

CORRSYS

DATRON

Sensorsysteme GmbH



CeCalWin Pro & HF-250C / HF-500C

Sensor Configuration and
Data Acquisition Software

for

Set-up and calibration of the CORRSYS-DATRON HF Sensors

USER MANUAL

VOLUME III

HF-250C / HF-500C

Sensor-specific Software Description

Note: For a general description of the CeCalWin Pro Software refer to the separate user manual Volume II.

For the hardware description of the HF-250C and/or HF-500C Sensor refer to the separate user manual Volume I.

VOLUME III

HF-250C & HF-500C

Sensor-specific Software Description

Table of Contents

General Information	4
Safety Instructions	5
1. Project Window Settings for the HF-250C / HF-500C Sensor	7
1.1 Measurement Display	7
1.2 Filter	8
1.3 CAN Bus	9
2. CAN-Bus Protocol	10
2.1 Definition of the Frames	11
2.2 Troubleshooting CAN-Bus	12

General Information

Legal Notice

Information furnished is believed to be accurate and reliable. However, CORRSYS-DATRON assumes no responsibility for the consequences of use of such information nor for any infringement of patents or other rights of third parties which may result from its use. No license is granted by implication or otherwise under any patent or patent rights of CORRSYS-DATRON. Specifications mentioned in this publication are subject to change without notice and do not represent a commitment on the part of CORRSYS-DATRON. This publication supersedes and replaces all information previously supplied.

All brand names are trademarks of their respective holders.

Copyright Notice

©Copyright 2007, CORRSYS-DATRON

Revision

D816-50-01-01E_HFxC 09/07

Contact

International Headquarters:

CORRSYS-DATRON Sensorysysteme GmbH

Charlotte-Bamberg-Str. 12

35523 Wetzlar / Germany

Phone ++49 (6441) 9282-0

Hotline ++49 (6441) 9282-82

Fax ++49 (6441) 9282-17

E-mail sales@corrsys-datron.com

URL www.corrsys-datron.com

North American Headquarters:

CORRSYS-DATRON Sensorysystems, Inc.

21654 Melrose Avenue, Building 16

Southfield, MI 48075 / USA

Phone ++1 (248) 204-0850

Toll-free ++1 (800) 832-0732

Fax ++1 (248) 204-0864

E-mail USA-sales@corrsys-datron.com

URL www.corrsys-datron.com

Chinese Headquarters:

CORRSYS-DATRON Sensorysysteme GmbH, China Office

Room 708, JinTianDi International Mansion,

No. 998 RenMin Road, Shanghai (200021), P.R.China

Phone: ++86-21-63114144

Fax: ++86-21-63114154

E-mail: Xiaoying.Li@corrsys-datron.com.cn

URL: www.corrsys-datron.com.cn

Safety Instructions

Please read the following instructions carefully before installing or using CeCalWin Pro Software

CORRSYS-DATRON is not responsible for damage that may occur if hardware and/or software 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.

CORRSYS-DATRON hardware and/or software 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.

- Use hardware and/or software only for intended applications. Improper application is not advised.
- Do not modify or change 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.
- Use only original equipment, components and/or accessories included in the scope of delivery.
- Do not mount equipment, components and/or accessories near heat sources (e.g. exhaust).
- Do not use defective or damaged equipment, components and/or accessories.
- Always note correct pin assignments and operating voltages when connecting equipment to power supplies, data acquisition/evaluation systems, and/or any other applicable system or component. Equipment may be damaged if not properly connected and/or operated.
- CORRSYS-DATRON recommends using cables supplied within the scope of delivery. If it is necessary to make cables, always note correct pin assignments (see the pin assignments in the supplied sensor user manual).
Damage to the device caused by cables other than those supplied by CORRSYS-DATRON is not covered under the product warranty.
- For additional information, please call the CORRSYS-DATRON Hotline: ++49 (6441) 9282-82 or email: hotline@corrsys-datron.com.

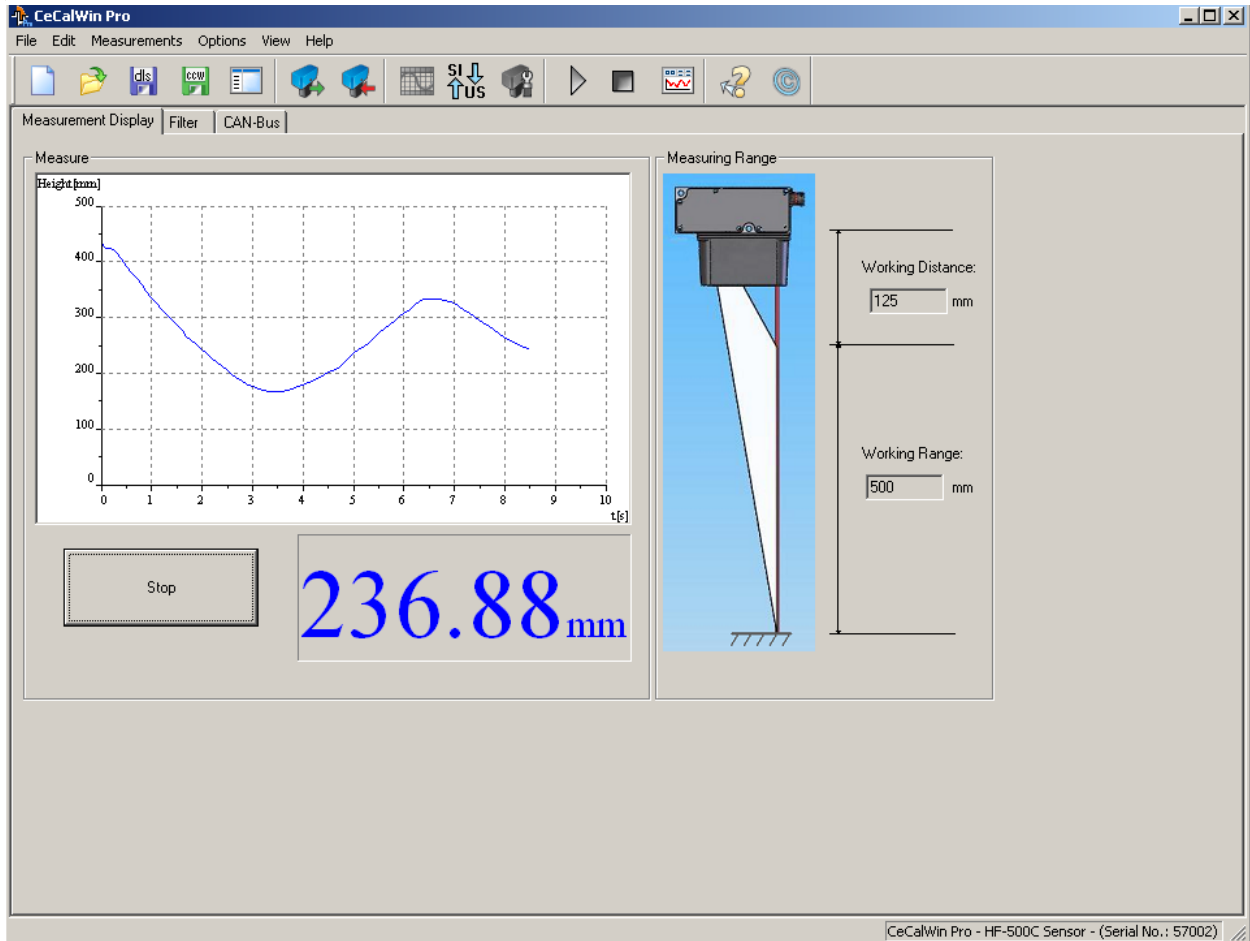
Notes:

1. Project Window Settings for the HF-250C and HF-500C Sensor

Within the Project Window, three tabbed sections will be displayed: Measurement Display, Filter, and CAN-Bus. Options for system configuration, operation and data display are explained in the following pages.

1.1 Measurement Display

The Measurement Display tab shows measurement values from the HF-250C and HF-500C Sensor in real time.



Measure

Measurement diagramm:

Height [mm]:

t [s]:

Start/Stop: start or stop measurement

Measuring Range

Working distance [mm]: x1 = minimum distance between sensor and measured object

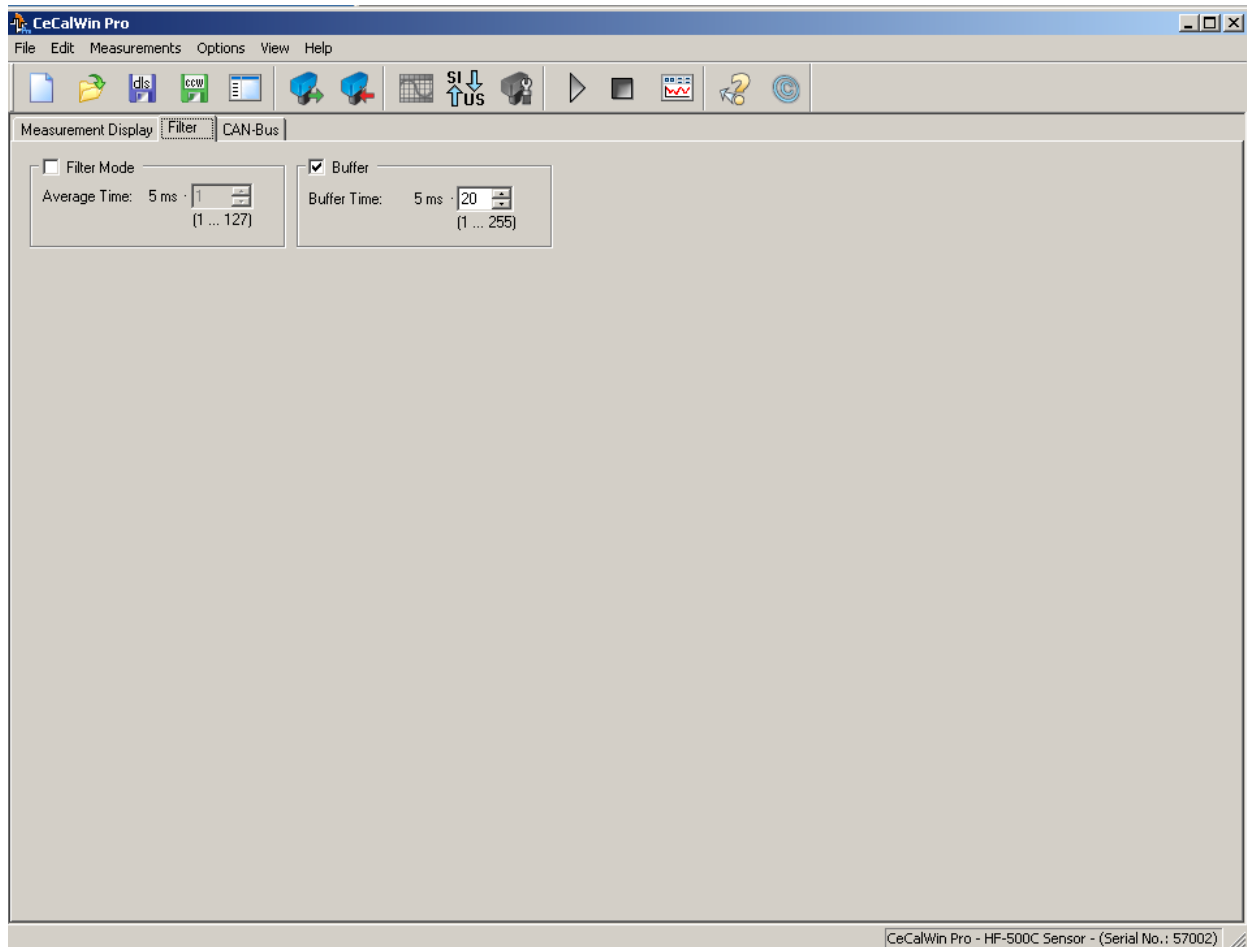
Working range [mm]: x2 = sensor output of measurement values between

0 ... 250 mm for the HF-250C Sensor or

0 ... 500 mm for the HF-500C Sensor

1.2 Filter

The Filter tab enables adjustment of the filter mode setting for a connected Distance Sensor, such as the HF-250C or HF-500C.



Filter Mode

Select the checkbox to activate access to the average time setting for the connected distance sensor.

Average Time: user-selectable (default value = 1)

Other values can be entered manually, or selected with the up/down arrows.

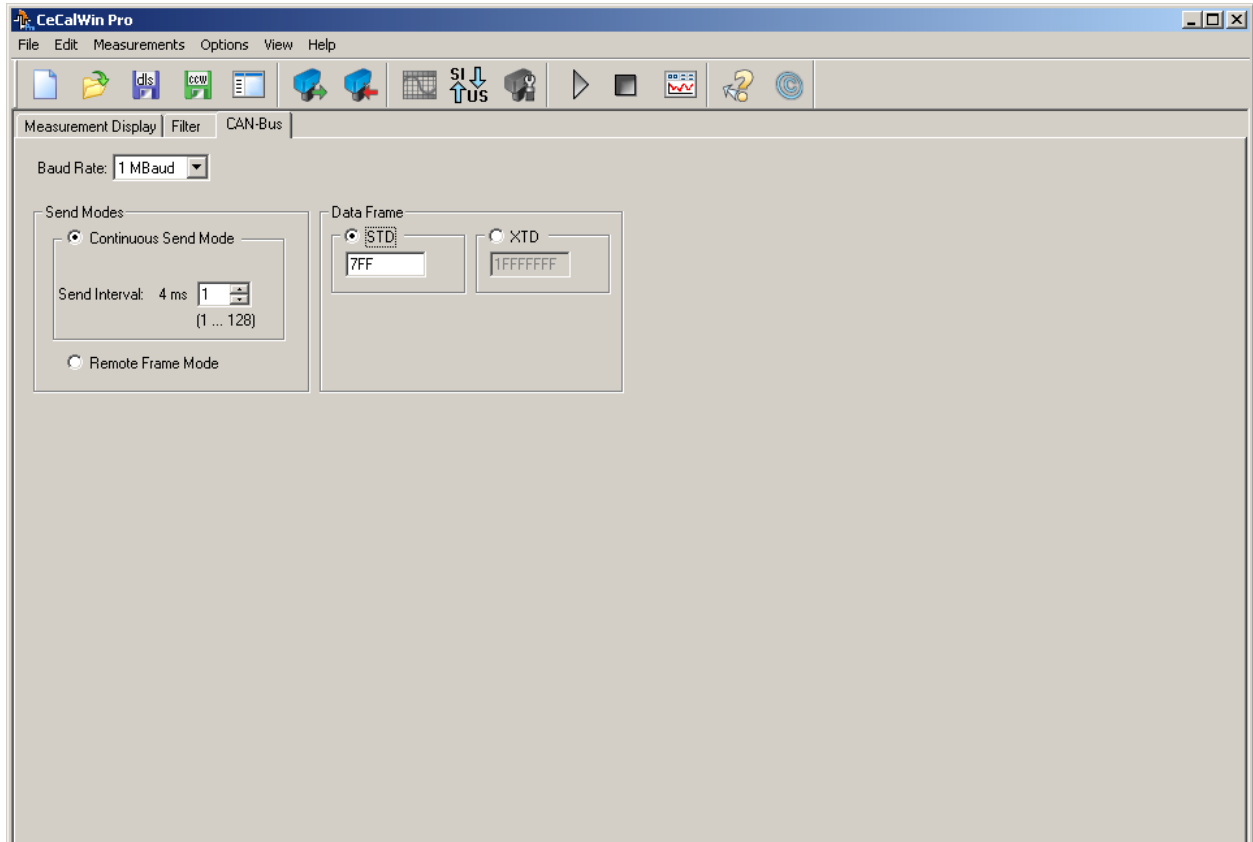
Buffer Time: user-selectable (default value = 20)

Other values can be entered manually, or selected with the up/down arrows.

1.3 CAN Bus

In this menu you can configure the CAN Bus according to your requirements.

Also see **Chapter 2** for further information (**Data Protocol CAN-Bus, next page**).



Baud rate (Default value = 1 Mbaud)

Sets the communication baud rate for the CAN Protocol.

Continuous Send Mode (Default setting = selected)

Sets sensor to send CAN messages continuously and cyclically (Default = 4 ms).
Cycle times between 4 ms and 512 ms (in 4 ms steps) can be selected.

Remote Frame Mode (Default setting = not selected)

Sets sensor to respond to Remote Frame requests from a master controller. The sensor sends one Data Frame (response to the remote frame request) followed by the rest of data frames.

Data Frame (Default setting = STD)

Select the desired sensor message identifier mode: STD (standard, 11-bit) or XTD (extended, 29-bit).
See CAN Protocol documentation.

(Default value, STD = 7FF)

(Default value, XTD = 1FFFFFFF)

2. Data Protocol CAN-Bus

HF-250C / HF-500C Sensor Version 1.0

There are 2 modes of data transmission on the CAN-bus. The transmission mode can be selected using CeCalWinPro. The CAN messages sent by the sensors for all modes consist of one Frame (a Frame is defined in the CAN-bus specifications).

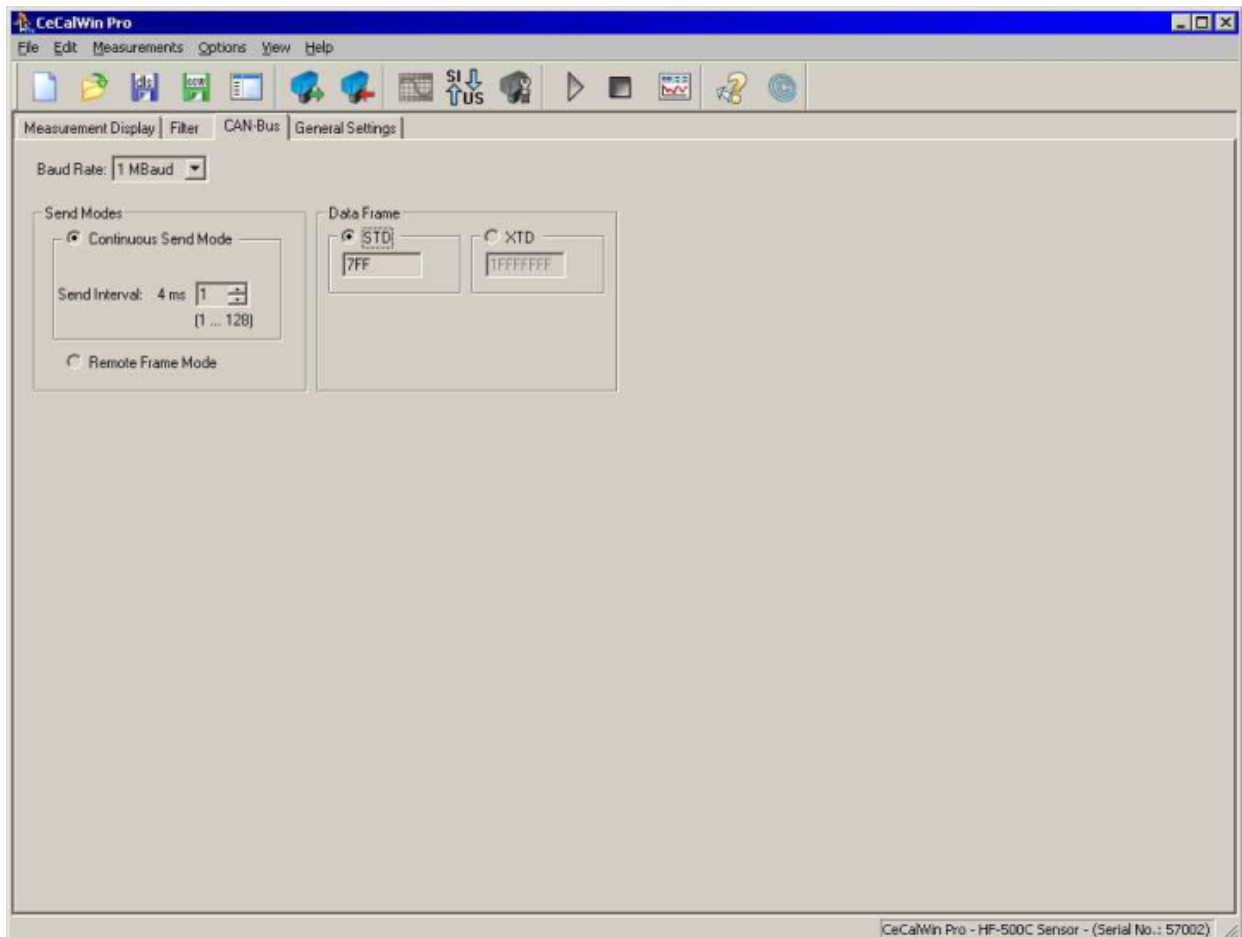
The sensor sends one **Data-Frame**. The frame format is the same for each send mode. The used data format for the Data-Frame is **Intel**.

Continuous Send Mode (CONT):

The messages are sent continuously and cyclically with a period set in CeCalWin Pro (by default 4ms). Cycle times between 4ms and 512ms (in 4ms steps) can be selected.

Remote Frame Mode (REM):

The sensor responds to a remote-frame request from a master controller. The sensor sends the **Data-Frame** (response to the remote frame request).



The Identifier number of the Data-Frame and the baud rate can be set in CeCalWinPro.

CAN-bus type : CAN V2.0B

Baud rate : 1MBaud (default), 500kBaude, 250kBaude, 125kBaude, 100kBaude, 50kBaude

Data format : Intel

2.1 Definitions of the Frames

The definitions here present how the data bytes within a CAN message frame are allocated in order to decipher the data transmitted.

Data_Frame

Format: 8 Data bytes

Default ID (Standard) : 0x7FF

Default ID (Extended) : 0x1FFFFFFF

Data byte	Description	Unit	Data type
0	Sensor number (Bit 0 ... 7)	none	unsigned
1	Sensor number (Bit 8 ...15)		
2	Sensor number (Bit 16 ... 23)		
3	Sensor type	none	unsigned
4	Height (Bit 0 ... 7)	10 ⁻² mm	unsigned
5	Height (Bit 8 ... 15)		
6	CAN send interval (Bit 0 ... 7)	10 ⁻² ms	unsigned
7	CAN send interval (Bit 8 ... 15)		

2.2 Troubleshooting CAN with the HF-250C / HF-500C Sensor

Problem: There are no messages on the CAN-bus

Check to be sure that:

- the electronic has power
- data acquisition is connected to the HF-250C / HF-500C sensor electronics
- the data acquisition system and all sensor electronics use the same settings for baud rate, CAN identifiers and identifier types (standard or extended)
- if you use CANalyser or a data acquisition system with an acceptance filter, be sure the message from the sensor is not disabled

Problem: Data received via the CAN bus appear to be incorrect

Please be sure that:

- the data acquisition system uses Intel data format for communication via CAN-bus
- the data acquisition system and all sensor electronics use the same settings for the type of measured value (signed or unsigned, number of bits)

CORRSYS-DATRON recommends that the .dbc file option be used to avoid problems with false data types or bit lengths. Sensor-specific .dbc files are available for download at www.corrsys-datron.com, or may also be obtained by contacting the CORRSYS-DATRON application department directly.