8 CHANNEL MONITOR DATALOGGER OC 7052

Owner's Manual

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Vor dem Einschalten

Überzeugen Sie sich, ob Ihre Sendung das richtige Gerät Orbit Controls Modell OC 7052 beinhaltet, einschliesslich einer Betriebsanleitung OC 7052.
Vor dem Einschalten des Gerätes überprüfen Sie die Anschlüsse und die Versorgungsspannung. Ein falsch angeschlossenes Gerät kann beschädigt werden und damit auch die mitverbundene Folgeelektronik. Für falsche Handhabung wird jede Haftung abgelehnt.

ZU BEACHTEN

Dieses Gerät wurde sorgfältig verpackt. Falls es bei Ihnen in beschädigtem Zustand eintrifft, benachrichtigen Sie unverzüglich den Orbit Controls Kundendienst (Tel: +41 1 730 2753 oder Fax: +41 1 730 2783) und nehmen Sie einen Schadenrapport auf, welchen Sie auch von der Transportgesellschaft unterschreiben lassen. Bewahren Sie bitte das Verpackungsmaterial für eventuelle Reklamationen auf.

Unpacking Instructions

Remove the Packing List and verify that you have received all equipment, including the following:
Orbit Controls Model OC 7052 Programmable Datalogger.
Operator's Manual OC 7052.
If you have any questions about the shipment, please call the Orbit Controls Customer Service Department.

NOTE

When you receive the shipment, inspect the container and equipment for signs of damage. Note any evidence of rough handling in transit. Immediately report any damage to the Orbit Controls customer service, Phone +411 730 2753 or Fax +411 730 2783 and to the shipping agent.
The carrier will not honour damage claims unless all shipping material is saved for inspection. After examining and removing contents, save packing material and carton in event the reshipment is necessary.

INDEX

EIGHT CHANNEL DATALOGGER
OC 7052

- ✓ **8 Signal Channels, 11890 Memory Slots**
- ✓ **0/4-20mA or ± 2V DC**
- ✓ **Pt-100 two or four wire connection**
- ✓ **DIN Thermocouples**
- ✓ **Storing Interval 1 second to 2 hours**
- ✓ **Trigger Input, automatic Storing**
- ✓ **Free Scalable Display**
- ✓ **Memory Format: Value, Date and Time**
- ✓ **One Set Point**
- ✓ **RS232 and RS485**

Model OC7052 is an eight channel process Monitor-Datalogger- for analogue signals such as 0/4-20mA, DC voltages, Pt-100 or thermocouples. The measured signals are scanned and displayed in required process units at the digital display. The number of signal channels can be selected from 1 to 8. The inputs can be assigned to different signals such as DC voltage and DC currents, Pt-100 and Thermocouples or any other combination. Each signal channel is individually programmable. The inputs are multiplexed, digitized and shown at the display.

The keyboard at the front permits the entry into the menu and setting of the process parameters in each signal channel individually. The menu contains the measuring range, storing intervals, display resolution, setting of the set points, setting of the real time clock with date and time, selection of the serial data ports.

For the temperature measurements the DIN Linearizing tables for Pt-100, Pt-200, Ni, Thermistor and Thermocouples are available. The thermocouples can be used with internal or external cold junction compensation.

The channels can be scanned manually from the keyboard or automatically in preselected intervals. The data storing can be switched-off or activated in intervals from 1 sec. to 2 hours. A trigger input is available for initializing of the storing cycles. The storing can also be initiated from a set point or from a pre-programmed date and time.

One Set points SP1activates an open collector transistor or a mechanical relay. The SP1 can be free assigned to any of the signal channels.

Two serial data ports RS232 and RS485 are options. RS485 has a programmable address. The baud rate can be set from 1200 to 38400 baud.

All parameters can be set from the keyboard or via the serial data port.

The display can be set to show the measured signals in the channels 1-8, or to show the time or he date.

1 SPECIFICATIONS

Display: ± 0.00000 ... 999999 red 7 segment digits, 14.7mm.
The temperature can be resolved to 0.1ºC or 1ºC.
The display intensity is in 8 steps adjustable with the key SET.

Inputs: **DC**: 0/4-20mA or ± 2 V DC differential. Eight inputs for DC signals at two wires connection, multiplexed.

Pt-100: Eight signal inputs two or four wire with a common current source of 800 A.

T/C: Thermocouples E, J, K, S, B, T. Eight differential signal inputs for 8 sensors with external or internal cold junction compensation.

Aux. Inputs: Four digital inputs for external start of the storing interval. The storing starts when one of the inputs is closed to GND. These inputs are also available for customized functions.

Linearizing: Tables for DIN temperature sensors. Linearizing error is max. ± 1°C, ± 1 digit.

Sampling: 15 samples/sec. (SW Filter = 0).

ADC: 18 Bit converter with 15 samples per second.
Accuracy: ± 0.05% from value ± 2 digit
Tempco: ± 25 ppm/K

Memory: 4 Megabit (512K x 8-Bit) Flash-Memory. Four Byte/channel and memory cycle are required. Totally 130800 cycles are available for the full memory size. When all 8 channels are activated, the instrument can store up to 11890 storing cycles.

Scaling: The minimum and the maximum signal values can be assigned with the keyboard to any two display values in the menu steps *Set LO* and *Set HI*. Each signal channel is scaled individually in order to permit connection of up to eight different signals.

Set Point: SP1 programmable from 0.00000 to 999999.
Standard: One NPN open collector transistors 48V/100mA.
Option: One mechanical relay 5A-230VAC.

Aux. Outputs: Option: Four open collector transistors 48V/100mA, SP5 ... SP8.

Data Ports: RS232 and RS485, two or four wire terminals, 8 bit, no parity, 1 start , 1 stop, 1200 to 38400 bd programmable. The address of RS485 can be set from 1 to 31.

Supply: 115V / 230V, ± 15%, 48-60 Hz, 8VA. Option: 9 ... 36V DC, 4W.

Terminals: Pluggable screw terminals

Cabinet: DIN 48 x 96 x 150 mm (H x B x T)

Excitation: 5 to 24V/40mA adjustable with a potentiometer.

2 KEYBOARD

MENU

ACK

UP

DOWN

SET

1 **activated Set Point**
P **Programming Mode**

3 MENU Steps with all Options installed.

The key **MENU** opens the menu. The required parameter will be confirmed with **ACK** and set with **UP** or **DOWN**.
The flashing digit - Cursor - can be positioned with **ACK**. The sign and the decimal point can be set when the cursor is moved out of the display range and no digit is flashing.
The decimal point can be set with **UP** the sign with **DOWN**.
The programming is terminated with **SET** and the display returns to measuring mode.

3.1 8 CHANNEL MONITOR (without Memory Function)

The Menu Parameter **Fn Str** has to be set **OFF**.

3.2 8 CHANNEL DATANLOGGER (with Memory Function)

With the key UP or DOWN the display mode can be set for: Channel 1 … 8, Time or Date.

KEY	DISPLAY	FUNCTION
MENU	rEcrES	0 ... 130800. Occupied memory slots are displayed. The Memory can be reset with the key DOWN.
MENU	Int 1	OFF, ti 1, ti 5, … ti 7200 Recording Interval in seconds for Channel 1
MENU	Int 2	OFF, ti 1, ti 5, … ti 7200 Recording Interval in seconds for Channel 2
		…. Similar for channels 2-7
MENU	Int 8	OFF, ti 1, ti 2, … ti 7200 Recording Interval in seconds for Channel 8
MENU	Fn Str	OFF Recording OFF Conti Continuous Recording in intervals set in the menu ti S-S Recording starts and stops at the selected time dt S-S Recording starts and stops at the selected Date on SP Recording starts at the Set Point SP1
MENU	Str ti	Recording starts at HH.MM.SS (see above ti S-S)
MENU	Str dA	Recording starts at TT.MM.JJ (see above ti S-S)
MENU	StP ti	Recording stops at HH.MM.SS (see above dt S-S)
MENU	StP dA	S Recording stops at TT.MM.JJ (see above dt S-S)
MENU	SP	Set Point 1
MENU	HSt	Hysterese of SP 1

MENU	Fn SP	OPEn , CloSE (OPEn = open at the SP, CLO = activated at the SP)
MENU	ScAn	Channel Multiplex OFF The Channel number can be selected with UP/DOWN. FASt The Channel increments to next after each measurement PAUSEd The Channel increments to next after 5 measurements
MENU	SenS 1	Selection of the Sensor 1: OFF Channel 1 is OFF LinEAr Linear Function for DC Input Signals, e.g. 0 ... (2V, 0/4-20mA Pt - 100 RTD Thermometers with 2 or 4 terminals tC X Thermocouples E, J, K, S, B, T, with external Cold Junction tCC X Thermocouples E, J, K, S, B, T, with internal Cold Junction Cold Temperature of the Cold Junction.
MENU	In 1	Selection of the Input Signal 1 Type: 0.0 1 Signal Type Unipolar: 0V, 0mA …..+10V, +20mA 0.2 1 Signal Type Unipolar with Offset: 2V, 4mA ….. +10V, +20mA -1 1 Signal Type Bipolar: -10V, -20mA ….. +10V, +20mA
MENU	LO 1	Display Value with of Channel 1 with min. Input Signal
MENU	HI 1	Display Value with of Channel 1 with max. Input Signal
MENU	Ord 1	Display resolution of the Channel 1
MENU	Fn tA 1	Function of the TARA in Channel 1: ON or OFF
MENU	FILt 1	Filter of the Channel 1: OFF, 1, 2, 5, 10, 20 …. 90, 99
		…. Similar for Channels 2-8
MENU	bAUd	Baud Rate 2400 to 57600 bd.
MENU	rS SEL	Selection of RS232 or RS485 with Address 1 ... 31.
MENU	Set ti	With the key ACK the Clock Time can be set.
MENU	Set dA	With the key ACK the Calendar Date can be set.

The Menu can be rolled backwards with the key SET. When pressed longer than 3 seconds, the display changes into the measuring mode.

IMPORTANT !!!

By using less than 8 Signal Channels, the intervals in not used channels have to be set for OFF !

3.3 DISPLAY SELECTION

The display mode can be changed with UP and DOWN:

- Channel 1
- Channel 2

…..

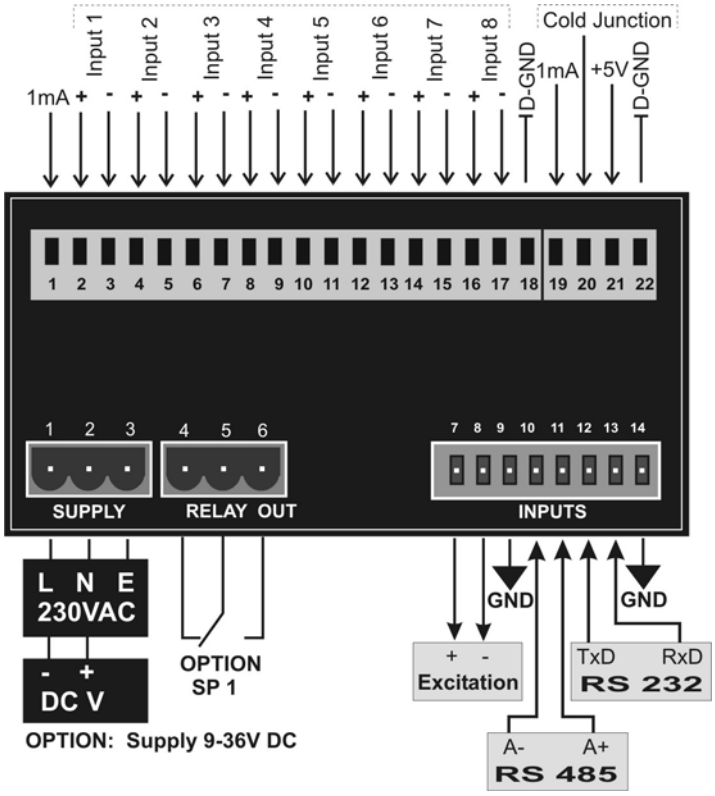
- Channel 8
- Time HH.MM.SS Datalogger only
- Date TT.MM.JJ Datalogger only

4 HtESt and CALIBRATION

The instruments function can be checked and the single channels calibrated in the HtESt submenu. This can be activated when the key **MENU** is pressed during the instrument is switched-on. The key **MENU** has to be pressed as long until the ***HtESt*** is displayed. All display segments and decimal points are illuminated, set points activated and analogue outputs generated. The signal channels are individually selected and can be calibrated. The key MENU advances the steps, with the key SET steps backwards can be done.
After the display shows *HtESt* the signal channels can be calibrated:

KEY	DISPLAY	FUNCTION
MENU	AdC. 1	Momentary value of the signal channel 1. Apply signal LO. Wait until the display stabilizes. Press DOWN until ***AC Lo*** appears. Press ACK and keep it pressed until ***EE Sto*** appears and the display returns into the measuring mode. Apply signal HIGH. Wait until the display stabilizes. Press UP until ***AC Hi*** appears. Press ACK and keep it pressed until ***EE Sto*** appears and the display returns into the measuring mode. Signal channel 1 is calibrated.
MENU	rES. 1	The display shows the calibrated signal channel 1.
		..... same for channels 2-8
		Calibration of Pt-100: Signal **LO** = 0.000 Ohm Signal **HI** = 100.000 Ohm
		Calibration of Thermocouples: Signal **LO** = 0.000 mV DC Signal **HI** = 100.00 mV DC
MENU	COL XXX	Cold Junction correction.
MENU	SP	Activation of the SP1 Relay and LED.
MENU	End	End

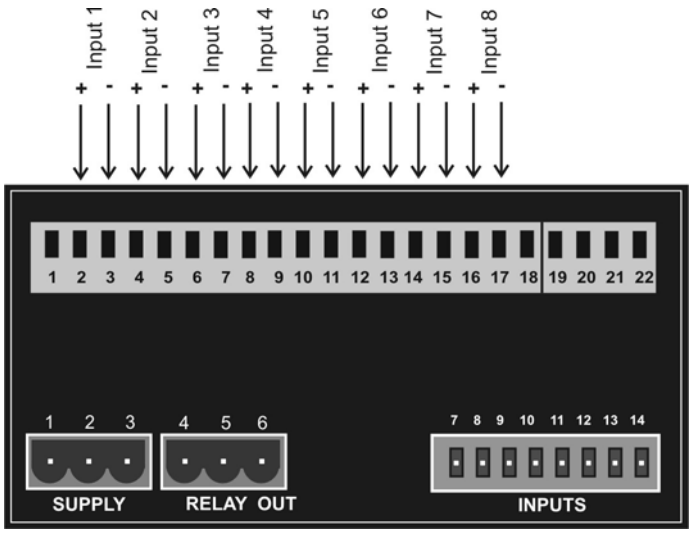
5 TERMINALS



6 INPUT DC SIGNALS

Eight differential inputs for signals from 20mV to 200VDC and 0/4-20mA can be individually scaled. The direct assignment of the input signal to the required display value in the menu steps *SEt LO* and *SEt HI* permits the connection of up to 8 different signal sources and their individual scaling in process units.

6.1 J2 Terminals, Differential Inputs



7 RTD THERMOMETERS Pt - 100

The RTD thermometers are supplied from a current source 800µA and an excitation of 9VDC. The current loop has to be closed even when less than 8 sensors are used. The Tara function can be enabled in the menu and permits setting of the display reading at zero.

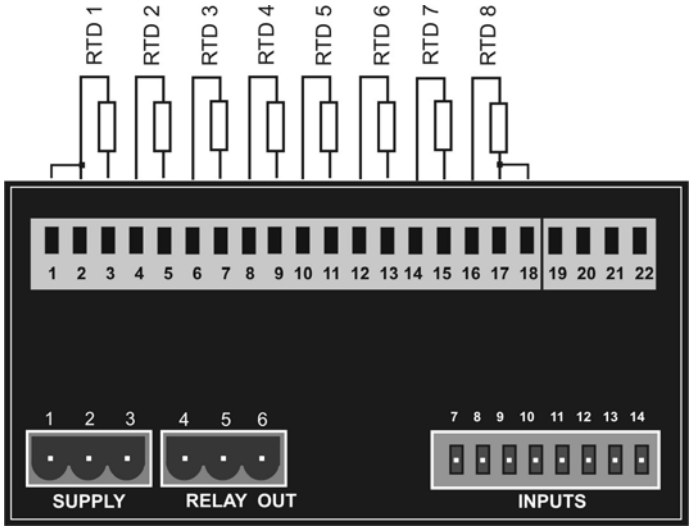
7.1 Menu Steps

When Pt-100 is used, following parameters has to be set:

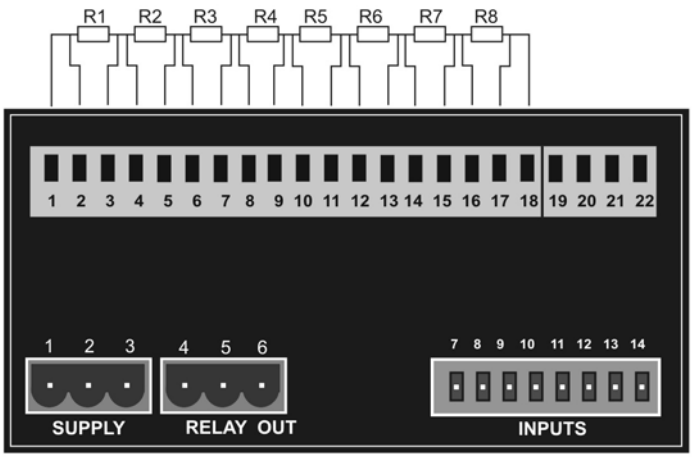
SEt LO	000000
SEt HI	000100
OrdEr	CCCCCC or CCCCC.d (Display resolution to 1ºC or 0.1ºC)
InPUt	Pt 100
In 1 … In 8	0.0 1

For calibration in **HtESt** resistors 0 Ohm and 100.000 Ohm are used at the input.

7.2 Pt-100 Two Wire Termination



7.3 Pt - 100 Four Wire Termination



8 THERMOCOUPLES

Eight thermocouples J, K, E, S, B or T can be connected The corresponding linearizing tables can be selected in the menu step ***InPUt***. Due to the limited display reading ability of the 7 segment digit, the selection of the ***K*** sensor type is shown as ***L*** at the display.
The cold junction compensation is selectable in the menu step ***InPUt*** . It can be set for ***tC X*** or ***tCC X***. **X** is the sensor type, ***tC X*** will be selected for external cold junction compensation, ***tCC X*** for internal on board compensation of the cold junction.

8.1 Menu Steps

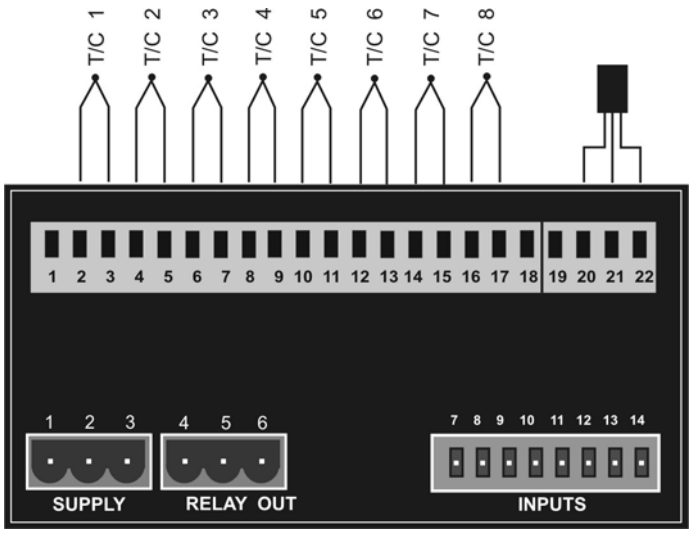
When Thermocouples are used, following parameters has to be set:

SEt LO	000000
SEt HI	000100
OrdEr	CCCCCC
InPUt	tC X or tCC X
In 1 … In 8	0.0 1

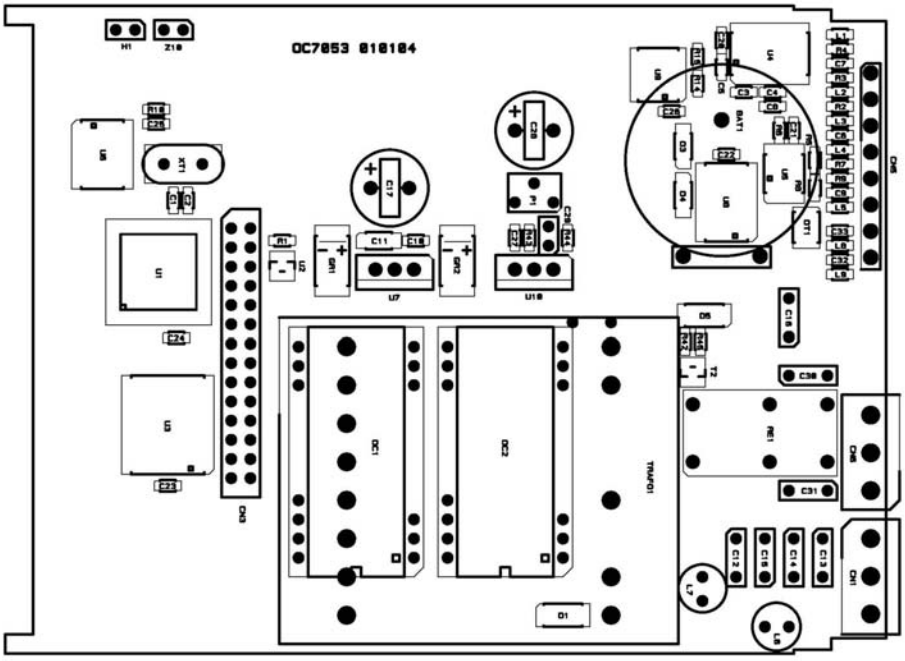
tCX	X = E, J, L (K) S, B or T thermocouple type
tC	external cold junction compensation
tCC	on board compensation

For calibration in **HtESt** inputs of 0 mV DC and 100.000 mV DC are used.

8.2 Thermocouples with internal Cold Junction Compensation

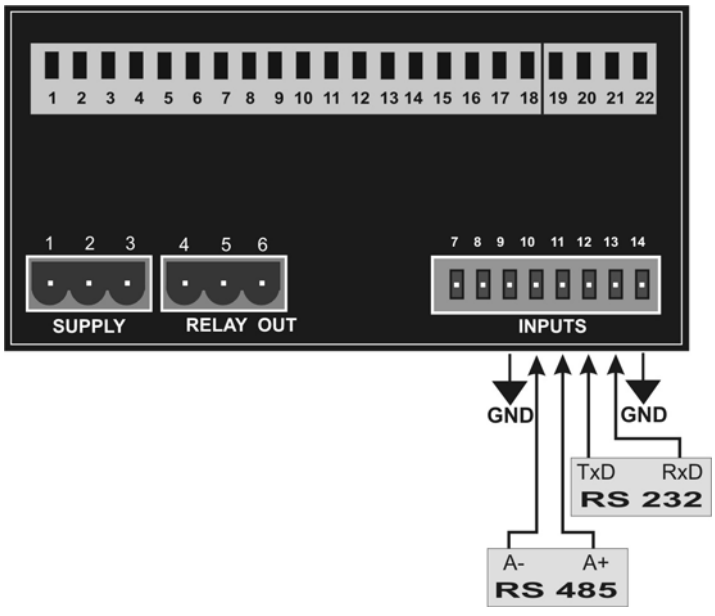


9 EXCITATION adjustable with P1



10 SERIAL DATA PORTS

Two data ports RS 232 and RS 485 are generated simultaneously. With the selection of the address 00 the RS232 port is automatically activated. One of addresses 01 to 31 activates automatically RS485.
Only one data port is available at a time.



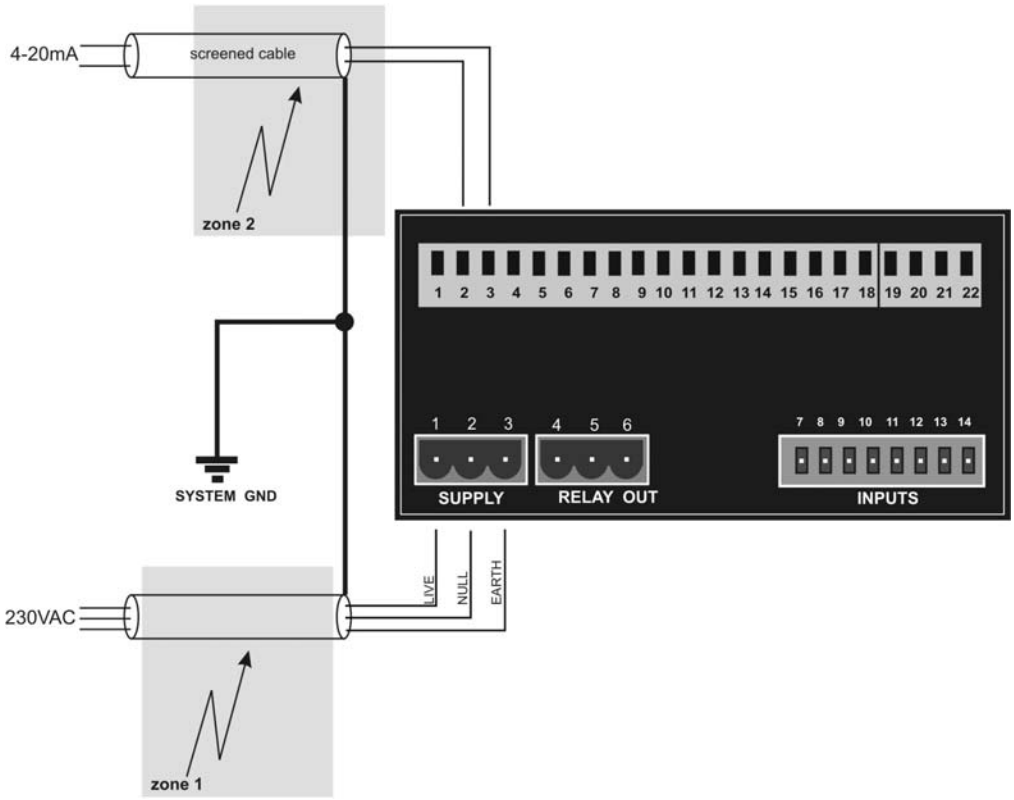
11 IMMUNITY TEST, TERMINALS and GROUNDING

Tester: Burst / Surge Generator Hilo, Model CE - Tester
Date: 18.6.2005. QC3

E.U.T.: Model OC7052, SN: 0001, Supply 230VAC
Mode: DC-mA
Input: 4-20mA

TEST CONDITIONS
According to: IEC 801-4
IEC 1000-4-4
EN 50052-1

11.1 TEST SET- UP



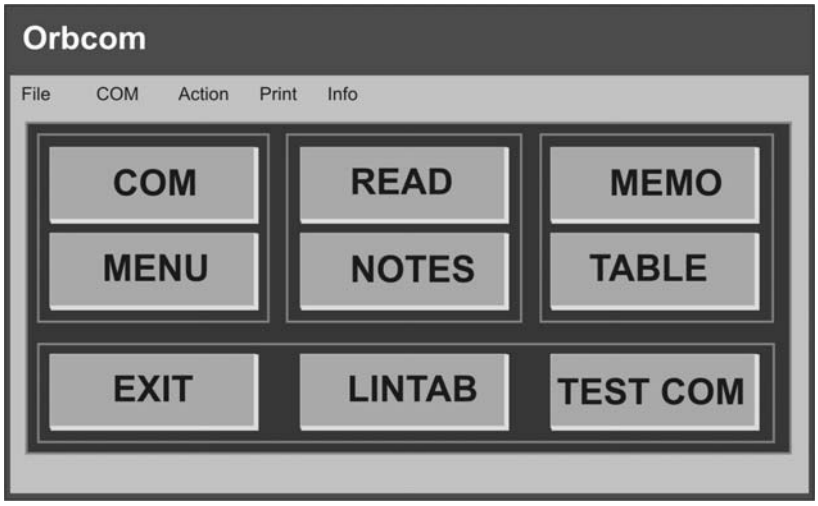
11.2 TEST RESULTS

Zone 1:	2kV Burst	Display without changes
Zone 2:	2kV Burst	Display without changes

*****

12 SOFTMANAGER ORBCOM

Orbcom.exe start



Main Keys

EXIT	Closes the program and returns to Windows
READ	Displays the momentary reading
MENU	Reads or changes the parameters from the menu
NOTES	Displays the transferred measured values
TABLE	Displays the stored values ordered in a table
COM	Communications parameter Baud, RS, Address, COM
MEMO	Reads the memorized parameters from the instruments memory
LINTAB	Communication with instruments using Linearizer
TEST COM	Transmits data for testing of the data ports

Auxiliary keys

File	Open Lintab	Opens the linearizing tables (Linearizer only)
	Save Lintab	Stores the linearizing tables (Linearizer only)
	Open Menu	Opens the File with all menu parameters of the instrument, e.g. ***OC7052.men*** for Datalogger
	Save Notes	Stores the Notes
	Exit	Closes the program and returns to Windows
COM	Sel COM	Selection of the communication port
	RS SEL	Selection of the serial port
	Baud	Baud Rate
	Address	Address of the serial port (0 = RS232), (1 … 31 = RS485)
Action	Menu	Opens all menu parameters of the instrument
	Read	Display of the connected instrument is read
	Notes	Opens the file Notes
	Memo	Opens the file Memo
	Lintab	Opens the linearizing program (for Linearizer only)
Print	Print Notes	Prints out the Notes
	Print Lintab	Prints out the linearizing parameters (Linearizer only)
Info	About	Info

12.1 Communication and Parameters

Click with the mouse to Orbcom:

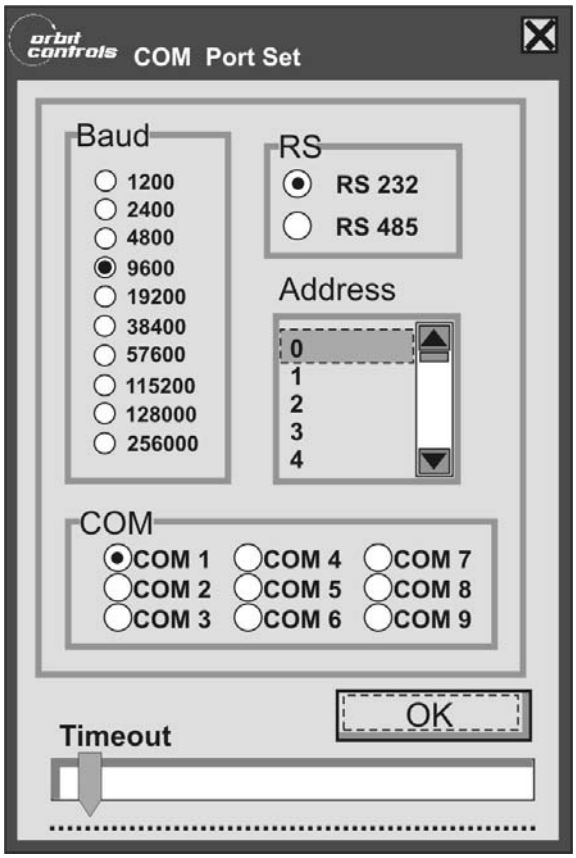
- Click at **COM** for setting of the data port parameters
- Click at **MENU** to display the parameters
- Select the required instrument e.g. OC7052.men.

IMPORTANT

- Baud rates of the instrument and the COM have to be set equally, e.g. 9600 bd.
- Set address 0 by using the RS232 data port.
- Set one of addresses 1…31 by using the RS485 data port.

12.2 Setting of the Serial Data Port

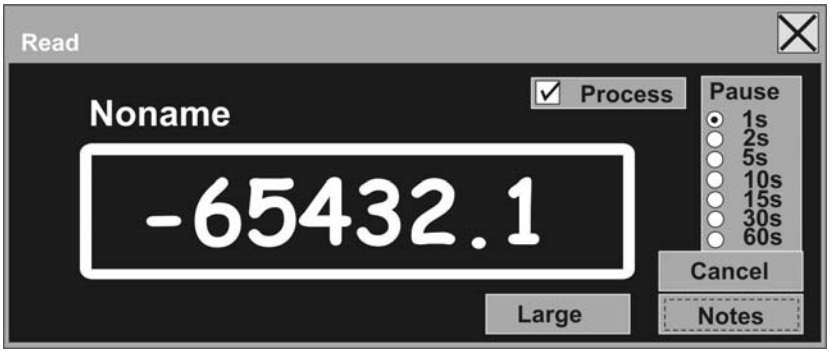
COM Port Set contains all communication parameters. All parameters have to be set. Confirm with OK.



The Timeout sliders have to be set in accordance with the speed of the PC. The setting shown above fulfils the most applications. The settings must be terminated with OK!

12.3 Transmission of the display results to a PC

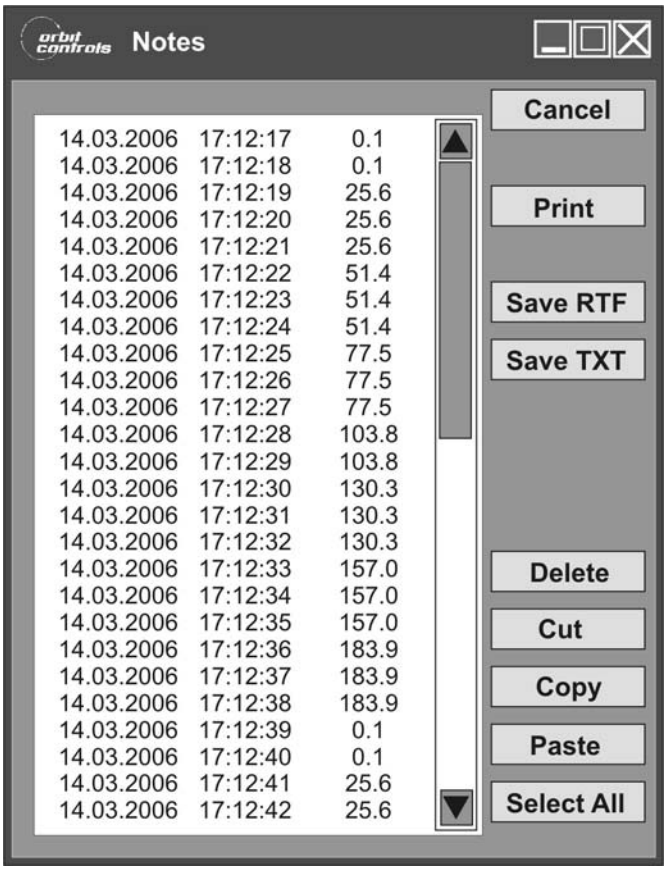
Click **READ** to start the transmission.



- **Pause** select on demand
- **Process** activate

- The measured values appear in the window

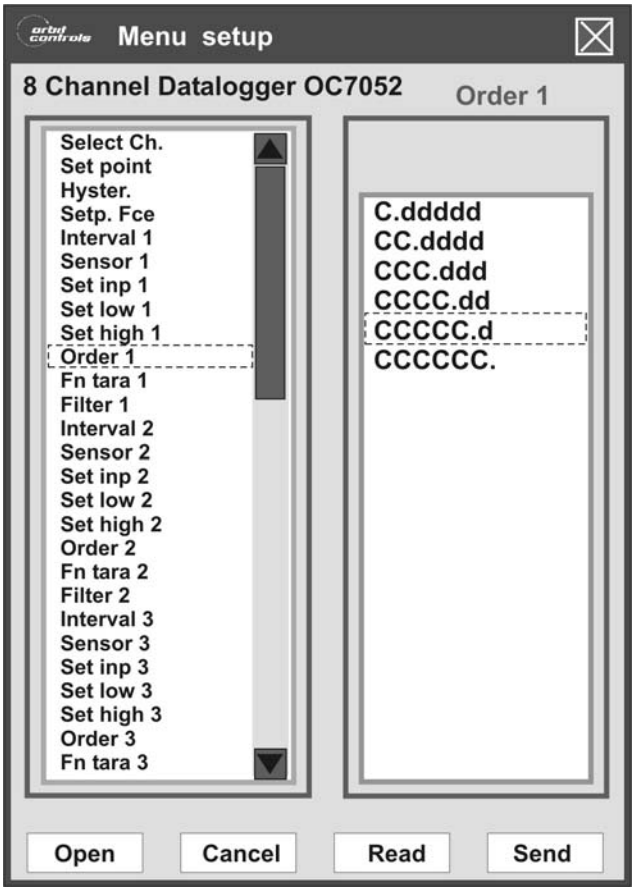
During the process of transmission the data are transferred in following format in one second intervals.
Click at **Notes**:



The transmitted data can be stored in the RTX or TXT formats for further use.

12.4 Setting Parameters from the PC

Click **Open**. Select the file **OC7052.men** (example for Datalogger OC7052). The parameters appear in the window. The one activated is displayed in the right window. Its value can be inserted or changed from the PC. With a double click the parameter will be sent to the instrument and stored there in internal memory. During the transmission, ***IFACE*** appears at the display of the instrument.



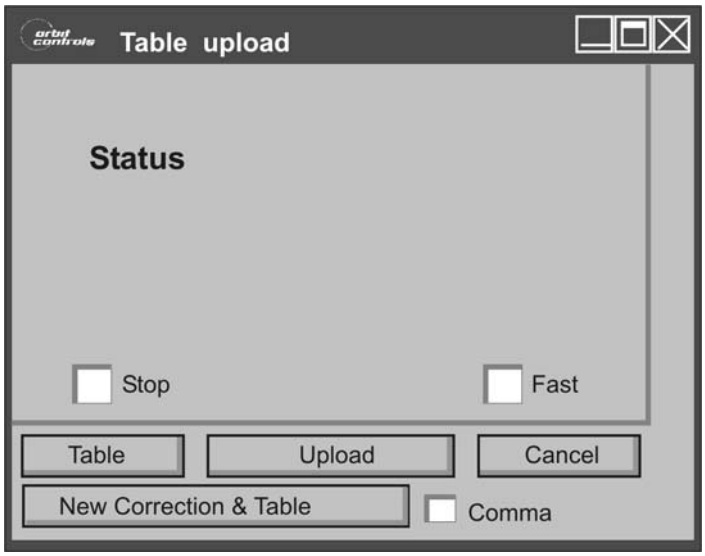
The function of the menu Steps is described in the Owner's Manual of the corresponding instrument.

IMPORTANT

When the address or the baud rate have been changed and memorized in the instrument, the communication will stop due to the different port parameters of both devices.

12.5 Reading the Memory

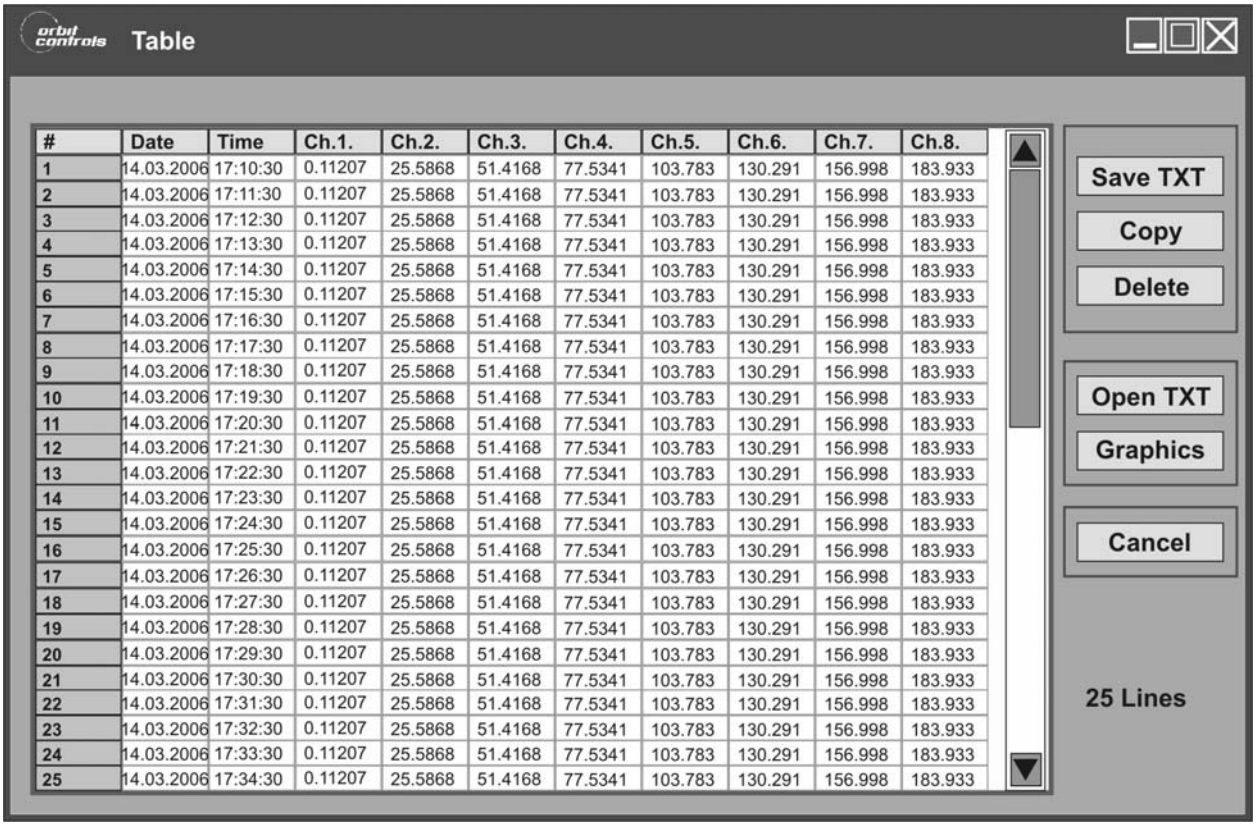
Click **MEMO**. Following windows appears at the monitor screen. This function permits the stored data in the Datalogger to be transferred to a PC and show at the screen.



Upload Begin of the data transmission from the instrument and the PC
Fast Speeds-up the transfer rate
Stop Stops the data transmission
Table Click at this key as soon as ***IFACE closed*** appears in order to display the values in a table
New Correction & Table New corrections are permitted in the table
Comma Comma can be set in the transmitted values
Status Shows the actual timing of the transmission
Cancel Closes the window and returns to the previous window.

12.6 Upload to the PC

A mouse click at the **Upload** causes the data to be transferred into the PC. The loaded data are available in a following format:



#	Date	Time	Ch.1.	Ch.2.	Ch.3.	Ch.4.	Ch.5.	Ch.6.	Ch.7.	Ch.8.
1	14.03.2006	17:10:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
2	14.03.2006	17:11:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
3	14.03.2006	17:12:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
4	14.03.2006	17:13:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
5	14.03.2006	17:14:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
6	14.03.2006	17:15:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
7	14.03.2006	17:16:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
8	14.03.2006	17:17:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
9	14.03.2006	17:18:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
10	14.03.2006	17:19:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
11	14.03.2006	17:20:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
12	14.03.2006	17:21:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
13	14.03.2006	17:22:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
14	14.03.2006	17:23:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
15	14.03.2006	17:24:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
16	14.03.2006	17:25:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
17	14.03.2006	17:26:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
18	14.03.2006	17:27:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
19	14.03.2006	17:28:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
20	14.03.2006	17:29:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
21	14.03.2006	17:30:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
22	14.03.2006	17:31:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
23	14.03.2006	17:32:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
24	14.03.2006	17:33:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933
25	14.03.2006	17:34:30	0.11207	25.5868	51.4168	77.5341	103.783	130.291	156.998	183.933

12.7 Graphics

As soon as the table is loaded and displayed, the graphics of the received data are available in a format GForm2 (internal Orbit Controls graphics presentation).

The date can easily be copied into an **Excel** Table.