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## GENERAL

The Comet is a computer, used to measure, store and transfer data.

### Comet Specifications:

- Storage for 950 times (expandable up to 4000) including start number
- Selectable timing precision: 1 sec. to 1/1000 sec.
- 4 time-channels
- 1 set of plugs to synchronize or start the Comet
- Battery-buffered RAM
- 2 photocell sockets
- RS 232 interface for computer connection (e.g. ALGE 8001)
- Simple operating (instructions through display)
- Flexible programming

The Comet can measure and store times and speeds and is able to transfer stored data to a computer by using specific software. The Comet also serves as a drive-terminal for the ALGE display-board GAZ4. There is a calculator-program to calculate run-times, total-times, as well as nordic and alpine points.

## POWER SUPPLY

The Comet can be run with batteries, NiCd rechargeables (optional) or with external supply.

### Batteries:

4 alkaline mignon batteries R 6; 2 Ah

Working time with fully charged batteries:

Temperature in °C	+20°	0°	-20°
Comet	60 h	53 h	46 h
Comet + 1 photocell	33 h	29 h	26 h
Comet + 2 photocells	15 h	13 h	11 h

### NiCd Rechargeables:

4 NiCd accumulator mignon batteries R6; 0,5 Ah

Working time with fully charged accumulators:

Temperature in °C	+20°	0°	-20°
Comet	12 h	10 h	9 h
Comet + 1 photocell	7 h	6 h	5 h
Comet + 2 photocells	5 h	4 h	3 h

**Charging of the NiCd accumulators:** with ALGE charging set PS12

**Charging time:** about 14 hours

**Attention:** If you choose to replace the alkaline batteries with NiCd accumulators, please contact your ALGE representative for minor, but important adjustments.

Please respect the environment. Return your batteries to a recycling station or dispose of them in another proper manner!

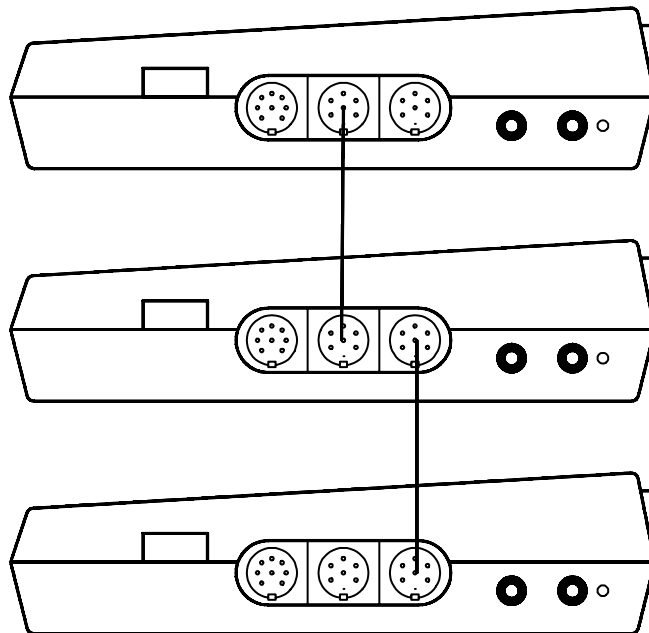
### External Power Supply:

With a 12 Volt car-battery or an ALGE charging set PS12. Connect the power source.

## SYNCHRONIZATION OF SEVERAL TIMERS

If several timers are used at the same time (e.g. TdC8001, Comet and Start Clock) all the timers have to be synchronized ( started at the same time) before the start.

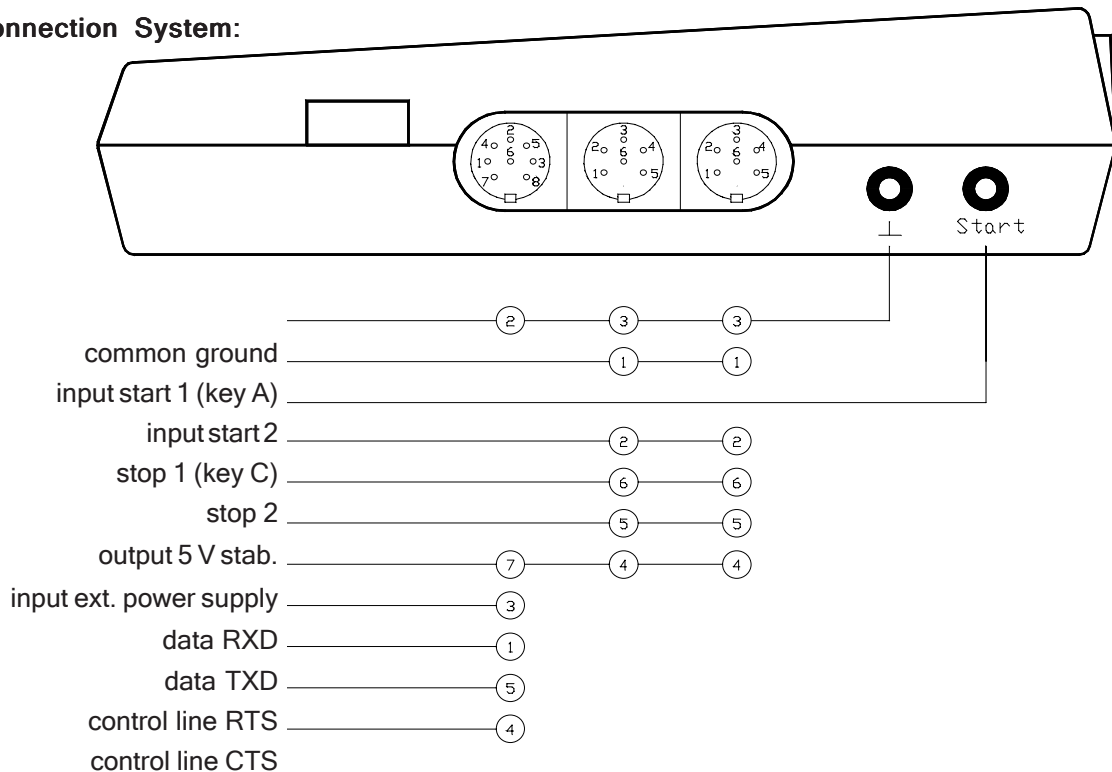
- Connect all timers with cable 004
- Feed in the same time (synchron time) to all timers
- Start all the timers by pressing button „A“ on the Comet
- All timers are ready for operation!



**TECHNICAL DATA**

- Measuring range:** 23 h 59 min. 59,999 sec.
- Accuracy:** +/- 0.005 sec./h at 20°C  
+/- 0.05 sec./h at -15 to 50°C
- Quartz frequency:** 9,216 MHz
- Working temperature:** -20 to 45°C
- Storing temperature:** -40 to 65°C
- Memory:** 950 times standard,  
expandable up to 4000 times
- Operating keys:** foil-keyboard with 16 keys
- Display:** 2 x 16 sign display

**Connection System:**



**Internal power supply:** 4 alkaline mignon batteries standard, 4 NiCd rechargeables, optional

**External power supply:** 12 V battery, ALGE PS12

**Power consumption:** 27 mA to 33 mA (internal power supply), additional 25 mA per photocell (if supplied by Comet)

**Charging time with built-in NiCd-accumulators:** about 14 hours

**SERIAL INTERFACE:**

Asynchronous serial communication interface, compatible to V.24 and RS 232.

**Voltage level:** Comet output +/- 5 V  
allowable input level +/- 12 V

**Transfer format:** 1 start bit  
8 data bit  
1 stop bit  
no parity bit

**Handshake:** hardware handshake (connect RTS to CTS if handshake is not necessary)  
X-ON/X-OFF handshake (as an option)

**Transfer rate:** 2400 Baud standard  
4800 Baud as an option

**Data format:** standard 23 byte data, LF, CR  
  
data: 8 bit ASCII (MSB always one)  
LF: LINE FEED (0A hexadecimal)  
CR: CARRIAGE RETURN (0D hexadecimal)

**Interface description and format:**

1	TXD	transmit data	output	
2	GND	ground		
3	RXD	receive data	input	
4	CTS	clear to send	input	(other device ready to send)
5	RTS	request to send output		(Comet ready to receive)
6	6	start line 1	in-/output	(start line for stopwatch)
7	6-15VDC	power supply	input	
8	—	not connected		

## CONNECTION CABLES FOR THE COMET

### **Start cable:**

- 000 two core start cable (e.g. for startgate)
- 002 start cable for the photocell (with power supply)
- 024-02 start hand switch

### **Stop cable:**

- 001 stop cable (final times)
- 003 stop cable (intermediate times)
- 020-02 Stop handswitch

### **Start and Stop cable:**

- 015 start and stop cable

### **Synchronizations cable:**

- 004 for the synchronization of several timers

### **Data transfer cable:**

- 056-02 data transfer Comet (Memotimer) - TdC 8001
- 058--2 data cable and power supply for Printer P5-5
- 064-01 data transfer Comet - Comet
- 065-02 data transfer Comet - Comet (with supply)
- 066-02 data transfer Comet - XT Computer 25pol female)
- 067-02 data transfer Comet - AT Computer (9pol female)
- 030-10 data from Comet to display board with supply
- 060-10 data from Comet to display board without supply
- 073-05 data from Comet to videogenerator VG2
- 075-10 data from TdC8001 to Comet parallel display (without supply)
- 076-10 data from TdC8001 to Comet parallel display (with supply)

### **Display board cable:**

- 030 ... data from Comet to GAZ4 with supply
- 060 ... data from Comet to GAZ4 without supply (two lead)

### **External supply of the Comet:**

- 005--2 external supply by a 12 V battery

### **Cable code:**

All cables come with a number consisting of three figures, with one or two hyphen in between followed by another number.

The first number gives you information about the sort of cable, the second number tells you the cable's length.

## COMET - CONNECTIONS

### Stopwatch:

Socket 11: computer connection (RS 232 interface)  
ALGE printer P5-5  
scanner

Sockets 12: ALGE photocell  
ALGE manual button  
ALGE startmicrophone  
ALGE contact tape  
ALGE charging set PS12  
ALGE Teledata RX

Socket 13: ALGE startgate  
ALGE startmicrophone with SV4/SM

### Nordic or +/- Timer:

Socket 11: computer connection (RS 232 interface)  
ALGE printer P5-5

Sockets 12: ALGE photocell  
ALGE manual button  
ALGE Startmicrophone  
ALGE contact tape  
ALGE charging set PS12  
ALGE Teledata RX

Socket 13: ALGE startgate  
ALGE Startmicrophone with SV4/SM  
as output to Timer S4 or TdC8001  
as output to relays (e.g. horn)

### Memotimer:

Socket 11: computer connection (RS 232 interface)  
ALGE Printer P5-5  
ALGE TdC8001  
scanner

Sockets 12: ALGE photocell  
ALGE manual button  
ALGE startmicrophone  
ALGE contact tape  
ALGE charging set PS12  
ALGE Teledata RX

Socket 13: ALGE startgate  
ALGE startmicrophone with SV4/SM



**Skitest:**

Socket 11: computer connection (RS 232 interface)  
ALGE display board GAZ4  
ALGE Printer P5-5

Sockets 12: ALGE photocell  
ALGE manual button  
ALGE Startmicrophone  
ALGE contact tape  
ALGE charging set PS12  
ALGE Teledata RX

Socket 13: ALGE startgate  
ALGE startmicrophone with SV4/SM

**Calculator:**

Sockets 12: ALGE charging set PS12

**Terminal:**

Socket 11: ALGE Junction-box (for computer)

Sockets 12: ALGE charging set PS12

**Commander:**

Socket 11: ALGE display board

Sockets 12: ALGE charging set PS12  
ALGE manual button

Socket 13: output to relays (e.g. horn)

**Game-Info and Football Score Board:**

Socket 11: ALGE display board

Sockets 12: ALGE charging set PS12  
ALGE button

## COMET SOFTWARE

There is a large selection of COMET software to choose from. You can have a single program, or a combination of programs for your Comet.

### **Ballspeed:**

Measuring the speed of a ball (football, soccer,...)

*Combination software:* - Memotimer, Commander, Calculator, Ballspeed, Game-Info, Terminal

### **Bib Memory:**

Stores the start numbers (manual input), later it is possible to transmit the numbers to a computer

### **Calculator:**

Calculation of heat times, total times, and of race points

*Combination software:* - Stopwatch, Memotimer, Commander, Skitest, Calculator  
- Memotimer, Commander, Calculator, Ballspeed, Game-Info, Terminal  
- Memotimer, Commander, Calculator, Speed, Game-Info, Terminal

### **Commander:**

Numerical input for an ALGE display board (points, length, height)

*Combination software:* - Stopwatch, Memotimer, Commander, Skitest, Calculator  
- Memotimer, Commander, Calculator, Ballspeed, Game-Info, Terminal  
- Memotimer, Commander, Calculator, Speed, Game-Info, Terminal

### **Game-Info:**

display of score and time on an ALGE display board

*Combination software:* - Memotimer, Commander, Calculator, Ballspeed, Game-Info, Terminal  
- Memotimer, Commander, Calculator, Speed, Game-Info, Terminal

### **Parallel-Display:**

Program to show the data from the timer display on a Comet (e.g. for speaker)

Single software

### **Memoscan:**

Wireless time measuring in time of day mode. Input of scanner is also stop impulse

*Combination software:* - Memoscan, Stopscan

**Memotimer:**

Wireless time measuring in time of day mode.

*Combination software:* - Stopwatch, Memotimer, Commander, Skitest, Calculator  
- Memotimer, Commander, Calculator, Ballspeed, Game-Info, Terminal  
- Memotimer, Commander, Calculator, Speed, Game-Info, Terminal

**Skitest:**

Ideal time measuring and data storage for ski and way testing

*Combination software:* - Stopwatch, Memotimer, Commander, Skitest, Calculator

**Speed:**

Speed measurement in km/h. Measuring distance is adjustable between 1 and 99 m.

*Combination software:* - Memotimer, Commander, Calculator, Speed, Game-Info, Terminal

**Stopsan:**

Universal time and speed measuring, scanner input makes stop impulse

*Combination software:* - Memoscan, Stopsan

**Stopwatch:**

universal time- and speed measuring

*Combination software:* - Stopwatch, Memotimer, Commander, Skitest, Calculator

**Tennis:**

Displays the score of a tennis game on **ALGE** display-boards

Single software

**Terminal:**

Input of points to a computer (ski-jumping, figure skating, gymnastics,...)

*Combination software:* - Memotimer, Commander, Calculator, Ballspeed, Game-Info, Terminal  
- Memotimer, Commander, Calculator, Speed, Game-Info, Terminal

**Time/Temperature:**

Shows the time and temperature (alternating in 5 seconds intervals) on a **ALGE** display-board.

Single software

**Time/Temperature variable:**

Shows the time and temperature (alternating in 5 seconds intervals) on a **ALGE** display-board. The output format is flexible. Single software