



## Instruction Manual

**CDS-GPS**  
**100 Hz GPS Logger**  
**Type CGPSLA**



## Foreword

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## 1. Introduction

Please take the time to thoroughly read this instruction manual. It will help you with the installation, maintenance, and use of this product.

To the extent permitted by law Kistler does not accept any liability if this instruction manual is not followed or products other than those listed under Accessories are used.

Kistler offers a wide range of products for use in measuring technology:

Piezoelectric sensors for measuring force, torque, strain, pressure, acceleration, shock, vibration and acoustic-emission

Strain gage sensor systems for measuring force and torque

Piezoresistive pressure sensors and transmitters

Signal conditioners, indicators and calibrators

Electronic control and monitoring systems as well as software for specific measurement applications

Data transmission modules (telemetry)

Kistler also develops and produces measuring solutions for the application fields engines, vehicles, manufacturing, plastics and biomechanics sectors.

Our product and application brochures will provide you with an overview of our product range. Detailed data sheets are available for almost all products.

If you need additional help beyond what can be found either on-line or in this manual, please contact Kistler's extensive support organization.

## 2. Important Notes

### 2.1 For your Safety

Please read carefully before operating the equipment. Kistler is not responsible for damage that may occur when this system is used in any way other than that for which it is intended.

To assure safe and proper operation, all supplied equipment, components and/or accessories must be carefully transported and stored, as well as professionally installed and operated. Careful maintenance and usage in full accordance with operating instructions is imperative.

The equipment should be installed and operated only by qualified persons who are familiar with devices of this type.

Local regulations may not permit the operation of motor vehicles on public highways while the equipment is mounted on the exterior of the vehicle.



Do not mount the CDS-GPS logger, the control/display unit, monitor(s), or any other item in any location that may come into contact with the airbag in the event of air bag deployment.

If the CDS-GPS logger, control/display unit, monitor(s), or any other item is placed in the passenger seat, deactivate the air bag to prevent accidental contact with the airbag in the event of air bag deployment.



Do not modify or change the equipment or its accessories in any way.

Improper use or mounting of the equipment may affect the safety of the vehicle and/or occupants.

The equipment must not be mounted and/or operated in any way that may compromise vehicle or and/or occupant safety. Equipment must be mounted firmly and securely.

Do not mount the equipment near to heat sources (e.g. exhaust).

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Use only original equipment, components and/or accessories included in the scope of delivery.

We recommend to use only cables supplied within the scope of delivery. If it is necessary to make cables, always note correct pin.

Do not use defective or damaged equipment, components and/or accessories.

Always note correct pin assignments and operating voltages when connecting equipment, otherwise it may be damaged if not properly connected and/or operated.

For additional information, please call the Corrsys-Datron Hotline: +49 6441 92 82 82 or mail to [hotline@corrsys-datron.com](mailto:hotline@corrsys-datron.com).

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## 2.2 Disposal Instructions for Electrical and Electronic Equipment



Do not discard old electronic instruments in municipal trash. For disposal at end of life, please return this product to an authorized local electronic waste disposal service or contact the nearest Kistler Instrument sales office for return instructions.

## 2.3 Software Upgrades and Updates

Kistler may from time to time supply upgrades or updates for embedded software. Such upgrades or updates must always be installed.

Kistler declines any liability whatsoever for any direct or consequential damage caused by products running on embedded software which has not been upgraded or updated with the latest software supplied.

### 3. Product Overview

#### 3.1 General Description

Newly developed CDS-GPS logger with a built-in 100 Hz GPS receiver, user display, and pre-defined driving maneuvers for longitudinal vehicle tests. Used as GPS sensor, all sensor signals are put out via CAN bus.

The CDS-GPS logger system primarily delivers the following measured variables: Absolute speed, distance travelled, position (latitude, longitude), time, height, status information (number of satellites, signal quality etc.). Further measurement values can be calculated, e.g. acceleration, triggered distance, etc. An optionally available printer can be used to provide table prints after the measurement.

Being an in-house development, the new CDS-GPS system provides full compatibility to the established product range. Coupled with further, adequate sensors (e.g. wheel force transducers and sensors for measuring sideslip angle, height, rotation rate, acceleration, pressure, etc.) the CDS-GPS may also be used for extended vehicle testing in the field of transversal dynamics.



Fig. 1: CDS-GPS logger with antenna

### 3.2 Features

- Easy connection to Corrsys-Datron sensors by identical housing style
- High measurement frequency: GPS 100 Hz/Logger 500 Hz
- High protection class: IP67
- Pre-defined driving maneuvers for longitudinal vehicle tests
- Power supply for external devices at the CAN connector
- Easy data transfer by exchangeable CF card, USB flash drive or LAN/USB connection

### 3.3 Application

High-precision, slip-free measurement of distance, longitudinal speed and acceleration for vehicle dynamics testing, e.g. ISO 70028 brake path measurement with straightforward ABS braking, ISO 14512 braking on one-sided slippery track surface when driving straight-ahead. The compatible design and high protection class of IP67 make the CDS-GPS system optimally suited for motorcycle applications too.

### 3.4 Accessories

<b>Included Accessories</b>	<b>Type/Art. No.</b>
▪ GPS logger	KCD17391
▪ DAS display/control unit	KCD10090
▪ Power cable 4 pin banana, l = 2 m	KCD10398
▪ Signal cable display/control unit, l = 2 m	KCD16943
▪ Connection cable CAN, l = 2 m	KCD16944
▪ Connection cable CAN, l = 0,4 m	KCD16946
▪ Connection cable CAN, l = 2 m, open end	KCD16993
▪ Connection cable USB, l = 2 m	KCD13947
▪ Compact flash card, 8 GB	KCD17145
▪ Multi card reader	KCD15414
▪ Suction holder ø90 mm with ball joint	KCD16908
▪ Hexagon spacer bolt M6x7	KCD11666
▪ Multimedia CD	KCD11343
▪ GPS antenna	KCD17423
▪ Antenna cable, l = 3 m	KCD17454
▪ Transport case complete	KCD17426

<b>Optional Accessories</b>	<b>Type/Art. No.</b>
▪ Printer	KCD17000
▪ Light barrier including mount	KCD17472
▪ Brake switch red, cable l = 3 m	KCD17468
▪ Brake switch green, cable l = 3 m	KCD17471
▪ LED display	KCD12388

<b>Ordering Code</b>	<b>Type CGPSLA</b>
▪ CDS-GPS system	

## 4. Technical Data

### 4.1 Specifications

#### Performance Specifications

Speed range	km/h	0,1 ... 1 600
Resolution	km/h	0,036
Measurement accuracy	km/h	0,1
Measurement frequency		
GPS	Hz	100
Logger	Hz	500
Latency Logger		Internally compensated
Absolute positioning		
Accuracy		3 m 95 % CEP
Update rate	Hz	100
Resolution	mm	1,8
Heading		
Accuracy <sup>1)</sup>	°	0,1
Resolution	°	0,01
Distance		
Accuracy <sup>2)</sup>	%	0,05
Update rate	Hz	100
Resolution	cm	1
Height accuracy	m (RMS)	<2

#### Interfaces

CAN (2 independent lines) <sup>3)</sup>			2.0B
Baud rate	from	kBaud	5
	to	MBaud	1
USB (Full Speed), Host/Client			1.1
Printer			yes
Ethernet/LAN			yes
Display interface (CAN) For connecting display units			yes
Light barrier/brake switch			yes
Port for additional modules			yes
CF-Slot			yes

<sup>1)</sup> valid for velocity >30 km/h

<sup>2)</sup> <50 cm per km

<sup>3)</sup> the CAN connectors can power external devices. The power lines of the power input are directly connected to the CAN connectors. A resettable fuse allows a maximum current of 1,5 A

## Specifications (Continuation)

### Storage

CF memory card, max.	GB	8
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### System specification

Power supply	V	10 ... 28
Power consumption	W	<15
Temperature range		
Operation	°C	-20 ... 50
Storage	°C	-20 ... 70
Protection standard		IP67
Dimensions (LxWxH – without cable)	mm	180x125x95
Weight	grams	<600
Shock	g ms	50 half-sine 6
Vibration	g Hz	10 10 ... 150

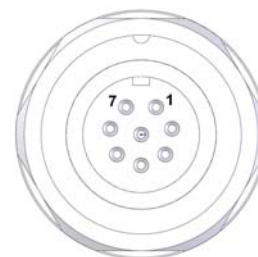
## 4.2 Pin Assignments



Fig. 2: CDS-GPS electronics, connector view front plate

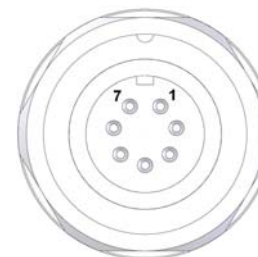
### CAN, 8 pin Binder, female

Pin	Signal
1	DGND
2	GND
3	n.c.
4	n.c.
5	CAN high
6	CAN low
7	n.c.
8	10 ... 28 V DC



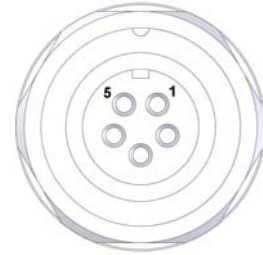
### Printer, 7 pin Binder, female

Pin	Signal
1	10 ... 28 V DC
2	GND
3	GND
4	10 ... 28 V DC
5	DGND
6	TXD
7	RXD



**Display, 5 pin, female**

Pin	Signal
1	CAN low
2	DGND
3	CAN high
4	+5 V
5	n.c.



**Brake switch, 2-pin, female**

Pin	Signal
1	Brake switch input
2	GND



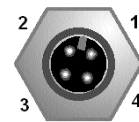
**Light barrier, 3 pin, female**

Pin	Signal
1	Light barrier input
2	GND
3	+12 V



**Power, 4 pin, male**

Pin	Signal
1	10 ... 28 V DC
2	10 ... 28 V DC
3	GND
4	GND



## 4.3 LEDs

### **PWR**

The PWR LED shines orange, when the CDS-GPS logger is connected to a power supply and switched-on.

### **Busy**

The red Busy LED indicates that measurement is active or that data are being stored. In this state, you should neither switch off the CDS-GPS logger nor remove the CF card.

### **OK**

The green OK LED shines constantly during a running measurement if satellite reception is sufficient for signal calculation. If not enough satellites are accessible, the LED blinks with a frequency of 1 Hz.

## 5. Using the GPS Logger System

### 5.1 Use without DAS Control/Display Unit

If the system is switched on without the connected DAS control/display unit, it automatically starts in the sensor mode. In this case GPS signals are put out at the CAN bus. Output rate is 100 Hz.

### 5.2 Use with DAS Control/Display Unit

The DAS control/display unit is designed to serve as an easy-to-use control surface and display interface for in-vehicle measurement and testing applications. Its logical, uncomplicated interface is designed to enable drivers to start, stop and monitor tests and measurements safely, easily and without the need of an additional PC or laptop. The DAS control/display unit also provides the capability to view and configure most available system features and functions.



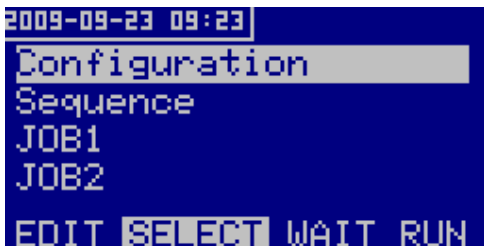
Fig. 3: DAS control/display unit



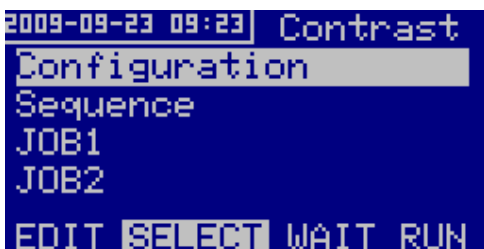
For extended capacity and increased efficiency in system and test configuration, connect the CDS-GPS logger to a PC or laptop via USB- or LAN-interface and use the included CeCalWin Pro Windows® compatible software (can also be downloaded from the internet: [www.corrsys-datron.com](http://www.corrsys-datron.com))

Windows® is a registered trademark of Microsoft Corporation.

### 5.3 Operating Guidelines

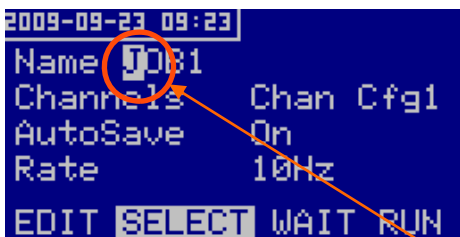


This screen is displayed when the CDS-GPS logger system is powered on.



#### Display Settings

Display contrast can be adjusted for optimal presentation in varying ambient light conditions. To adjust the Contrast setting, press ALT, then ACAL. The word "Contrast" will appear in the upper-right corner of the display. Use the ↑ and ↓ buttons to adjust contrast as desired, and then confirm the setting by pressing ENTER.



#### Basic Control Functions

The DAS control/display unit is easy to operate and requires knowledge of just a few basic functions:

Use the ↑ and ↓ buttons to move the cursor up and down, and the ← and → buttons to move the cursor left or right, respectively. To move up or down in increments of 4 lines at once, press the ALT key, then the ↑ and ↓ button.

When a user-editable field is highlighted with the cursor, the value or parameter in the field will flash, indicating that the selected value or parameter can be edited.

#### 5.3.1 Working with Editable Parameters

##### Numeric values

To change a numeric value, use the ↑ and ↓ keys to select the corresponding parameter and press ENTER. The digit farthest left will flash, indicating that it can be edited. Use the ← and → buttons to move the cursor to the desired digit within the numeric value. Press ↑ to increase the digit, or ↓ to decrease the digit.

To add additional digits, highlight the desired position and press INS key. An additional space with default value "0" will be added that can be modified as desired.

To delete a digit, highlight the desired position and press the DEL key.

To save the changes press ENTER. The cursor will jump back to the parameter name. To leave the field without saving the changes use the ESC button.

#### **Positive/negative values**

By default all numeric values are positive. The minus sign (-) is only available at the digit farthest left by using ↑ and ↓ keys.

**Note:** When a negative value is set but not allowed for the edited parameter, the numeric value will automatically change to the minimum allowable value for this parameter.

#### **Decimal point location**

To move the decimal point within a numeric value, use the ← and → buttons, to highlight the decimal point in its present location. Once selected, the decimal position will flash, indicating that it can be edited. Next press the ↑ button to move the point to the right or ↓ to move the point to the left.

#### **Description Fields**

To change a parameter containing text, use the ↑ and ↓ keys to select the corresponding parameter and press ENTER. The character farthest left will flash, indicating that it can be edited. Use ← and → buttons to move the cursor to the desired character. Press ↑ or ↓ to scroll through the available characters which include:

- Upper-case letters (A ... Z)
- Lower-case letters (a ... z)
- Numbers (0 ... 9)
- Underscore (\_)

To save the changes press ENTER. The cursor will jump back to the parameter name. To leave the field without saving the changes use the ESC button.



Text fields can have maximum length of 14 characters. Blank space between two characters is not allowed. It will be filled automatically with ( ).

To add additional spaces for characters, highlight the desired position and press INS key. An additional blank space will be added.

To delete a character, highlight the desired position and press DEL key.

**Parameters with preset options**

For parameters in which only specific, preset options are available, selections can be chosen by pressing the ← and → buttons, or by pressing ENTER.

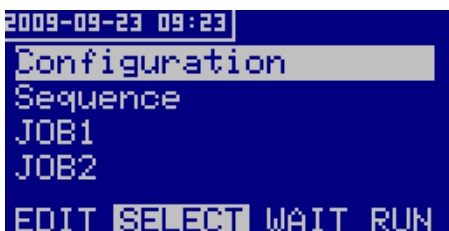
**To exit a menu**

Press the ESC button. This will return you to the previous menu layer. All edited parameters will be saved automatically. To return to the main menu press the ALT key, then the ESC button.

**Note:** All edited parameters will be saved automatically after returning to the main menu

**5.4 The Main Menu**

The Main Menu provides access to all available CDS-GPS logger settings.

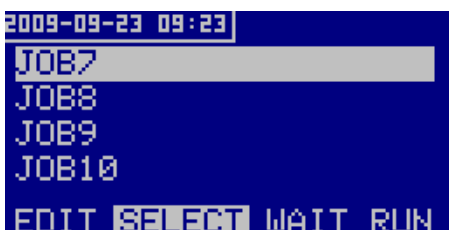


**Configuration**

This menu includes all available system and sensor configuration settings.

**Sequence**

This function allows jobs to be run automatically in user-configured sequences. Each sequence can include up to 5 jobs. Job Sequences can be looped. The maximum number of loops cannot exceed 100; data cannot exceed the storage capacity of the installed Compact Flash card.



**JOB1 ... JOB10**

JOB is the default name for a test configuration. JOB configurations are numbered sequentially, JOB1 through JOB10. New names can be assigned as required. All measurement data are saved to the Compact Flash card (included in the standard scope of delivery).

### 5.4.1 Configuration

```
2009-09-23 09:23
Channels Cfg
CAN Cfg
Versions
CF Card
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Load/Save Config
Update Firmware
Time
Date
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Date
Password
Interfaces
Printer
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Channels Cfg 1
Channels Cfg 2
Channels Cfg 3
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Sensor
Digital
CAN
GPS
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
t
s
v
a
EDIT SELECT WAIT RUN
```

The Configuration menu includes all available system configuration settings.

- **Channels Cfg (1 ... 3):** configuration settings for each individual channel
- **CAN Cfg:** settings for CAN Bus speed
- **Versions:** information about the firmware versions
- **CF Card:** information about the Compact Flash card
- **Load/Save Config:** allows to load or save a Configuration File
- **Update Firmware:** provides the option to update the firmware
- **Time:** provides the option to change the time
- **Date:** provides the option to change the date
- **Password:** allows to activate password protection for the actual configuration
- **Interfaces:** allows to set the Ethernet/LAN settings of the system
- **Printer:** allows to change printer settings
- **GPS Cfg:** GPS basic settings

#### Configuration > Channels Cfg

The Channels Cfg menu includes configuration settings for each of the three available channel configurations. When you select Channels Cfg and press ENTER, you will see the menu shown at the left.

#### Configuration > Channels Cfg > Channels Cfg 1 ... 3

When you select Channels Cfg 1 ... 3 and press ENTER, you will see the menu shown at the left.

**Note:** Available settings are the same for each of the 3 channels Cfgs.

#### Configuration > Channels Cfg > Channels Cfg 1 ... 3 > Sensor

When you select "Sensor" and press ENTER, you will see the menu shown at the left.

The signals time "t" and distance "s" are automatically set to zero with the start trigger event of a test run. For the internal calculation of the acceleration statistic values as MFDD, a(v,t), a(v,s) and a(s,t) these sensor signals are used.

```
2009-09-23 09:23
Decimals 1
EDIT SELECT WAIT RUN
```

Configuration > Channels Cfg > Channels Cfg 1 ... 3 > Sensor > t

When you select "t" and press ENTER, you will see the menu shown at the left.

Signal "t" is the time signal of the CDS-GPS logger system. The only thing that can be changed is the number of the displayed decimals for this signal.

```
2009-09-23 09:23
Source GPS
Unit [m]
Decimals 1
EDIT SELECT WAIT RUN
```

Configuration > Channels Cfg > Channels Cfg 1 ... 3 > Sensor > s

**Source:** Option to select between the settings GPS and CAN.

- **GPS:** Signal s\_GPS is applied for signal distance "s"
- **CAN:** Signal distance "s" can be applied by a sensor connected via CAN; the standard settings support the CAN distance signal of Correvit L-350, S-350, and S-HR sensors

```
2009-09-23 09:23
Source CAN
Factor 0.001
Unit [m]
Decimals 1
EDIT SELECT WAIT RUN
```

**Factor:** Only if CAN is selected; the Factor value has to be applied in unit [m]. Conversion into other available units will be done automatically.

**Unit:** Default unit is [m]. Other available units are [km], [ft] and [mile].

**Note:** For information about further CAN parameters please refer to section "Cfg 1 ... 3 > CAN".

```
2009-09-23 09:23
LB
BS
EDIT SELECT WAIT RUN
```

Configuration > Channels Cfg > Channels Cfg 1 ... 3 > Digital

**LB:** Light barrier signal

**BS:** Brake switch signal

```
2009-09-23 09:23
Pulse Time 100ms
EDIT SELECT WAIT RUN
```

Configuration > Channels Cfg > Channels Cfg 1 ... 3 > Digital > LB/BS

**Pulse Time:** The minimum time between two pulses to be recognized as two separate pulses. Default setting is 100 ms. Other available settings are 0 ms, 200 ms, 300 ms, 400 ms, 500 ms and 1 000 ms.

```
2009-09-23 09:23
CAN1,
CAN2,
CAN3,
CAN4,
EDIT SELECT WAIT RUN
```

Configuration > Channels Cfg > Channels Cfg 1 ... 3 > CAN

Available settings are the same for each of the 16 available CAN channels.

```
2009-09-23 09:23
Alias
CANLine      CAN1
ID           10000000
Extended     On
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Extended     On
OffsetBit    0
Lenght       16
Value Type   Unsigned
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Value Type   Unsigned
Data Format   Intel
Mode         General
Factor       1.0
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Factor       1.0
Offset       0.0
Unit         []
Decimals     1
EDIT SELECT WAIT RUN
```

**Configuration > Channels Cfg > Channels Cfg 1 ... 3 > CAN > CAN1 ... 16**

**Alias:** Here an optional signal name can be set that will be used as additional information in the data files. It is not available in the LCD display when the Job is running.

**CANLine:** Available settings CAN1 or CAN2.

**Id:** The CAN Id has to be entered as a hexadecimal number.

**Extended:**  
On: Id length of 29 Bit is used. With this setting the highest possible Id is 1FFFFFFh

Off: Id length of 11 Bit is used. With this setting the highest possible Id is 7FFh

**OffsetBit:** Setting has to be within the range of 0 ... 63

**Length:** Setting has to be within the range of 1 ... 64

**Value Type:** Available settings are "Signed", "Unsigned" and "Floating"

**Data Format:** Available settings are Intel or Motorola

**Mode:** Setting "General" is used for standard CAN signals.

Setting "Consum" is available for consumption signals. In this mode the following units are preset for selection: [], [gal], [l/h], [gal/h], [l/100 km], [l/km], [km/l], [gal/100 mile] or [miles/gal].

The CAN signal used **must** be available in [].

For calculation of the consumption per distance, signal "s" is always used in addition.

**Factor:** Setting must be within the range of 0 ... 10 000 000

**Offset:** Setting must be within the range of 0 ... 10 000 000

**Unit:** The maximum length of a unit can be 5 characters. Square brackets [ ] are added automatically. Available characters are A ... Z, a ... z, 0 ... 9, and /.

```
2009-09-23 09:23
v_GPS
s_GPS
Lat
Long
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Alt
t_GPS
Track
Fix
EDIT SELECT WAIT RUN
```

```
2009-09-23 09:23
Track
Fix
Sat
PDOP
EDIT SELECT WAIT RUN
```

**Configuration > Channels Cfg > Channels Cfg 1 ... 3 > GPS**

**v\_GPS:** GPS speed. Selectable units are [km/h], [m/s], [mph], [ft/s], and [m/min].

**s\_GPS:** Summed-up GPS distance. Selectable units are [m], [km], [ft], and [mile]. Signal s\_GPS is automatically reset to zero with the start trigger of a test.

**Lat:** Latitude in unit [°]

**Long:** Longitude in unit [°]

**Alt:** Ellipsoidal height. Selectable units are [m], [km], [ft], and [mile].

**t\_GPS:** Time of day in unit [s] related to the co-ordinated universal time (UTC).

**Track:** Actual moving direction in unit [°].  
0 ° = north, 90 ° = east, 180 ° = south, 270 ° = west.

**Fix:** Status signal.  
2: Sufficient satellite receipt  
1: Insufficient satellite receipt. CDS-GPS logger is in buffer mode (see GPS Cfg)  
0: Insufficient satellite receipt. No signal output.

**Sat:** Number of the satellites presently used for signal calculation.

**PDOP:** (Positional Dilution of Precision) PDOP is a measure for a given satellite constellation at a certain location and indicates how good this constellation is suited for the measurement. Value "1" stands for the best possible geometric configuration of the satellites; a value of "6" is still acceptable; DOP values exceeding "10" are not suited for signal evaluation. However, the PDOP by itself is no measure for signal accuracy.

```
2009-09-23 09:23
CAN1 Baudrate 1MBd
CAN2 Baudrate 1MBd
EDIT SELECT WAIT RUN
```

**Configuration > CAN Cfg**

**CAN1(2) Baud rate:** Available settings are 5 kBd, 10 kBd, 20 kBd, 40 kBd, 50 kBd, 80 kBd, 100 kBd, 125 kBd, 200 kBd, 250 kBd, 400 kBd, 500 kBd, 666 kBd, 800 kBd and 1 MBd.

**Note:** Default setting is 1 MBd.

```
2009-09-23 09:23
Andromeda 1.02.001
Driver 1.02.001
Client 1.02.001
Config 23
EDIT SELECT WAIT RUN
```

**Configuration > Versions**

Shows the version numbers of the installed software components.

```
2009-09-23 09:23
Total Space 1954.4MB
Free Space 1739.2MB
Delete CF
Copy Data To USB
EDIT SELECT WAIT RUN
```

**Configuration > CF Card**

**Total Space:** Displays the total amount of storage space available on the inserted CF card.

**Free Space:** Displays the amount of free storage space available on the inserted CF card.

**Delete CF:** When you select "Delete CF" and press "ENTER" a query will appear. If applying "Yes", all files in directory "DATA" of the CF Card will be deleted.

**Note:** Files in root or other directories of CF Card will remain unaffected. Also files in sub-directories of "DATA".

**Copy Data To USB:** When you select "Copy Data To USB" and press "ENTER" a query will appear. If applying "Yes", all files in directory "DATA" of the CF Card will be copied into directory "DATA" of a connected USB storage device. If files with identical name already exist in the target directory a query will appear. Dependent on the number and size of files the copying can take some minutes. During this time information is shown in the display.

```
2009-09-23 09:23
Default Config
Load Config From CF
Load Config From USB
Save Config To CF
EDIT SELECT WAIT RUN
```

**Configuration > Load/Save Config**

**Default Config:** Loads the default Configuration installed with the firmware.

**Note:** All user defined channel and job settings will be lost after loading "Default Config."!

**Load Config From CF (USB):** Enables to load configuration files from the directory CFG on the CF Card (or USB storage device). Standard configuration file type is \*.ccw. Old configuration files of type \*.d3c are also supported.

**Save Config To CF (USB):** Saves the current configuration into directory CFG on the CF Card (or USB storage device). File name is das3cfg#.ccw, where # is a consecutive number.

```

2009-09-23 09:23
Cur.Ver. 1.02.001
New Ver. 1.02.001
Really Update?
  Yes      No
EDIT SELECT WAIT RUN
    
```

### Configuration > Update Firmware

Enables to load a new firmware to the CDS-GPS logger. Firmware file needs to have the name `das3.fwu` and has to be located in directory "CFG" of the CF card. Otherwise it will not be considered.

When you select "Update Firmware" and press "ENTER", you will see the following message if a firmware file has been found on the inserted CF card: Selecting "Yes" will load the firmware update and delete the existing firmware.

```

2009-09-23 09:23
Hour: 09
Minute: 23
Second: 49
Time Zone
EDIT SELECT WAIT RUN
    
```

### Configuration > Time

"Hour", "Minute", "Second" and "Time Zone" can be set. For changing the time zone the correct one has to be selected with `↑` and `↓` keys and selection has to be applied with `ENTER`. Pressing `ESC` will leave the menu without saving the change.

**Note:** A correct Time Zone setting is important to get the correct data file time when downloading the data files to a PC.

```

2009-09-23 09:23
Day: 23
Month: 09
Year: 2009
EDIT SELECT WAIT RUN
    
```

### Configuration > Date

"Day", "Month" and "Year" can be set.

```

2009-09-23 09:23
Password: *
EDIT SELECT WAIT RUN
    
```

### Configuration > Password

Allows setting a password protection for the current configuration. In protection mode only starting the Jobs is possible.

**Protecting the configuration:** A password can have a maximum length of 9 characters. Available characters are:

- Upper-case letters (A ... Z)
- Lower-case letters (a ... z)
- Numbers (0 ... 9)
- Underscore (`_`).

After entering a password the information "Security activated" will be displayed.

**Unprotecting the configuration:** When the protection is activated, for entering the configuration menu or the job settings menu, the correct Password has to be entered. The screen shown at the left will pop up: After pressing "ENTER" the (\*) will start to flash. Before entering the password the "DEL" key has to be applied that will remove the (\*) symbol. Now the password has to be entered and confirmed by pushing the "ENTER" key. If the password was correct, the information "Password correct" will be displayed. Otherwise "Password incorrect" will be displayed and the configuration stays protected.

**Note:** After restarting the system the configuration will be protected unless the protection was deactivated permanently.

**Reactivating the protection:** To reactivate protection with same password again, enter Password menu, press "ENTER" until (\*) flashes and just press "ENTER" again. To reactivate protection with a new password, press the "DEL" key while (\*) flashes and enter the new password.

**Permanent deactivation of the protection:** For a permanent deactivation of the protection, first unprotect the configuration by entering the correct password. Then enter the Password menu again, press "ENTER" until (\*) flashes, press "DEL" to remove the old password and confirm with "ENTER". The Information "Security deactivated" will be displayed.

**Note:** We are not able to reset the password for protected configurations (e.g. when the password cannot be remembered). Therefore, we recommend to store an unprotected configuration in a save place.

```
2009-09-23 09:23
IP 192.168.0.100
Mask 255.255.255.0
DHCP Off

EDIT SELECT WAIT RUN
```

#### Configuration > Interfaces > Ethernet

For the configuration of the IP-address to allow the communication between CDS-GPS logger and a PC or network through LAN/Ethernet.

In case of a connection to a network with DHCP server, option DHCP should be set to "On". In this case the CDS-GPS logger will automatically get a fitting IP address from the server.

```
2009-09-23 09:23
Type Standard
EDIT SELECT WAIT RUN
```

**Configuration > Printer**

In case of connection of an original printer module Type "Standard" should be used.  
In Type "User" the maximum number of characters per line can be set in case any other type of serial printer is used.

**Note:** It cannot be guaranteed that others than the original printer module will work properly.

```
2009-09-23 09:23
CANOutput
STST 0.5
Vertical Off
Buffer 1.0
EDIT SELECT WAIT RUN
```

**Configuration > GPS Cfg**

**CAN Output:** Settings for output of the GPS signals via CAN bus. Signal output is only active if the CDS-GPS logger is started without display.

**STST:** Standstill threshold. If speed is below the threshold, it is set to "0". Adjustable range: 0 ... 5 [km/h].

**Vertical:**  
On: Vertical velocity is considered when calculating v\_GPS.  
Off: Only horizontal velocity is considered when calculating v\_GPS.

**Buffer:** Setting of the maximum buffer period.  
Adjustable range: 0 ... 5 [s].  
If not enough satellites are received to enable signal calculation, the CDS-GPS logger goes to buffer mode. In this case velocity v\_GPS is being held on the last valid value. If satellite receipt continues to be insufficient, velocity is set to "0".

```
2009-09-23 09:23
CANLine CAN1
Frame1 1FFFFFFA
Frame2 1FFFFFFB
Frame3 1FFFFFFC
EDIT SELECT WAIT RUN
```

**Configuration > GPS Cfg > CANOutput**

If the CDS-GPS logger is started without a connected control/display unit, it goes to sensor mode and sends the available GPS signals via CAN bus.

**CANLine:** Setting on which of the two CAN lines transmission is effected.

**Frame1-4:** Setting of the CAN ID for the respective data frame. The CAN ID must be entered as a hexadecimal number.

**Extended:**  
On: ID length of 29 Bit. With this setting the highest possible ID is 1FFFFFFh.  
Off: ID length of 11 Bit. With this setting the highest possible ID is 7FFh.

```
2009-09-23 09:23
Frame2 1FFFFFFB
Frame3 1FFFFFFC
Frame4 1FFFFFFD
Extended On
EDIT SELECT WAIT RUN
```

### 5.4.2 Sequence

```
2009-09-23 09:23
ClearPos,1x
ClearPos,1x
ClearPos,1x
Sequence Loop 1
EDIT SELECT WAIT RUN
```

The sequence menu provides the option to create and run sequences of jobs that have been previously configured. The sequence menu also includes a loop function that allows sequences to be repeated, or looped. Up to five jobs can be configured to run in each sequence. The maximum loop value is 100.

**Note:** If the storage capacity of the installed CF card is exceeded, the measurement will stop.

### 5.4.3 JOB 1 ... 10

```
2009-09-23 09:23
Name JOB1
Channels Chan Cfg1
AutoSave On
Rate 10Hz
EDIT SELECT WAIT RUN
```

Job1 ... 10 menus provide the option to configure up to 10 individual test configurations.

**JOB1 ... 10 > Name:** The default job names are JOB1 to JOB10. Job names can be changed by the user. Maximum name length is 14 characters.

**JOB1...10 > Channels:** One of three channel configurations – Cfg1, Cfg2 or Cfg3 – can be selected. See "Configuration > Channels Cfg" for details about channel configuration.

**JOB1 ... 10 > Autosave:** Default setting for "Autosave" is "On". In this case the data of every run are automatically saved. In setting "Off" after every run a query will appear with the choices:

- **Save:** data of the last run will be saved and CDS-GPS logger returns to main menu
- **Repeat:** data of the last run will be discarded and the job will be restarted automatically
- **Discard:** data of the last run will be discarded and CDS-GPS logger returns to main menu

**JOB1 ... 10 > Rate:** The default sampling rate is 10 Hz. Other available rates are: 20 Hz, 50 Hz, 100 Hz, 200 Hz, and 500 Hz.

```

2009-09-23 09:23
Trig. Beep On
Trg.Hys.    0%
Start Trigger
Stop Trigger
EDIT SELECT WAIT RUN
  
```

**JOB1 ... 10 > Trig. Beep:** When this option is activated the display will produce a beep sound if the start or stop trigger is passed during a test run.

**Note:** Sound level and type of sound can not be adjusted.

**JOB1 ... 10 > Trg.Hys:** The trigger hysteresis setting is mainly important for brake tests when the start trigger signal is the velocity. Due to fluctuations in the velocity signal already in the acceleration phase it can happen that the start trigger condition is met by mistake. The trigger hysteresis setting can prevent this. It demands that the signal has to exceed the specified trigger level by the set percentage before the measurement will be triggered at the specified level.

**Example:** Start trigger condition:  $v \leq 100$ , Trg.Hys. setting: 5 %. In this case signal "v" has to reach at least 105 before the measurement can be triggered by passing the level 100.

```

2009-09-23 09:23
On t      >  0.0
Off t     >  0.0
Off t     >  0.0
EDIT SELECT WAIT RUN
  
```

**JOB1 ... 10 > Start Trigger/Stop Trigger:** By default no trigger is set. To activate a trigger condition the first line has to be set to "On". Then the desired channel, the operator and the threshold has to be set. All signals from "Channels Cfg" are available for a trigger condition. Available logical operators are >, >=, < and <=. The trigger threshold value has to be set corresponding to the unit that is set in "Channels Cfg" for the selected trigger channel. It is optionally possible to combine up to three trigger conditions. Therefore the second (and third) condition line can be linked by a logical "And" or "Or".

**Note:** Independent of the start and stop trigger setting, a measurement can always be started and stopped by pressing the "ENTER" button.

```

2009-09-23 09:23
User Displays
End Values
Table
File
EDIT SELECT WAIT RUN
  
```

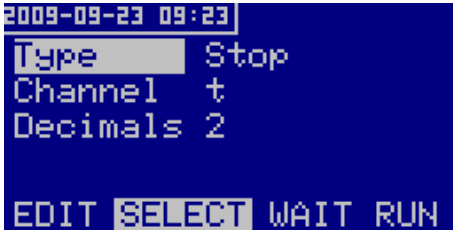
**JOB1 ... 10 > User Displays:** There are three "User Displays" available where the user can define any three signals from "Channels Cfg" in each case. During a test run the corresponding "User Display" can be activated by pressing "ALT" and "SEN/USER1" respectively "DIG/USER2" or "ANA/USER3" one after the other.

**Note:** On the optional LED display (Art. No. KCD12388) signals set in "User Display1" or "User Display2" will be shown.

```

2009-09-23 09:23
Stop,t,dec=2
Stop,s,dec=1
Start,v,dec=1
MFDD,Off,dec=2
EDIT SELECT WAIT RUN
  
```

**JOB1 ... 10 > End Values:** Provide the option to display and/or print special measurement results at the completion of each test. By default 5 end values per test are available. When using CeCalWin Pro software for configuration, additional end values can be added. If at least one end value is defined, for each test run an end value file with extension .end will be saved in the data directory of the inserted CF card.



**Type:** There are 16 different end value types available

**Statistical End Values** (any signal from "Channels Cfg" can be selected)

- "Start": value at the start point of the test run
- "Stop": value at the stop of the test run
- "Min": minimum value between start and stop trigger
- "Max": maximum value between start and stop trigger
- "Avg": average value from start to stop trigger
- "8MAX1": maximum value between 80 % and 10 % of the start velocity
- "8MIN1": minimum value between 80 % and 10 % of the start velocity
- "8AVG1": average value between 80 % and 10 % of the start velocity

**Acceleration End Values** (signals "t", "s" and "v" are used for the calculation; no signal selection)

- **a(v,t):** average acceleration calculated from signals v and t

$$a(v,t) = \frac{v_{Stop} - v_{Start}}{t_{Stop}}$$

- **a(v,s):** average acceleration calculated from signals v and s

$$a(v,s) = \frac{v_{Stop}^2 - v_{Start}^2}{2 \cdot s_{Stop}}$$

- **a(s,t):** average acceleration calculated from signals s and t

$$a(s,t) = 2 \cdot \left( \frac{s_{Stop}}{t_{Stop}^2} - \frac{v_{Start}}{t_{Stop}} \right)$$

- **MFDD\*:** average deceleration between 80 % and 10 % of the start velocity

$$MFDD = \frac{v_{80\%}^2 - v_{10\%}^2}{2 \cdot (s_{10\%} - s_{80\%})}$$

\* Mean Fully Developed Deceleration

**Consumption End Values** (only CAN signals of type "Consum." can be selected).

- **V/100s:** average consumption in [l/100 km] or [gal/100 mile]
- **s/V:** average consumption in [km/l] or [miles/gal]
- **V/h:** average consumption in [l/h] or [gal/h]
- **V:** total consumption in [l] or [gal]

Signal s is used for calculation of end values V/100 s and s/V.

### Show

- **Never:** End values will not be displayed at the end of the test
- **Always:** End values are displayed at the end of each test run until "ENTER" is pressed
- **Wait 5[s]:** End values are displayed for 5 seconds or until "ENTER" is pressed
- **Wait 10[s]:** End values are displayed for 10 seconds or until "ENTER" is pressed
- **Wait 15[s]:** End values are displayed for 15 seconds or until "ENTER" is pressed

### Print

Following options are available.

- **Never:** End values are not printed on a connected serial printer
- **Always:** End values are always printed on a connected serial printer
- **Query:** At the end of each test run a query will appear if end values should be printed or not

### Summary

When the summary option is activated, the end values of each run will be saved together with the start trigger time and run number in a separate summary file with name "FileName#.sum".

### Summary No

Default setting is 1. To start a new summary file with same file name the "Summary No" can be increased. If a summary file with same name and number already exists, the end values of the next run will be added at the bottom of this file.

**Note:** If any end value settings are changed, you should increase the "Summary No" to start a new summary file. Otherwise the new end values might not correspond to the ones previously saved in this summary file.

```

2009-09-23 09:23
Table      On
Header
Status     Off
Print      Never
EDIT SELECT WAIT RUN
  
```

**JOB1 ... 10 > Table:** The table settings provide the option to save measurement data in a tabular form in a text file with extension \*.tab. By default; five signal columns are available. When using CeCalWin Pro software for configuration, additional columns can be added.

### Table

**On:** Table file will be saved (and printed).

**Off:** Table settings will be ignored. No file is created.

```
2009-09-23 09:23
Decimal Sep. .
Column Sep. Tab
Acceleration
Col1,t,Lead=On
EDIT SELECT WAIT RUN
```

**Header**

- **On:** A Header section will be added at the top of the table file with optional content:
- **Date/Time:** Current date and time of start trigger event
- **Trigger:** Start and Stop Trigger condition
- **File:** File name of the corresponding raw data file
- **Off:** No Header section in the table file

**Status**

- **Off:** No Status column in the table file
- **Number:** For every data line in the first column the corresponding leading channel column number is displayed
- **Name:** For every data line in the first column the corresponding leading channel name is displayed

**Print**

- **Never:** The table file is never printed on a connected printer
- **Always:** The table file is always printed on a connected printer
- **Query:** At the end of each test run a query will appear if the table should be printed or not

**Decimal Sep.**

Available decimal separator settings are "." and ",",

**Column Sep.**

Available column separator settings are "Tab", ";" and ",",

**Acceleration**

If activated at the bottom of the table file the acceleration results a(v,t), a(v,s), a(s,t) and/or MFDD will be displayed. For more information see section "Acceleration End Values".

When option "MFDDRows" is activated, at 80 % and 10 % of the start velocity a data line is added to the table file.

```
2009-09-23 09:23
Channel t
Visible On
Reset By Start
Lead On
EDIT SELECT WAIT RUN
```

**Col1 (-5), Off, Lead = Off**

- **Channel:** Any signal from "Channels Cfg" can be selected
- **Visible:** Columns will not be displayed in the file when setting is "Off"
- **Reset:** Off = Signal will not be reset  
By Start = Signal will be reset to zero at the start trigger event  
By Line = Display of signal change since the last data line
- **Lead:** When activated; this channel will be used as a leading channel. It is allowed to select more than one channel as a leading channel

```
2009-09-23 09:23
Fix On
Decimals 2
Digits 5
Step 1.0
EDIT SELECT WAIT RUN
```

```

2009-09-23 09:23
Digits 5
Step 1.0
Extra Values
Statistics
EDIT SELECT WAIT RUN
    
```

- **Fix:** Only used if "Lead" is activated. If "Fix" is activated the table lines corresponding to this leading channel will be at the exact multiples of the step setting. For example; if the start trigger for a brake test appears at 106 km/h and step setting for the leading channel v is 10, without option "Fix" data lines at 96 km/h, 86 km/h, 76 km/h, etc. will be displayed. With option "Fix" data lines at 100 km/h, 90 km/h, 80 km/h, etc. will be displayed.

**Decimals**

- **Digits:** Minimum number of digits (characters) used for the column. If any item (name, unit, data) exceeds the digit number, the column width will be adjusted automatically.
- **Step:** Only used if "Lead" is activated. Determines the interval at which data lines related to this leading channel will be displayed in the table.
- **Extra Values:** Only used if "Lead" is activated. Independent of the step setting for every leading channel up to 5 extra values can be defined where an additional data line will be displayed.
- **Statistics:** At the bottom of each data column statistic values can be displayed. Available values are:
 

Max	maximum value displayed in the table
Min	minimum value displayed in the table
Ave	average value displayed in the table
Total Max	maximum value acquired between start and stop trigger
Total Min	minimum value acquired between start and stop trigger
Total Max	average value acquired between start and stop trigger

**Note:** In most cases the total values will be of interest, because they are based on the acquired raw data. Especially "Ave" can give useless results when the data lines in the table are not equidistant in time.

```

2009-09-23 09:23
File Job1
Sensor Channels
Digital Channels
CAN Channels
EDIT SELECT WAIT RUN
    
```

**JOB1 ... 10 > File**

**File:** The name of all data files (.adf, .end., .tab, .sum) related to this job. File names are limited to a maximum of 14 characters. Default setting is "Job1(10)".

**Sensor Channels/Digital Channels/CAN Channels/**

**GPS Channels:** Every channel can be selected or deselected for the raw data file (.adf). By default all channels are selected.

```

2009-09-23 09:23
Sensor Channels
Digital Channels
CAN Channels
GPS Channels
EDIT SELECT WAIT RUN
    
```

**Note:** Channels used for trigger conditions or used in "End Values" or "Table" are automatically saved independent of whether selected in "File" or not.

## 6. Running a Test with the CDS-GPS Logger

### 6.1 How to perform a Test Measurement

```
2009-09-23 09:23 Run 001
t: [s]          3,7
s: [m]          94,2
v: [km/h]       103,6
EDIT SELECT WAIT RUN
```

Select the Job you want to run and press the "START" button.

A screen similar to the one shown at the left will appear.

In the bottom line WAIT is highlighted what indicates that the CDS-GPS logger is ready to begin the test run and waits for the start trigger. At this time no data are saved.

```
2009-09-23 09:23 Run 001
t: [s]          0,0
s: [m]          0,0
v: [km/h]       101,3
EDIT SELECT WAIT RUN
```

When the Start Trigger condition is passed, the CDS-GPS logger will change into "RUN" mode what indicates that the test has started and data is saved. Signals t and s are reset to zero at this time.

```
2009-09-23 09:23
t(stop)         4.73
s(stop)         43.6
v(start)        100.8
MFDD            8.34
EDIT SELECT WAIT RUN
```

When the measurement is finished by reaching the stop trigger condition, dependent on the job configuration, end values will be displayed on the screen and/or end value and/or table print query will appear.

```
2009-09-23 09:23
Print End Values ?
  Yes           No
EDIT SELECT WAIT RUN
```

If all queries are confirmed with "Yes" or "No" the system will return to the main menu.

**Note:** Independent of the start and stop trigger setting, a measurement can always be started and stopped by pressing "ENTER".

```
2009-09-23 09:23
Print Table ?
  Yes           No
EDIT SELECT WAIT RUN
```

## 6.2 Display Options during a Measurement

```

2009-09-23 09:23 Run 001
t: [s]           0,0
s: [m]           0,0
v: [km/h]        101,3
EDIT SELECT WAIT RUN
  
```

### Sensor Signals

When a Job is started by default on the display the sensor signals t, s and v are displayed. To scroll in the signal list up and down use the ↑ and ↓ keys.

```

2009-09-23 09:23 Run 001
LB: [ ]          0
BS: [ ]          0
EDIT SELECT WAIT RUN
  
```

### Digital Signals

To display the available digital signals press the "DIG" key.

```

2009-09-23 09:23 Run 001
CAN1: [deg]      1,7
CAN2: [km/h]     3,0
CAN3: [km/h]    101,3
EDIT SELECT WAIT RUN
  
```

### CAN Signals

To display CAN signals press the "ACAL" key.

```

2009-09-23 09:23 Run 001
v: [km/h]
101,0
EDIT SELECT WAIT RUN
  
```

### User Displays

To display one of the 3 available "User Displays" that can be defined in a job configuration press "ALT" and "SEN/USER1" respectively "DIG/USER2" or "ANA/USER3" one after the other.

### View

To display one parameter in a larger format press the "VIEW" key.

Use the ↑ and ↓ keys to select any of the available signals of the active signal list.

## 7. Using CeCalWin Pro

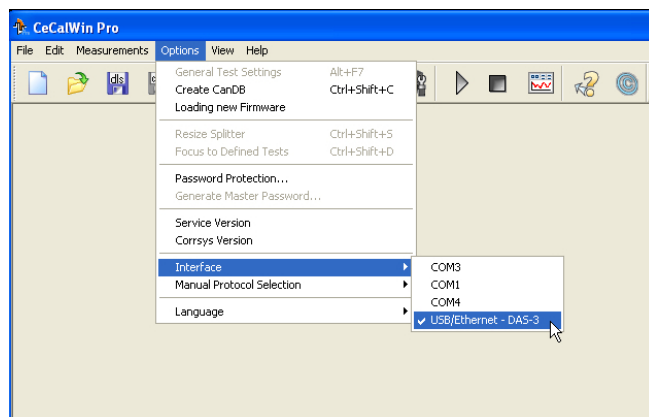
### 7.1 Introduction

All configurations and job settings of the CDS-GPS logger can also be done using the CeCalWin Pro Software. Further it is possible to download the data files from the CDS-GPS logger to the PC without removing the CF Card from the CDS-GPS logger. Because the functions channel and job configuration is already explained in the previous sections, there is no detailed description in this section.

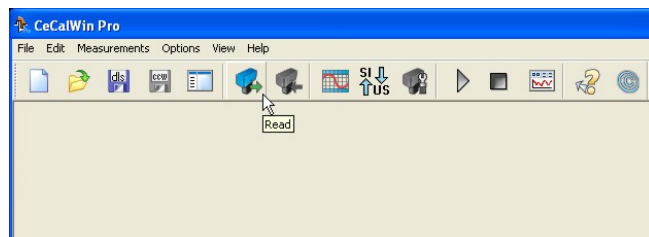
**Note:** The CDS-GPS logger is based on the DAS-3 system and uses the same firmware and communication protocol. Therefore in some places the notation "DAS-3" appears.

For general information about the software see the CeCalWin Pro user manual.

For communication between CDS-GPS logger and PC a LAN/Ethernet connection has to be used. Before connecting the devices you must verify that interface "USB/Ethernet – DAS-3" is selected.

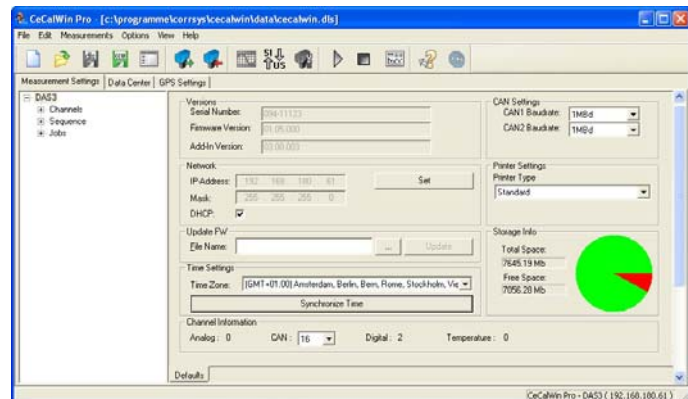


Then the communication can be established by pressing the "Read" button.



## 7.2 Measurement Settings

### 7.2.1 Info Page



#### Versions

Serial number of the connected device  
 Installed firmware version on the connected device  
 Software protocol version

#### Network

IP Address settings.

#### Update FW

To run a firmware update select the new firmware file (\*.fwu) and press the "Update" button.

#### Time Settings

To synchronize the time of the CDS-GPS logger with the connected PC, select the correct time zone and press the "Synchronize Time" button.

#### Channel information

The number of CAN channels can be changed by the user. Available channels numbers are 16, 32, 48 and 64.

#### CAN Settings

Setting the baud rate of the available CAN lines.

#### Printer Settings

Setting the maximum number of characters per line. Standard is 40 characters per line.

#### Storage Info

Information about total and free space on the CF card inserted in the CDS-GPS logger

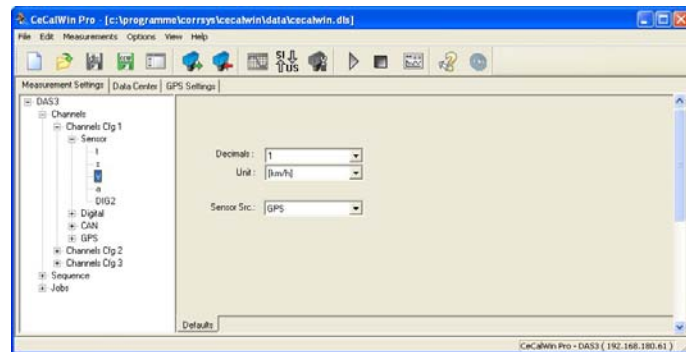
## 7.2.2 Channels

For configuration of sensor, digital and CAN channels.

Summary in table format:

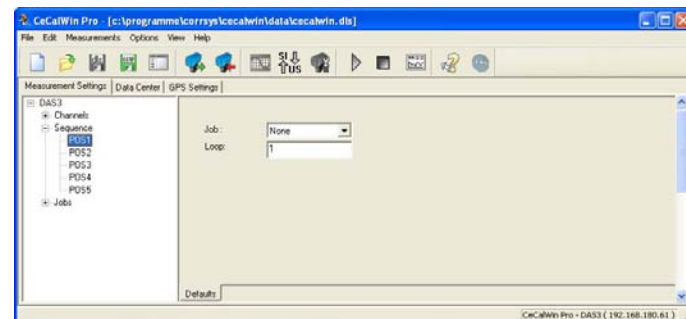
Name	Decimals	Source	Unit	Time Window	Factor	Offset	CANline	Id	Extended	OffsetBt	Length
1	1	GPS	[m]								
2	1	GPS	[m/s]	100ms							
3	1	GPS	[m/s²]	100ms							
DIG2	1	CAN	[V]	100ms	0.01	0	CAN1	1FFFFFFF	On	32	16
LS											
RS											
CAN1	1				1	0	CAN1	1000000	On	0	16
CAN2	1				1	0	CAN1	1000000	On	0	16
CAN3	1				1	0	CAN1	1000000	On	0	16
CAN4	1				1	0	CAN1	1000000	On	0	16
CAN5	1				1	0	CAN1	1000000	On	0	16
CAN6	1				1	0	CAN1	1000000	On	0	16
CAN7	1				1	0	CAN1	1000000	On	0	16
CAN8	1				1	0	CAN1	1000000	On	0	16
CAN9	1				1	0	CAN1	1000000	On	0	16
CAN10	1				1	0	CAN1	1000000	On	0	16
CAN11	1				1	0	CAN1	1000000	On	0	16
CAN12	1				1	0	CAN1	1000000	On	0	16
CAN13	1				1	0	CAN1	1000000	On	0	16
CAN14	1				1	0	CAN1	1000000	On	0	16
CAN15	1				1	0	CAN1	1000000	On	0	16
CAN16	1				1	0	CAN1	1000000	On	0	16
u_GPS	1		[m/s²]								
u_GPS	1		[m]								
Long	1										
AB	1		[m]								
Track	1										

or detailed configuration for single channels:



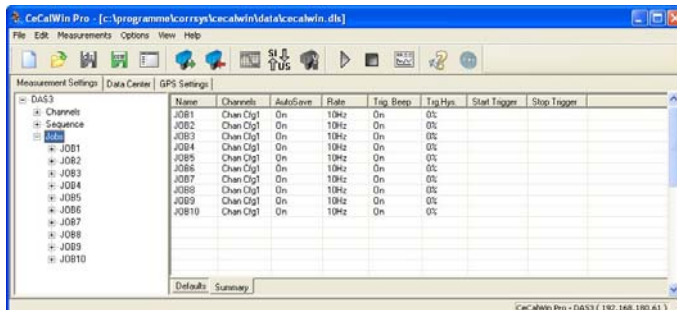
## 7.2.3 Sequence

For setting-up a job sequence:



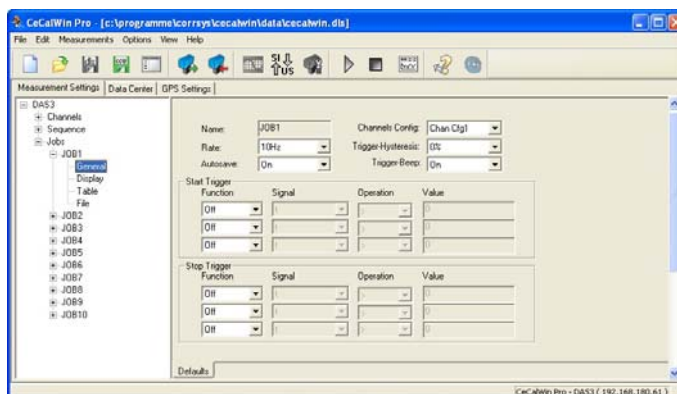
### 7.2.4 Jobs

Job summary as tabular overview of the general job settings of all 10 jobs.



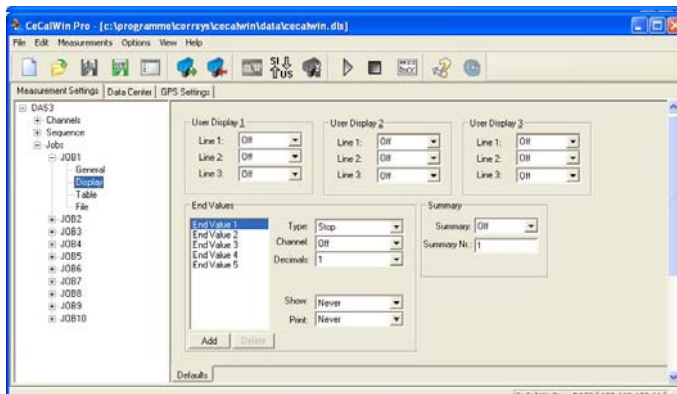
#### 7.2.4.1 General

Setting of the general job parameters: Channels; Config, Rate, Autosave, Trigger Hysteresis, Trigger Beep, Start and Stop Trigger.



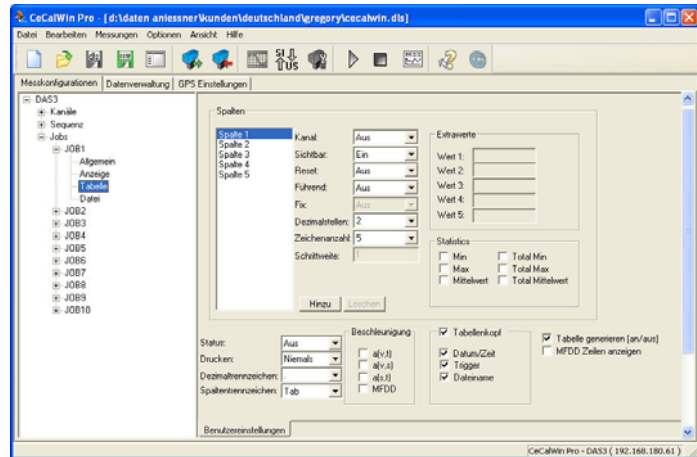
#### 7.2.4.2 Display

Configuration of the user displays and settings for end value file and summary file.



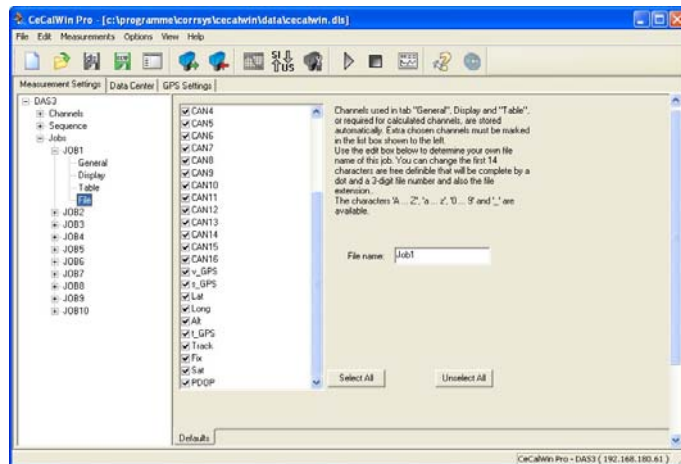
### 7.2.4.3 Table

#### Table settings



### 7.2.4.4 File

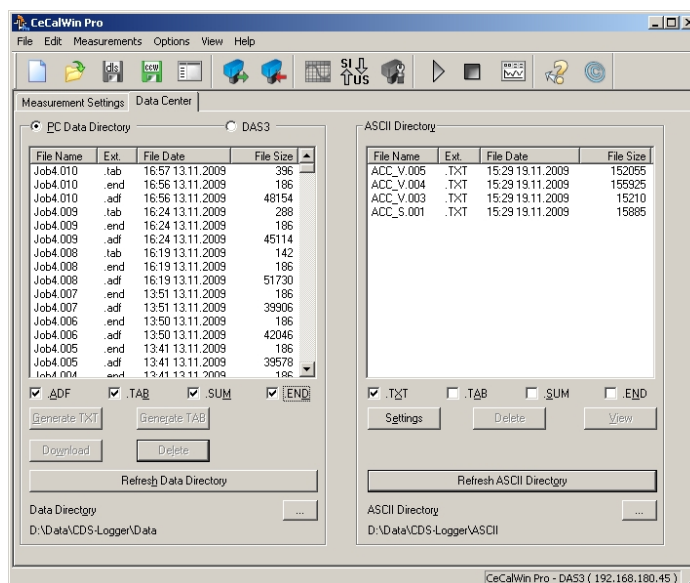
Selection of the channels to be saved in the raw data file (\*.adf) and setting the name for all data files belonging to this job.



## 7.3 Data Center

### 7.3.1 PC Data Directory

The Data Center allows to transfer the data files to a connected PC and to convert data.



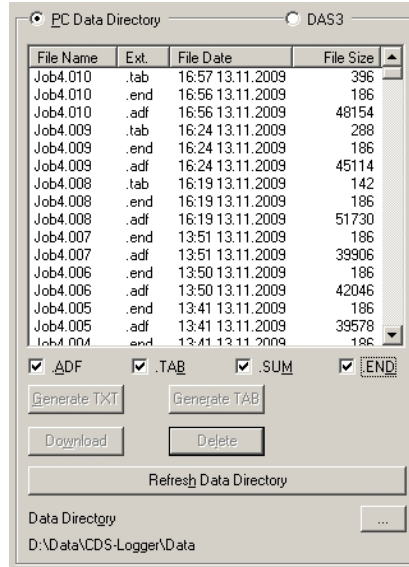
The left side of the "Data Center" window is referred to as the data directory. Here, measurement data files can be viewed and managed. Files displayed include data stored in the CDS-GPS logger, as well as on the PC on which the CeCalWin Pro Software is being used.

**PC Data directory:** Click the radio button to view data files that have been saved to the PC.

**DAS 3:** Click the radio button to view files that have been saved to DAS-3 or CDS-GPS logger CF Card.

**.ADF/.TAB/.SUM/.END:** These are the four file types generated by the CDS-GPS logger. Click the checkboxes to view the corresponding file type in the file window. File types include:

- ADF: raw data files
- TAB: table files
- SUM: summary files (summary of all end values belonging to one job)
- END: End value files



**Generate TXT:** To generate a .TXT file (ASCII format) from a .ADF file, highlight the desired file in the data directory window and click the "Generate TXT" button. The new .TXT file will appear in the ASCII directory window, located to the right of the data directory window.

**Generate TAB:** To generate a .TAB file (ASCII format) from a .ADF file, highlight the desired file in the data directory window and click the "Generate TAB" button. For further information please refer to chapter 7.3.3. "How to Generate a TAB file".



Files with existing file names will be overwritten without warning!

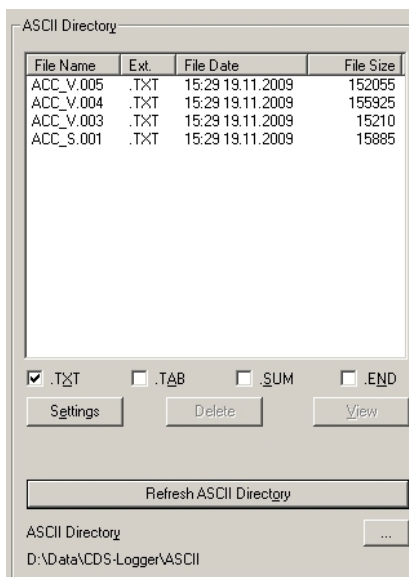
**Download:** Click the "Download" button to download files from the CDS-GPS logger to the connected PC.

**Delete:** To delete a file from the PC data directory or from the CDS-GPS logger CF Card, highlight it and click the "Delete" button.

**Refresh data directory:** Click the "Refresh Data Directory" button to update the listing in the data directory window. This step is necessary to view new data that may have been manually added to the PC data directory or new measurement data from a connected CDS-GPS logger.

**...** : Click on the "..." button to set the file path to the directory on the PC in which data will be saved.

### 7.3.2 ASCII Directory



**.TXT/.TAB./SUM/.END:** These are the four file types that can be displayed in the ASCII directory. Click the checkboxes to display the available file types in the file window.

File types include:

- **TXT:** generated raw data files
- **TAB:** table files (formatting information required for viewing and printing data files)
- **SUM:** Overview files (summary of all end values belonging to a job)
- **END:** End files (end values, as configured for printing and viewing, derived from raw data)

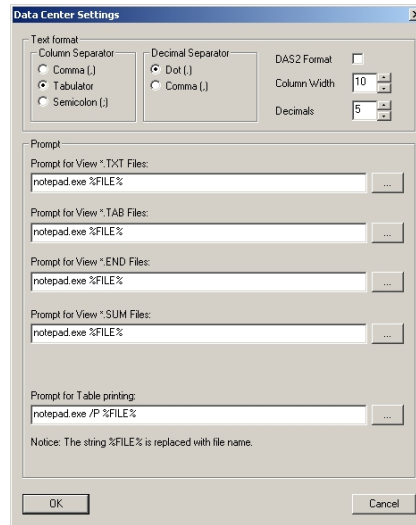
**Delete:** To delete a file, highlight it and click the "Delete" button.

**View:** To view the contents of a file, highlight the desired file name and click the "View" button. This will open the file in the Notepad application, as shown below.

**Refresh ASCII directory:** Click the "Refresh Data Directory" button to update the listing in the ASCII directory window.

**...** : Click on the "..." button to set the file path to the directory on the PC to which .TXT files will be saved.

**Settings:** Click on the "Settings" button to access the data center settings window, below.



Set-up options include:

**Column Separator:** Select Comma, Tabulator (tab) or Semicolon.

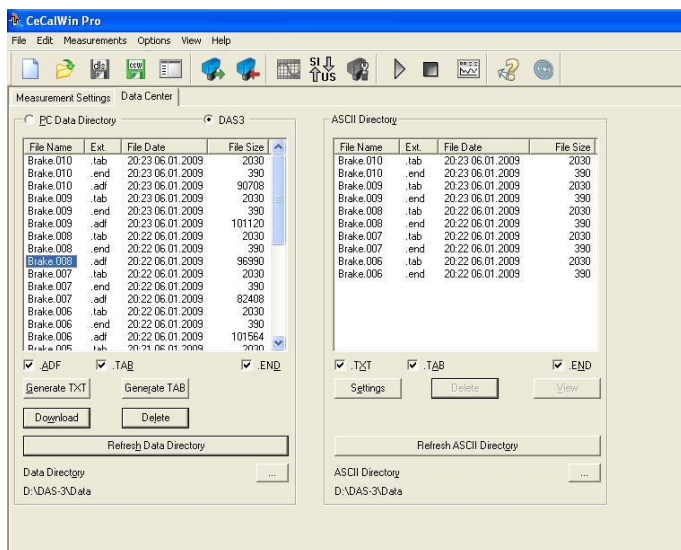
**Decimal Separator:** Select Dot or Comma.

**Prompt for view (\*.TXT/\*.TAB/\*.END/\*.SUM):** Enter text or browse to a path to the application (such as notepad.exe) that will be used to view data saved in each of the three available file types. To set a path, click on the "... " button and browse to the desired application. Default preset is notepad.exe.

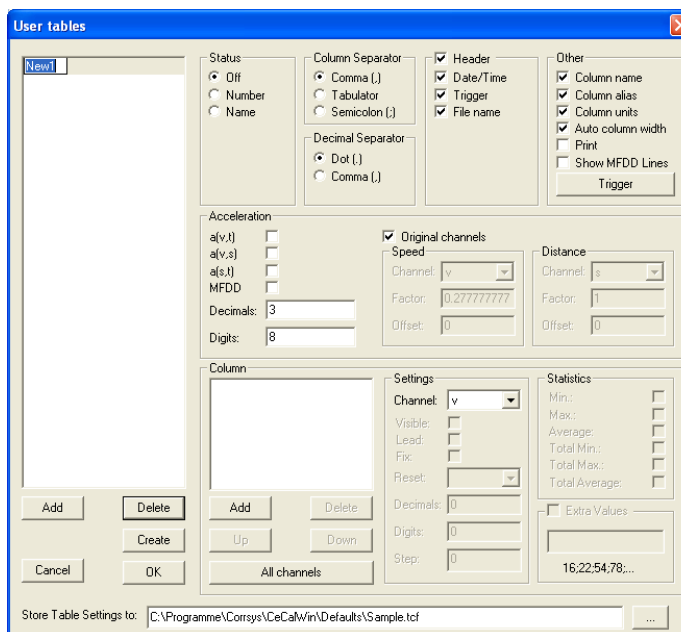
**Prompt for Table printing:** Enter text or browse to a path to the application (such as notepad.exe) that will be used to print data saved in each of the three available file types. To set a path, click on the "... " button and browse to the desired application. Default preset is notepad.exe.

### 7.3.3 How to generate a TAB File

In the "Data Center" there is the possibility to create new tables after the measurement from the raw data. The number of columns is unlimited and also new triggers for the Table can be set. Please notice that not any constellation will work with any measurement data.

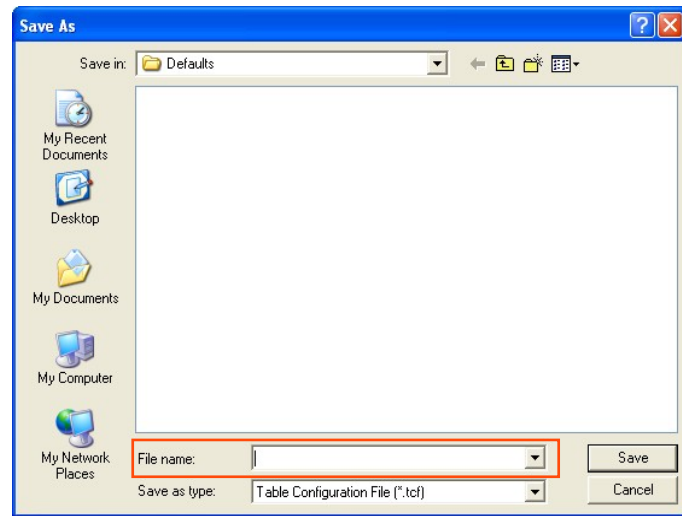


First, highlight the .ADF file that will be the source of the new table. Then press the "Generate TAB" button. The "User tables" window will appear.



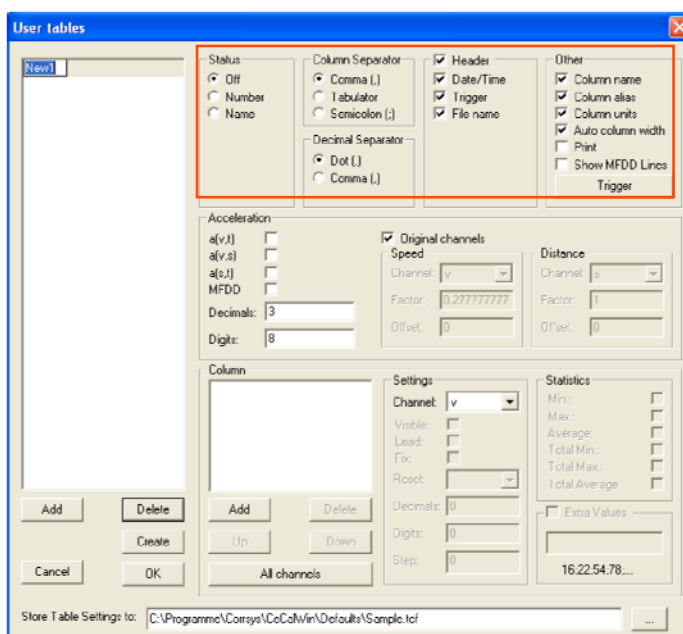
Press the "Add" button to create a new table setting. "New1" will be displayed; you can also rename it.

Then you must define a path to a directory where the table settings will be stored in a .TCF file. Press the "... " button to define the path. The following window will appear:



Type a file name into the box. All settings will be stored automatically in this file when you press either the Create button or the OK button.

**Status:** Status settings provide the option to label the leading channels. Use the radio button to select "Off", "Number" or "Name". With "Number" the column number of the leading channel will be displayed in front of every line, with "Name" the corresponding signal name will be displayed in front of every line.



**Column Sep.:** Use the radio button to select comma (,), tabulator, or semicolon (;) as the column separator.

**Decimal Sep.:** Use the radio button to select dot (.) or comma (,) as the decimal separator.

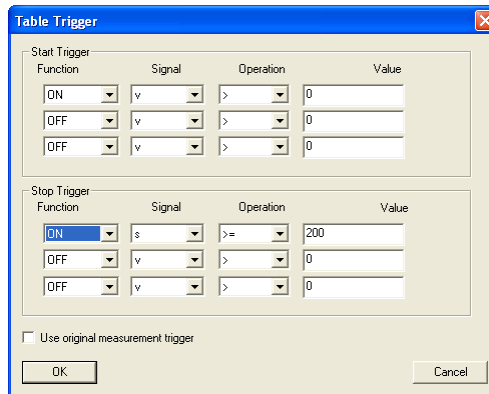
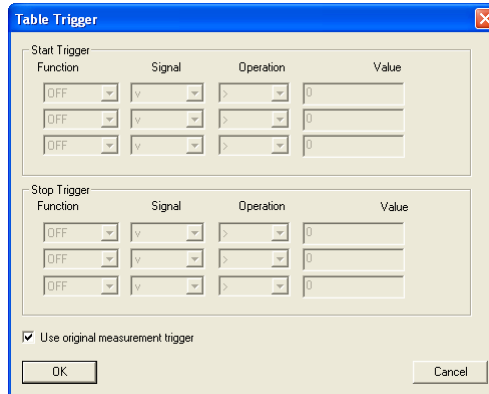
**Header:** Switch on for header information above the table. "Date/Time", "Trigger" and "File name" can also be selected separately.

**Other:** Additional options can be selected here.

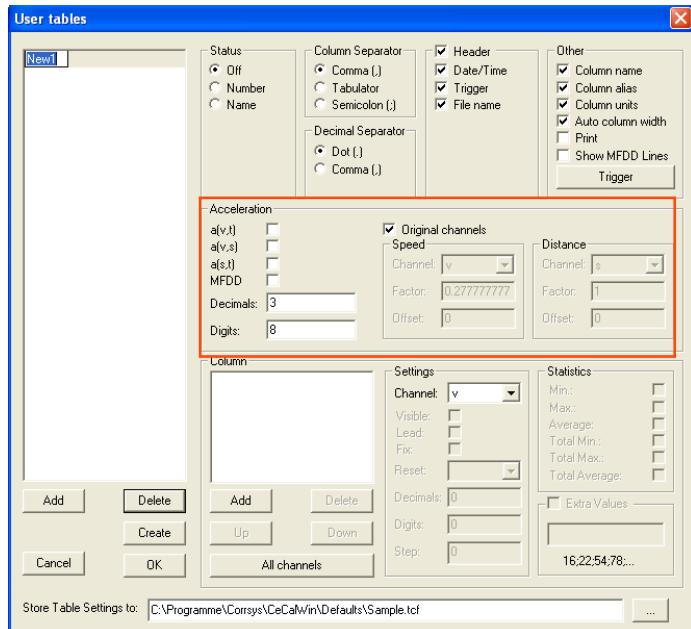
- **Column name:** The name of the column will be displayed
- **Column alias:** The alias name of the column will be displayed
- **Column units:** The unit of the column will be displayed
- **Auto column width:** Column width will be corrected automatically, if column values or names extend the default setting
- **Print:** The generated table will be print automatically.
- **Show MFDD Lines:** At start and stop of MFDD calculation range additional data lines will be added. (only if MFDD is selected Accelerations)

**Trigger:** By default the original triggers of the measurement will be used. To use different triggers apply the field "Trigger". In the now opening window "Table Trigger" the box "Use original measurement trigger" has to be unchecked. Then the new trigger conditions can be set.

Please notice that not any trigger constellation will work with any measurement data.



**Acceleration:** If selected the acceleration statistic values  $a(v,t)$ ,  $a(v,s)$ ,  $a(s,t)$  und MFDD will be printed at the bottom of the table file. For the calculation formulas see section "JOB1-10 > End Values".

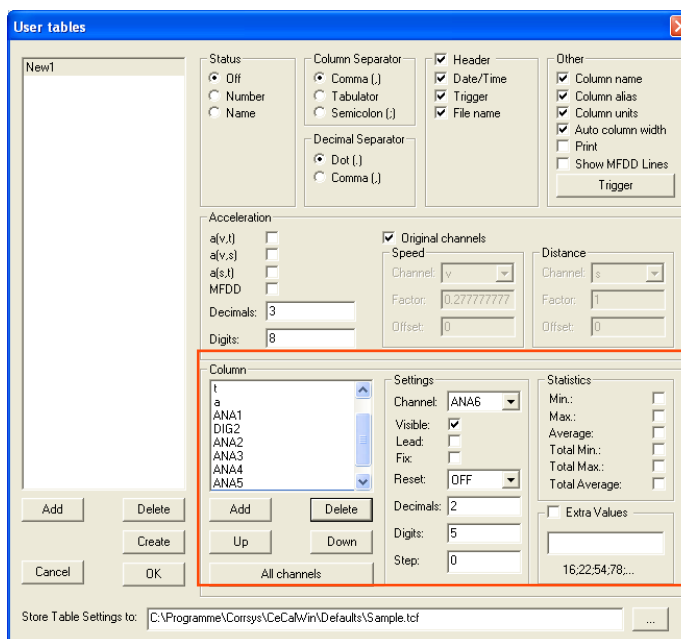


Number of displayed decimals and total number of digits are adjustable.

By default, sensor signals v and s are used for calculation of the acceleration values. To calculate the acceleration values from other signals, deactivate the checkbox Original channels. Now any channel with velocity and distance values can be selected. For correct calculation velocity must be available in unit [m/s] and distance in unit [m]. If this is not the case with the selected signals, it is necessary to indicate the corresponding conversion factor and – where required – an offset as well.

**Column:** Use the "Add" button to add channel after channel to the table. By pressing the "All channels" button, all channels available in the raw data file will be added to the table. With the "Up" and "Down" button the order of channels can be changed.

The options in "Settings" and Statistics" are the same as explained in paragraph "Configuration > Jobs > JOB1-10 > Tables". For each channel you can define as many extra values as you like. Separate the values by semicolon.

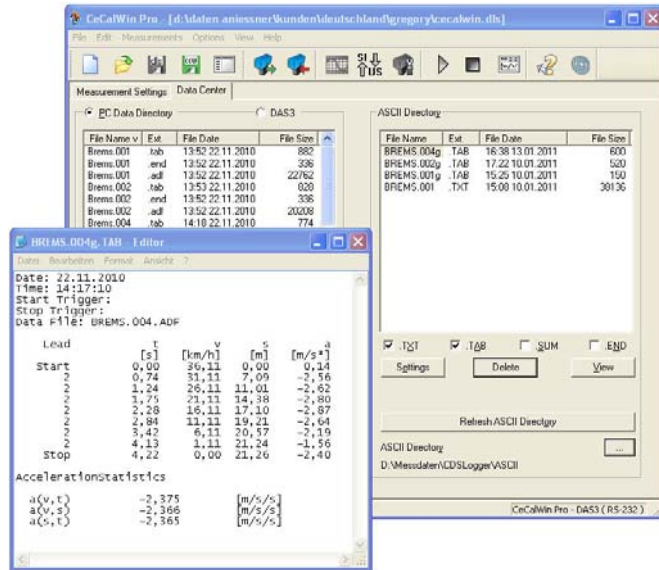


By pressing the "OK" button the settings of the table will be saved into the .TCF file. By pressing the "Create" button the settings of the table will be saved into the .TCF file and the new table will be created in the ASCII directory. The new table will have the same name as the .ADF file it is created from; additionally a "g" is appended, indicating that the file was generated later.



Files with existing file names will be overwritten without warning!

To display a file from the ASCII in notepad.exe press the View button or double click the file.



## 7.4 GPS Settings

Settings for the GPS signal output via CAN Bus and GPS basic settings.

