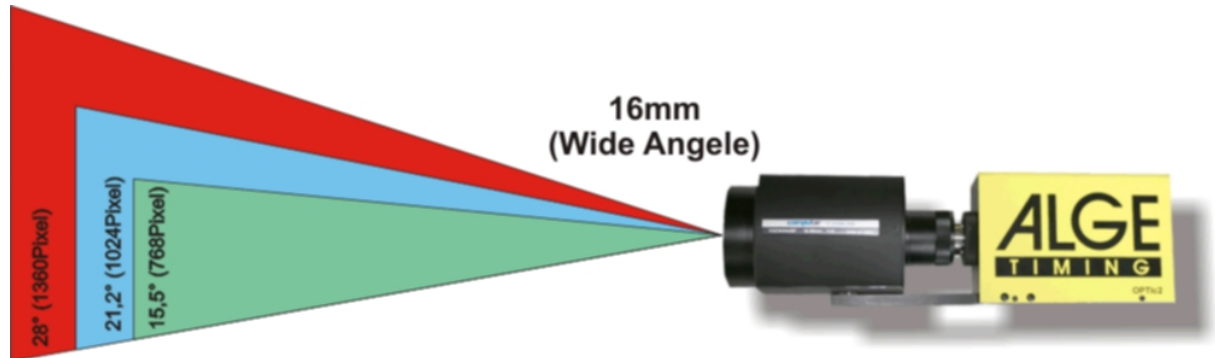




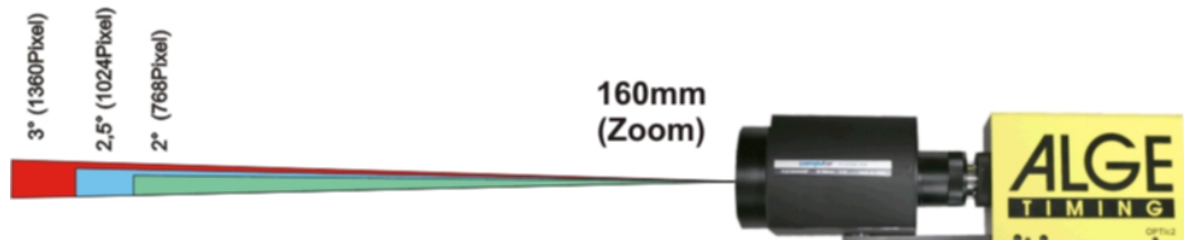
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## Motor Zoom Lens MZ160:

- motorized zoom lens
- operated from OPTIc2-PC-software
- light sensitive
- used in big stadiums if the finish line is far away
- 16 to 160 mm, F1.8



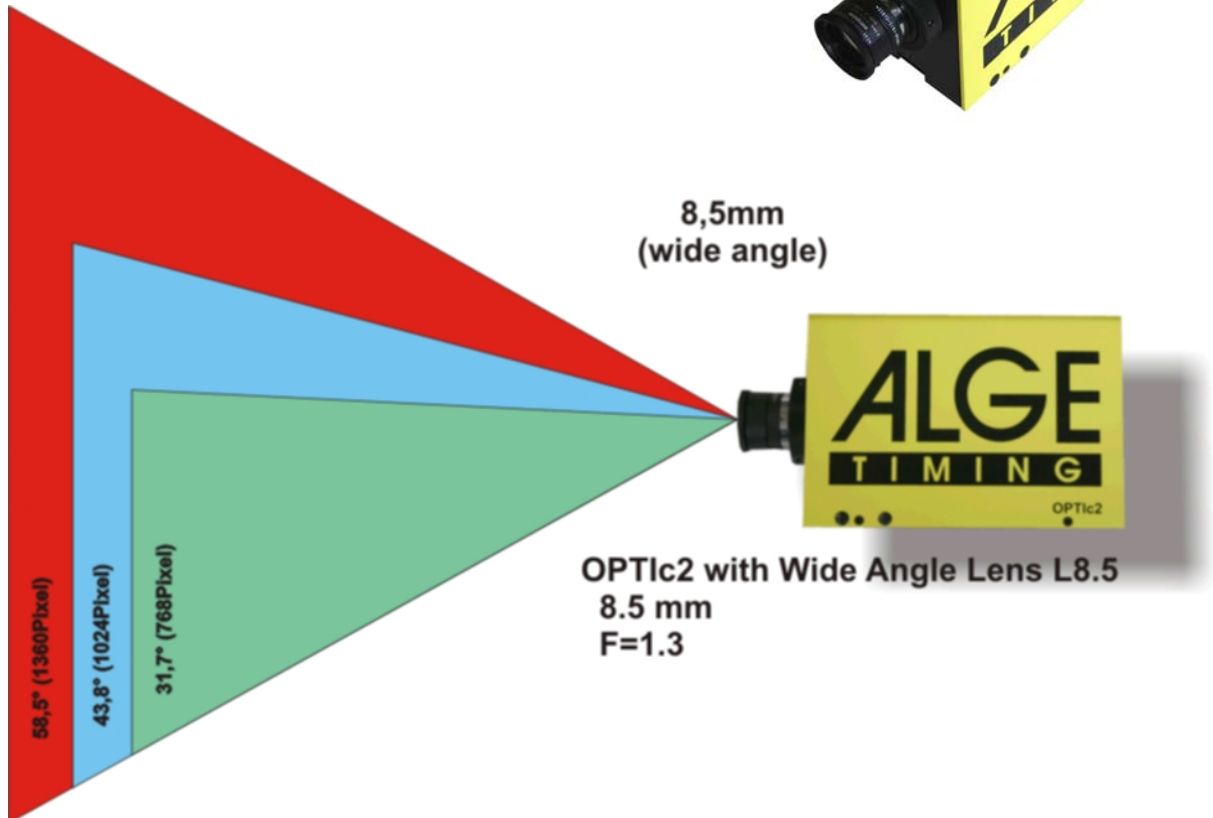
OPTIc2 with Motor Zoom Lens MZ160  
16 - 160mm  
F=1.8



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## Wide Angle Lens L8.5:

- wide angle lens
- very light sensitive
- used if the camera is very close to the finish line
- 8.5 mm, F1.3





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## IEEE 1394 Cable and Connectors

There are two IEEE1394 standards. The standard for OPTIc was IEEE1394a. The OPTIc2 and OPTIc2o has the standard IEEE1394b.

### IEEE1394a:





Maximal transfer speed 400 MBit/s

Used plugs: A and B

### IEEE1394b:

Maximal transfer speed 800 MBit/s

Used plugs: A, B and C

ALGE-CODE	Function	PICTURE
<b>AA-</b>	<b>6 to 6 Pin IEEE1394a</b> max. 400 MBit/s	
<b>AB-</b>	<b>6 to 4 Pin IEEE1394a</b> a power supply for the camera and repeater is not possible! max. 400 MBit/s	
<b>AC-</b>	<b>6 to 9 Pin IEEE1394b</b> max. 400 MBit/s	
<b>CC-</b>	<b>9 to 9 Pin IEEE1394b</b> max. 800 MBit/s	

**OPTIc2:** connectors of type A and C

**OPTIc2o:** connectors of type C

**PC:** Depending on the PC you can have connectors of type A, B or C.

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**ALGE has the following cables available:**

IEEE 1394a cable, 2 m (6 pol to 6 pol)	AA-2
IEEE 1394a cable, 4.5 m (6 pol to 6 pol)	AA-4.5
IEEE 1394a cable, 10 m (6 pol to 6 pol)	AA-10
IEEE 1394a cable, 2.5 m (6 pol to 4 pol)	AB-2
IEEE 1394a cable, 4.5 m (6 pol to 4 pol)	AB-4.5
IEEE 1394b cable, 2 m (9 pol to 9 pol)	CC-2
IEEE 1394b cable, 4.5 m (9 pol to 9 pol)	CC-4.5
IEEE 1394b cable, 10 m (9 pol to 9 pol)	CC-10
IEEE 1394b cable, 4.5 m (9 pol to 6 pol)	AC-4.5
IEEE 1394b cable, 10 m (9 pol to 6 pol)	AC-10
IEEE 1396b cable, 20 m (9 pol to 6 pol) with built in repeater	AC-20R
IEEE 1396b cable, 30 m (9 pol to 6 pol) with built in repeater	AC-30R

The cable AC-20R and AC-30R have a built-in repeater and need a power supply from the PC. If you want to supply the camera and use a cable AC-30R than you need a 16VAC power supply at the PC.

## Optical Cable and Fiber Optic Adapter

The OPTIc2o and the Distribution Box OCD2 have an adapter for fibre optic cable built in. This adapter is the interface between the IEEE1394 and the optical wires. A built-in adapter reduces the number of connected cables and is therefore much more reliable.

The big advantage of an optical connection between PC or DistributionBox and camera is the distance that you can go. With the IEEE1394 cable you can go maximum 10 m (without repeater), but the optical cable allows using a cable of a couple of hundreds meters long.

From **ALGE-TIMING** you can obtain the following optical adapter and fibre optic cables:

Adapter IEEE1394 to glass fibre including power supply (with cable, 1 piece)	GLAS1394
Glass Fibre Optic Cable 50 m, LC-plugs, fix wiring, 2 core	G2-LC50
Glass Fibre Optic Cable 100 m, LC-plugs, fix wiring, 2 core	G2-LC100
Cable reel with glass fibre optical cable, 100 m, LC-plug, 2 core, fix wiring	KT-G2-LC100
Cable reel with glass fibre optical cable, 50 m, LC-plug, 4 core, rugged	KT-G4LC50
Cable reel with glass fibre optical cable, 100 m, LC-plug, 4 core, rugged	KT-G4LC100
Cable reel with glass fibre optical cable, 200 m, LC-plug, 4 core, rugged	KT-G4LC200



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## Distribution Box OCD2



The Distribution Box OCD2 is a device, that you can use together with the OPTIc2 or OPTIc2o as an addition. It is not necessary for the system.

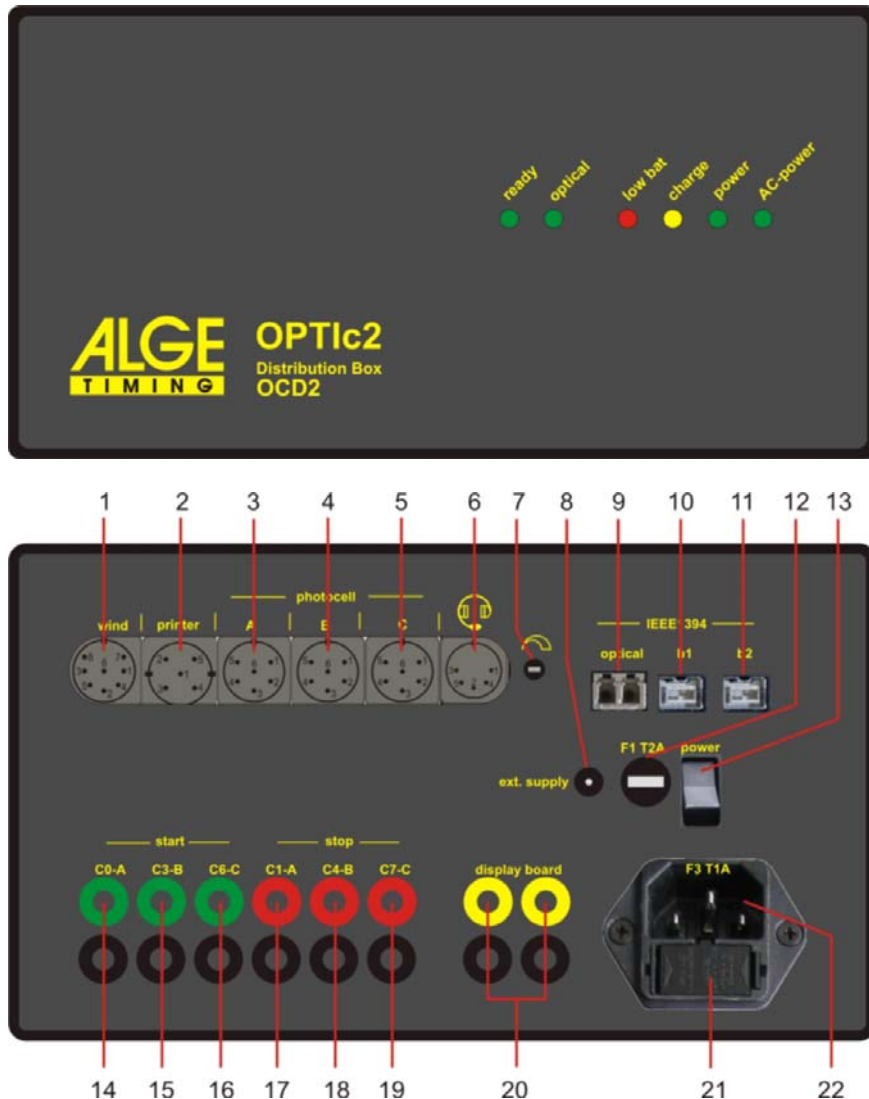
The OCD2 is very useful if the camera is far away from the operator. If he uses the OCD2 he has all connections next to him and not at the camera (e.g. photocell, start, display board).

### Who needs the OCD2?

- Long distance between camera and PC to connect the peripheral devices next to the operator.
- Long distance between camera and PC – no adapter for fiber optic cable is needed when using camera OPTIc2o.
- When using two or more cameras to connect different start and finish.
- Built-in backup battery with power supply for camera when using the IEEE1394 cable.
- Built-in speech amplifier for voice connection between operator and starter.

Presently we are testing the prototype of the OCD2.

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## Distribution Box OCD2 Connectors:

- 1 ..... wind.....for anemometer connection by RS232
- 2 ..... printer.....to connect a printer P5
- 3 ..... photocell.....A.....to connect a photocell (if more cameras used than it is camera A)
- 4 ..... photocell.....B.....to connect a photocell (if more cameras used than it is camera B)
- 5 ..... photocell.....C.....to connect a photocell (if more cameras used than it is camera C)
- 6 ..... headset .....to connect a headset (speech amplifier built in OCD2)
- 7 ..... volume .....to adjust the volume of the headset
- 8 ..... ext.supply .....external power supply for distribution box
- 9 ..... IEEE1394 ....optical...connection for fiber optic cable between OCD2 and OPTIc2o
- 10 .... IEEE1394 ....b1 .....for connection with a type C (9 pin) IEEE1394 cable
- 11 .... IEEE1394 ....b2 .....for connection with a type C (9 pin) IEEE1394 cable
- 12 .... F1 T2A .....2 A fuse
- 13 .... power .....on-off-switch
- 14 ... start ..... C0-A .....start channel (adjustable so it starts camera 1 only)
- 15 ... start ..... C3-B .....start channel (adjustable so it starts camera 2 only)
- 16 ... start ..... C6-C .....start channel (adjustable so it starts camera 3 only)
- 17 .... stop ..... C1-A .....stop channel (adjustable so it stops camera 1 only)
- 18 .... stop ..... C4-A .....stop channel (adjustable so it stops camera 2 only)
- 19 .... stop ..... C7-A .....stop channel (adjustable so it stops camera 3 only)
- 20 .... display board.....two identical RS232 output to connect display boards
- 21 .... fuse .....fuse for mains
- 22 .... mains .....mains (100 – 240 VAC)