iLOGPlus

Internet enabled RTU/data logger

User guide

infinite

ILOGPLUS

Internet enabled RTU/data logger

User guide

This manual refers to three variants of the iLOGPlusPlus RTU/data logger:

1. iLOGPlusPlus-LAN: 10BaseT Ethernet port.
2. iLOGPlusPlus-EDM: Serial port for external dial-up or wireless modems.
3. iLOGPlusPlus-GSM: Internal EGSM/GPRS modem (900/1800 MHz or 850/1900 MHz)

Manual version: 1.3, 7/2009

Product versions: Hardware: 4.1, Firmware: 4.2

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1. Introduction

1.1. System block diagram

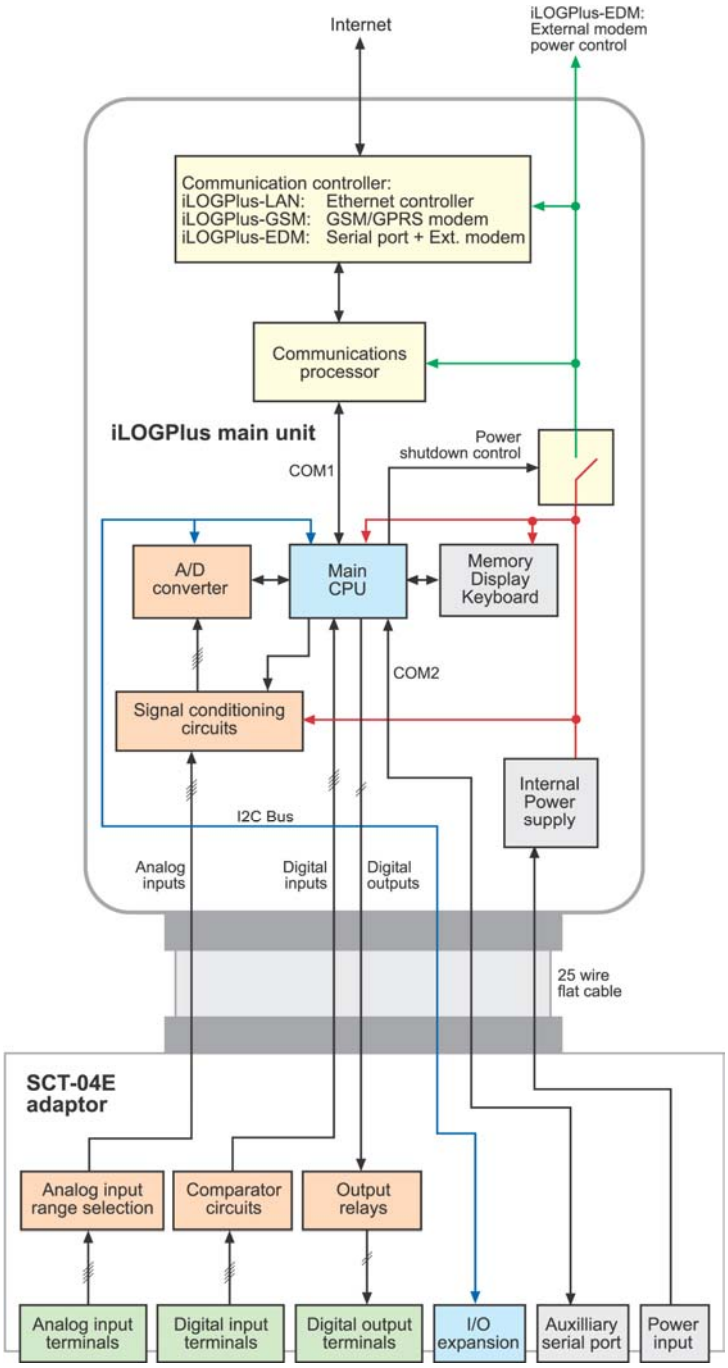


Figure 1.1, Block diagram

1.2 iLOGPlus units

iLOGPlus is a powerful RTU/data logger with full internet connectivity. Areas of application are telemetry and factory data acquisition. The main unit is equipped with 4 high resolution analog inputs, 4 digital inputs and 2 digital outputs. I/O can be expanded to 16 analog inputs, 16 digital inputs and 8 digital outputs using DIN-rail mount I/O expansion modules.

Measurement data is stored in a FIFO structured power fail safe memory. The device is equipped with an LCD display and a membrane keyboard to facilitate data display and on site commissioning.

ILOGPLUS is available in three variants, differing in the physical Internet communication interface:

1. iLOGPlus-LAN: 10BaseT Ethernet port.
2. iLOGPlus-EDM: Serial port for external dial-up or wireless modems.
3. iLOGPlus-GSM: Internal EGSM/GPRS modem (900/1800 MHz or 850/1900 MHz)

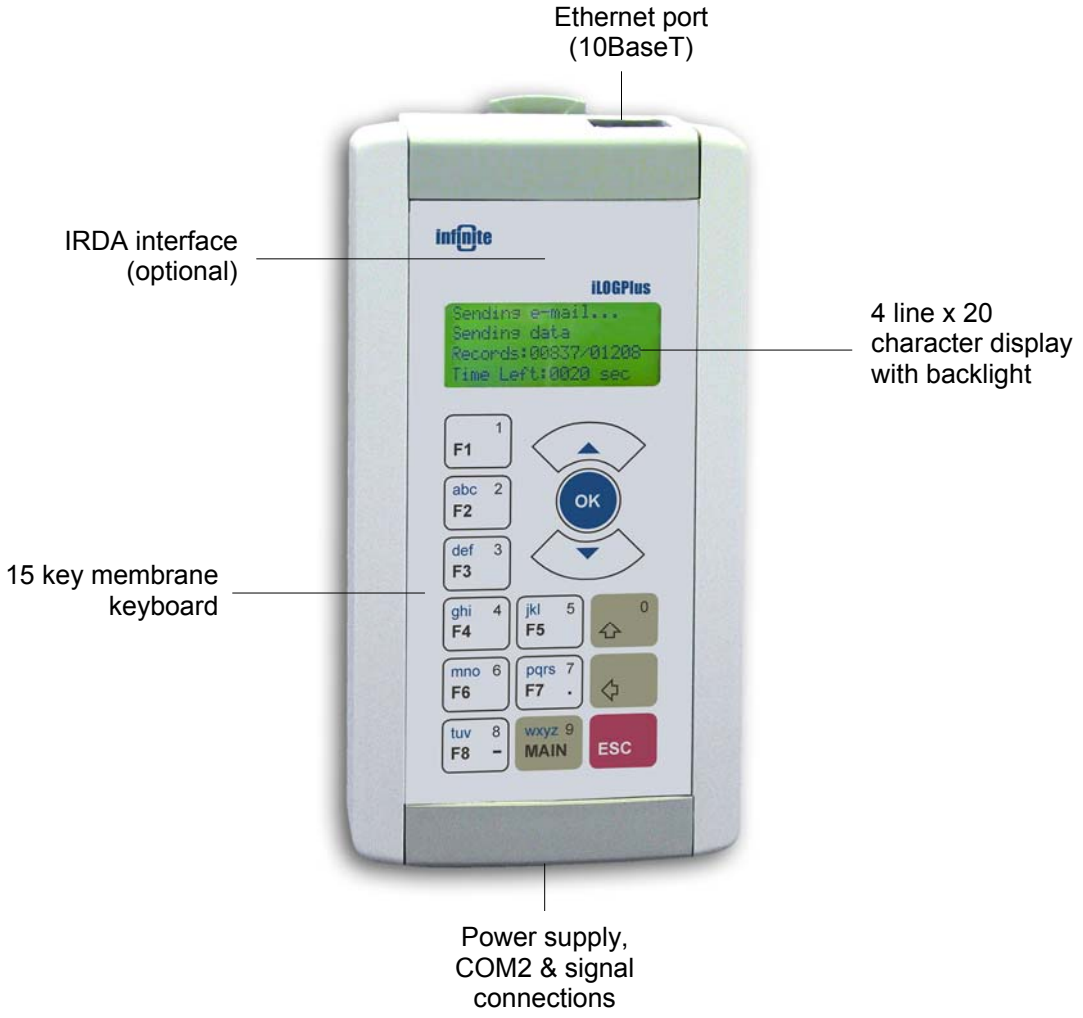


Figure 1.2, ILOGPLUS-LAN unit

Figure 1.3, ILOGPLUS-EDM unit

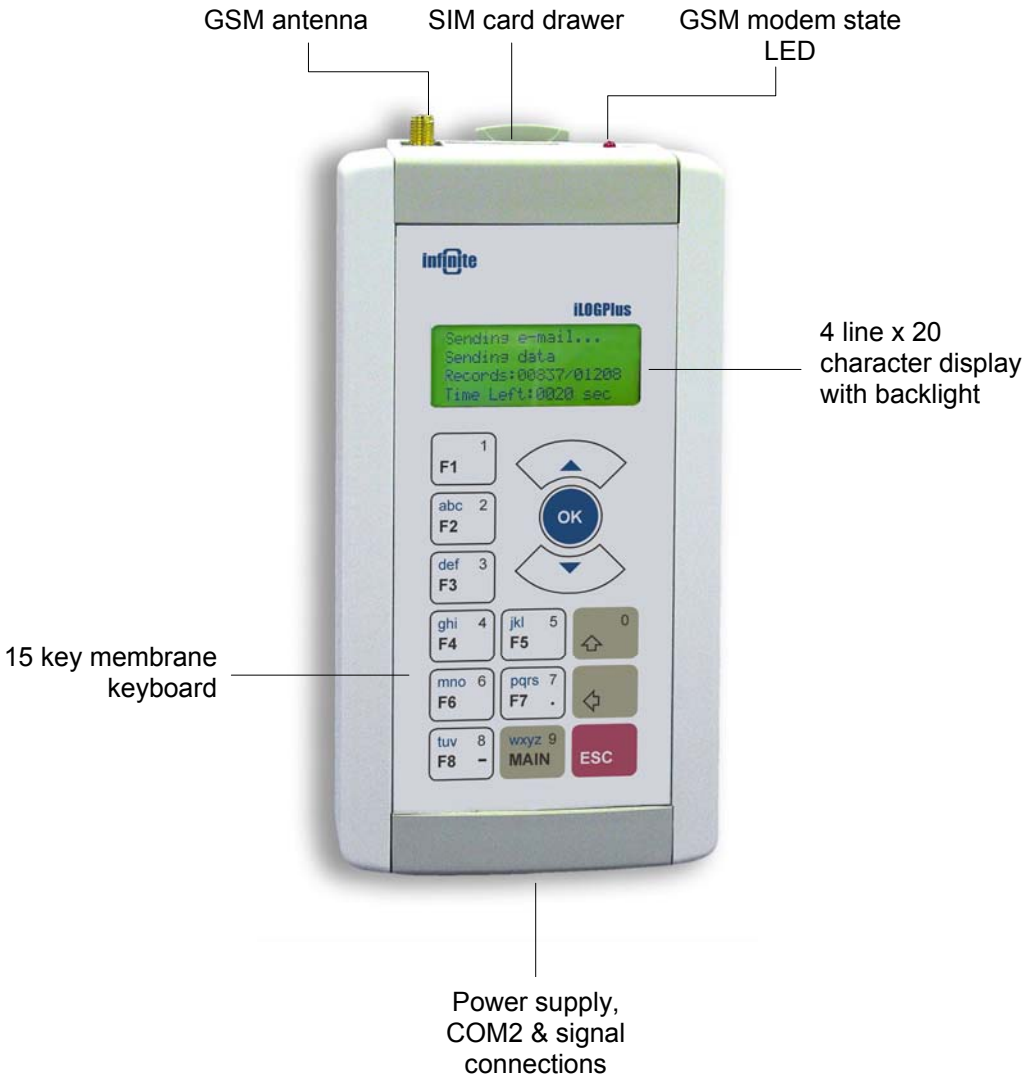


Figure 1.4, iLOGPlus-GSM unit

1.3 Technical characteristics

1.3.1 Absolute maximum ratings

General conditions

Analog input signal	Recommended operation conditions	Maximum rating
A+ to A- (Differential voltage, signal floating, no GND reference)	0 – 1V	-10V … +10V
A- to GND (Signal floating, common mode voltage)	inexistent or 0V	-10V … +10V
A+ to GND (A- connected to GND)	0 – 1V	-10V … +10V

iLOGPlus + SCT-04E-12

Signal	Normal range	Maximum rating
Power supply voltage Vcc	12V … 15 VDC	18VDC
0-20/4-20mA range	0-20mA	-70mA …. +70 mA
0-1V range	0-1V	-10V …+10V
Digital inputs	GND / open	-30V … +30V
Digital outputs (relay)	12-60V DC, 0.5A, 12V-250V AC, 5A	110V DC, 0.5 250V AC1, 10A

iLOGPlus + SCT-04E-24

Signal	Normal range	Maximum rating
Power supply voltage Vcc	24 … 28 VDC	30 VDC
0-20/4-20mA range	0-20mA	-70mA …. +70 mA
0-1V range	0-1V	-10V …+10V
Digital inputs	GND / open	-30V … +30V
Digital outputs (relay)	12-60V DC, 0.5A, 12V-250V AC, 5A	110V DC, 0.5A 250V AC1, 10A

Stresses above those listed under Absolute Maximum Ratings may cause permanent damage to the device. Exposure to absolute maximum rating conditions for extended periods may affect device reliability. Only one absolute maximum rating may be applied at any one time.

1.3.2 Measurement section

iLOGPlus features 4 analog inputs (Channel 1-4) with 12 bit resolution. A variety of signal ranges is supported in conjunction with the SCT-04E adaptor.

iLOGPlus features an internal signal conditioning circuit with switchable gain for channels 1, 2 and a 12 bit A/D converter. The A/D converter has an output range of 0-4096 corresponding to an 0-4096 mV input range (See Appendix xx for details).

The following table contains typical signal ranges and sensor types for each analog channel.

Channel	Gain	Sensor	Physical range	Resolution
1, 2	Low	-	0 - 1 V	0.255 mV/bit
	Low	-	0 - 20 mA	5.11 µA/bit
	Low	-	4 - 20 mA	5.11 µA/bit
	High	RTD	-100..600°C	0.081 Ω/bit
	Low	AD592*)	-25..105°C	0.094 °C/bit
	Low	AD590*)	-55..110°C	0.094 °C/bit
3, 4	Low	-	0 - 1 V	0.255 mV/bit
	Low	-	0 - 20 mA	5.11 µA/bit
	Low	-	4 - 20 mA	5.11 µA/bit
	Low	AD592*)	-25..105°C	0.094 °C/bit
		AD590*)	-55..110°C	0.094 °C/bit

Table 1

*) AD592, AD590 are popular, linear temperature sensors (Analog Devices).

The following table contains typical signal ranges and sensor types for each analog channel of the analog input expansion module GE-AI-4 (AIx1- AIx4).

Channel	Sensor	Physical range	Resolution
1, 2, 3, 4	-	0 - 1 V	0.255 mV/bit
	-	0 - 20 mA	5.11 µA/bit
	-	4 - 20 mA	5.11 µA/bit
	RTD	-100..600°C	0.157 Ω/bit

Digital inputs (D1-4) have several functions:

1. The input signal state can be used as condition for logging the corresponding analog channel (1-4).
2. They can act as common inputs for monitoring and logging digital signals.
3. Input 3, 4 can be configured as counter inputs with following functions:
   - Totalizer function with preset and clear.
   - Frequency measurement with two range options (0-32.000Hz and 0-3200.0 Hz).

   The frequency measurements can be logged as virtual analog channels 5 and 6.

Digital inputs of the GE-DIO-modules 42 (Dx1-x4) have following functions:

1. The input signal state can be used as condition for logging the corresponding analog channel (1-4).
2. They can act as common inputs for monitoring and logging digital signals.

Digital outputs (DO 1-2) can have two functions:

1. Prealarm and alarm monitoring.
2. Remote controlled digital outputs.

Digital outputs of the GE-DIO-modules 42 (DO x1-x2) can have only one function:

1. Remote controlled digital outputs.

1.3.3 Communication

iLOGPlus-LAN features a 10BaseT Ethernet port (COM1) and an auxilliary serial port (COM2).

iLOGPlus-EDM features a main serial port (Modem port, COM1) and an auxilliary serial port (COM2).

iLOGPlus-GSM has an internal GSM/GPRS modem (COM1) and an auxilliary serial port (COM2).

All units support TCP/IP connectivity with following transfer capabilities:

1. FTP file transfer of the logged data.
2. Sending email with attachement of the logged data.
3. Sending email on alarm events.
4. Publishing the internal web server for observing real time measurements and changing parameters using a web browser.
5. Sending SMS on alarm events (iLOGPlus-GSM, iLOGPlus-LAN, EDM with external wireless modem).
6. Receiving SMS commands and answering with SMS containing measurement data and parameter values.

Both fixed IP and dynamic IP connections are supported from all units.

The **auxilliary serial port** (all units) can be used for the following purposes:

1. Uploading the logged data to a host computer using the XMODEM protocol.
2. Alarm annunciation via SMS using an external GSM modem (iLOGPlus-LAN).
3. Firmware upgrade of the unit.

The serial port has no Internet support.

The local serial connection functionality is internally switchable between the RS232 port and the optional infared port, if the unit incorporates the irDA option.

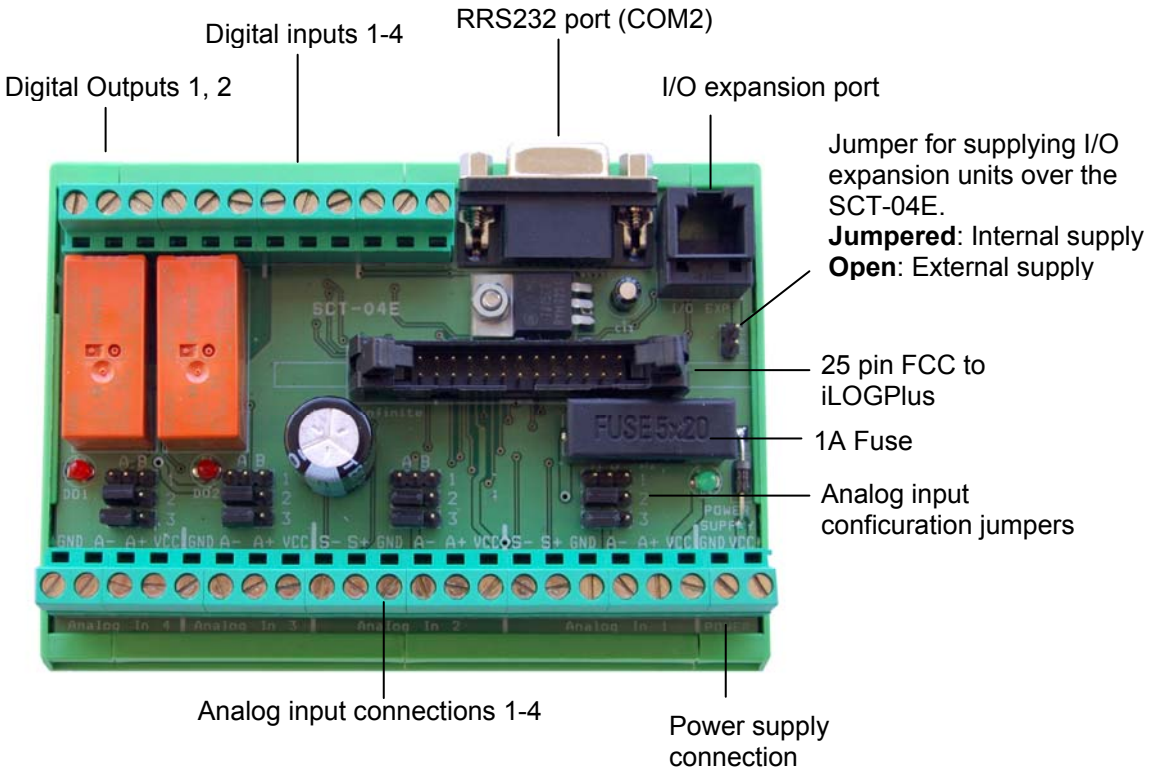
2. Installation

2.1 Mounting

A wall suspension element with snap in lock is used to mount the unit.

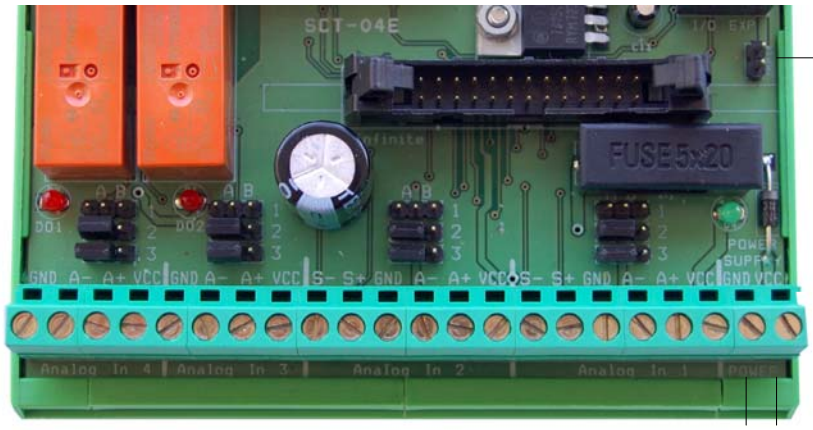
2.2 Wiring using the SCT-04E-xx adaptor

Adaptor SCT-04E snaps on a DIN rail.



The 25 pin D-plug to the iLOGPlus unit is not hot pluggable!
Plugging or unplugging this connector, during power up, can stress the sensitive analog circuits of the device and lead to permanent hardware failure!

2.2.1 Power supply



Jumper 14 for internal expansion module 12/24/V supply

- +

SCT-04-12: 12-15V DC
SCT-04-24: 24-27V DC

Put a jumper on 'Jumper 14' to supply expansion modules from the internal 12/24V power supply.

The communications section of the device is always in power on state in case of iLOGPlus LAN (Default settings: Internet connect parameter = on).

iLOGPlus-GSM and iLOGPlus-EDM start with the communications section in power off state (Default settings: Internet connect parameter = off).

Power supply requirements (Typical ratings)

SCT-04E-12, at 12VDC

Operation state	iLOGPlus-LAN	iLOGPlus-GSM	iLOGPlus-EDM *)
Normal operation (logging) Display Backlight = off Power save param = ON	95 mA	50 mA	50 mA
Normal operation (logging) Display Backlight = off Power save param = OFF	95 mA	100 mA	80 mA
Internet connection Display Backlight = off	95 mA	200 mA (2A peak)	80 mA
Setup Display Backlight = on	130 mA	120mA	120mA

Display backlight current draw: ~40 mA

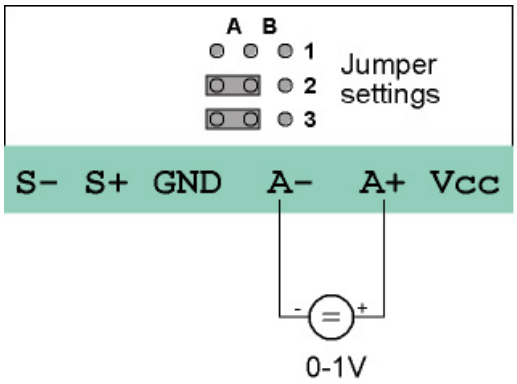
*) Without external modem

iLOGPlus-GSM can draw up to 2A, in short periods (bursts) during data transmission. A power supply with current limitation under 2A is not suitable for proper device operation.

2.2.2 Analog inputs

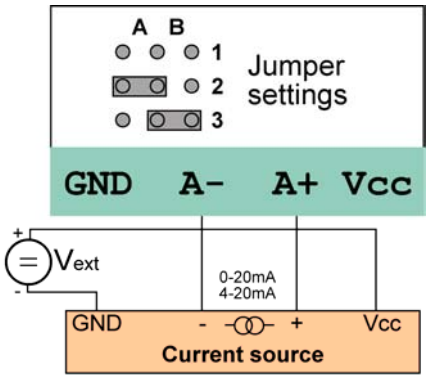
Main unit analog inputs 1, 2:

Connecting 0-1V:

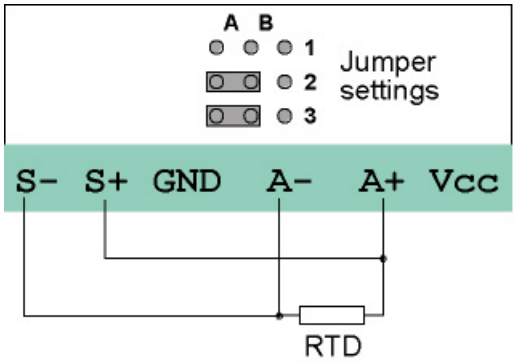


Inproper jumper settings can damage the signal source and/or the SCT-04E input current sense resistors!
(See Appendix 8.3)

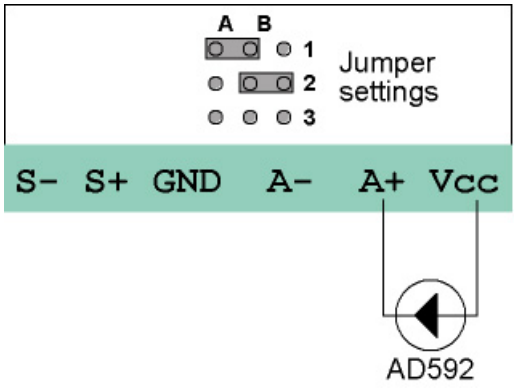
Connecting 0-20mA, 4-20mA:



Connecting an RTD sensor:

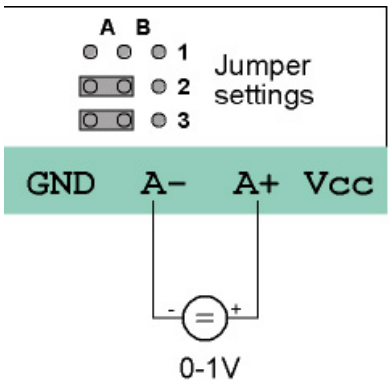


Connecting a AD592 sensor:

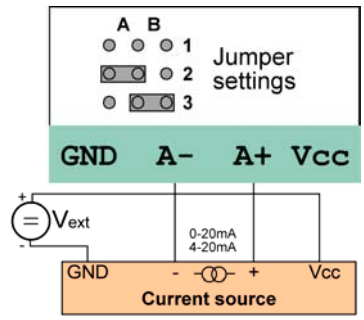


Main unit analog inputs 3, 4:

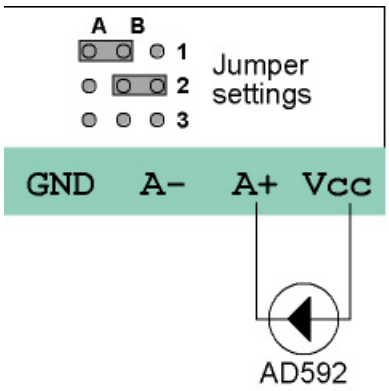
Connecting 0-1V:



Connecting 0-20mA, 4-20mA:

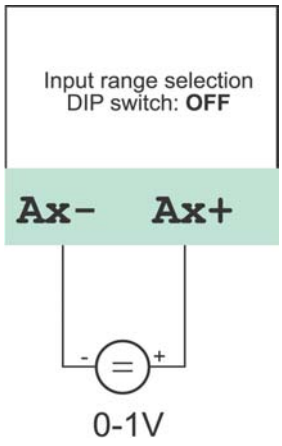


Connecting a AD592 sensor:

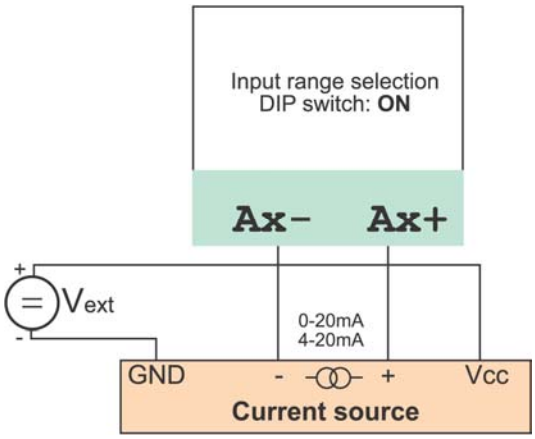


GE-AI-4 analog inputs 1, 2, 3, 4:

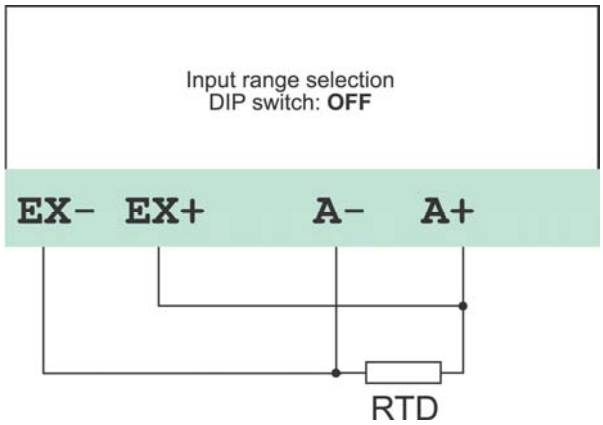
Connecting 0-1V:



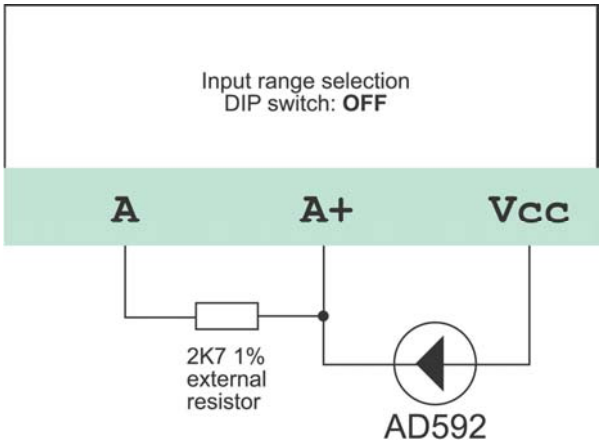
Connecting 0-20mA, 4-20mA:



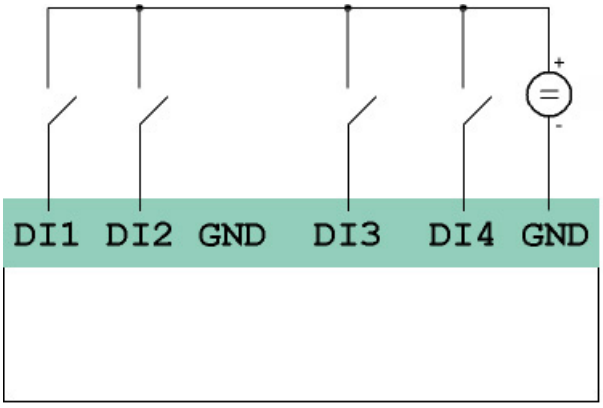
Connecting an RTD sensor:



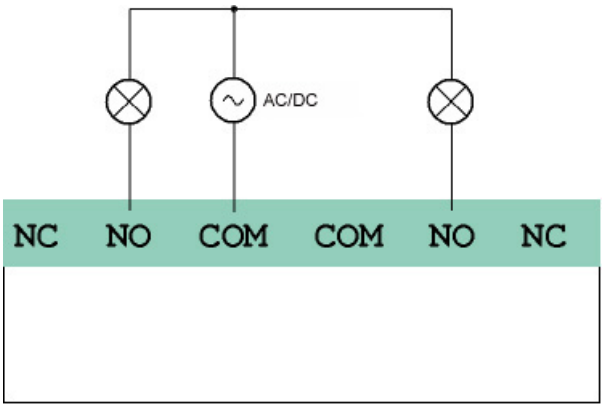
Connecting a AD592 sensor:



Digital inputs (Main unit & GE-DIO-42)

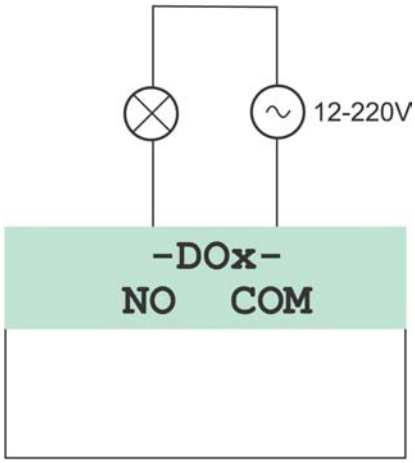


Main unit digital outputs



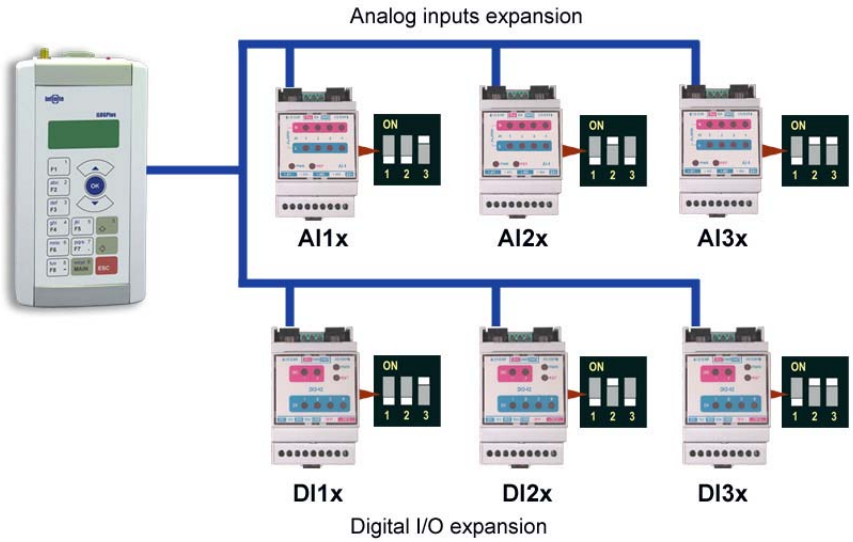
In case of DC power supply and inductive loads, use a freewheel diode parallel to the load.

GE-DIO-42 digital outputs



2.3 I/O Expansion

iLOGPlus main unit accepts I/O expansion by means of analog and digital I/O modules on a serial bus.



Analog input module GE-AI4 containing 4 analog inputs can be applied for analog input expansion. GE-DIO-4 digital I/O module containing 4 digital inputs and 2 digital outputs can be used for digital I/O expansion.

The serial expansion bus plugs on the SCT-04E expansion connector (6 pin modular connector).

Following I/O are recognized by the iLOGPlus CPU according to the modules DIP switch settings:

Analog IN expansion No.1: AI 11 – AI 14

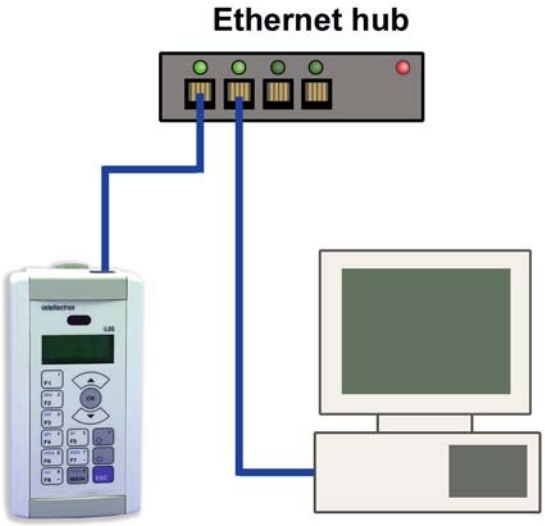
Analog IN expansion No.2: AI 21 – AI 24

Analog IN expansion No.3: AI 31 – AI 34

Digital IN expansion No.1: DI 11 – DI 14
Digital IN expansion No.2: DI 21 – DI 24
Digital IN expansion No.3: DI 31 – DI 34

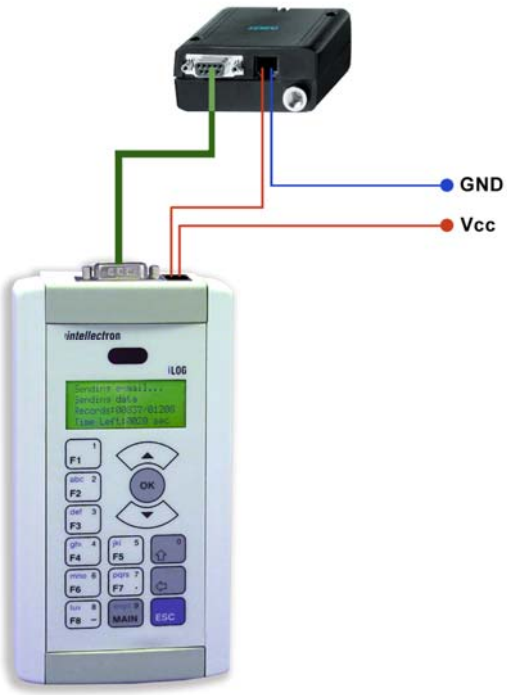
Internet communications interface

2.3.1 10BaseT Ethernet port (iLOGPlus-LAN)



The Ethernet hub must support 10BaseT (10 Mbit) Ethernet connection.

2.3.2 Modem port (iLOGPlus-EDM)



A common modem cable can be used for the external modem connection.

Supported modems are:

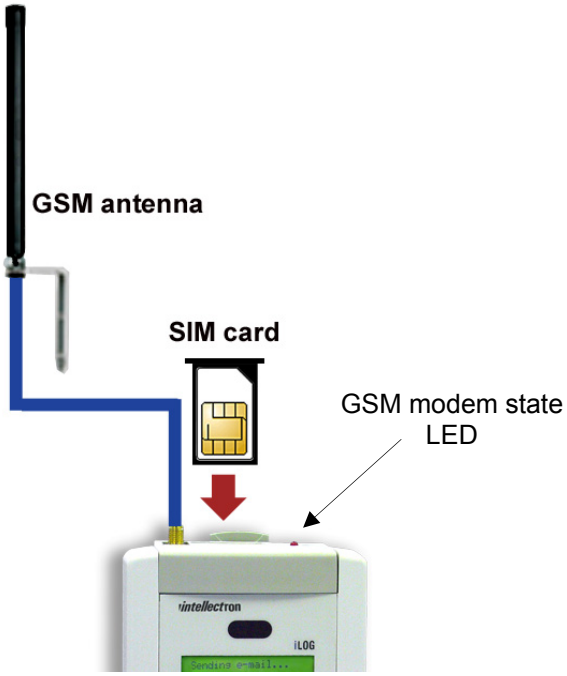
- PSTN modems with AT command set.
- GSM modems (GSM 07.07, GSM 07.05).

iLOGPlus-EDM (Hardware version > 3.2) provides an internal relay contact for the the external modem power supply control, in order to ensure continuous and reliable modem operation and enable power saving. The limitations for the modem supply switch are:

Modem supply voltage: 50V max

Modem supply current: 0.5A max.

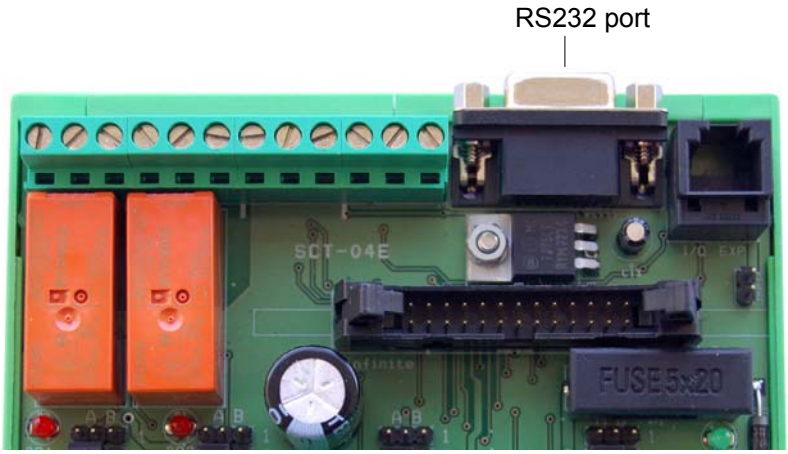
2.3.3 GSM network (iLOGPlus-GSM)



Do not insert or remove the SIM card during device operation!

The GSM modem state LED indicates the following states:
LED is off: Modem and communications section is powered off.
LED is on: Modem and communications section is powered on.
LED flashes slowly: iLOGPlus device is connected to the GSM provider network.
LED flashes fast: iLOGPlus device is connected to internet.

2.4 Connecting to a host computer

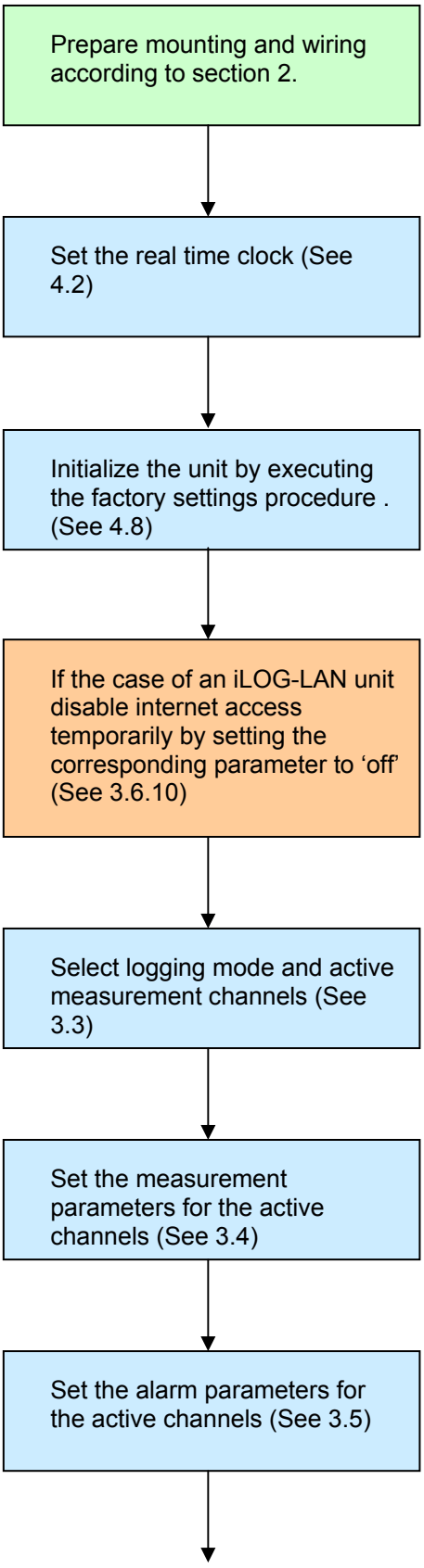


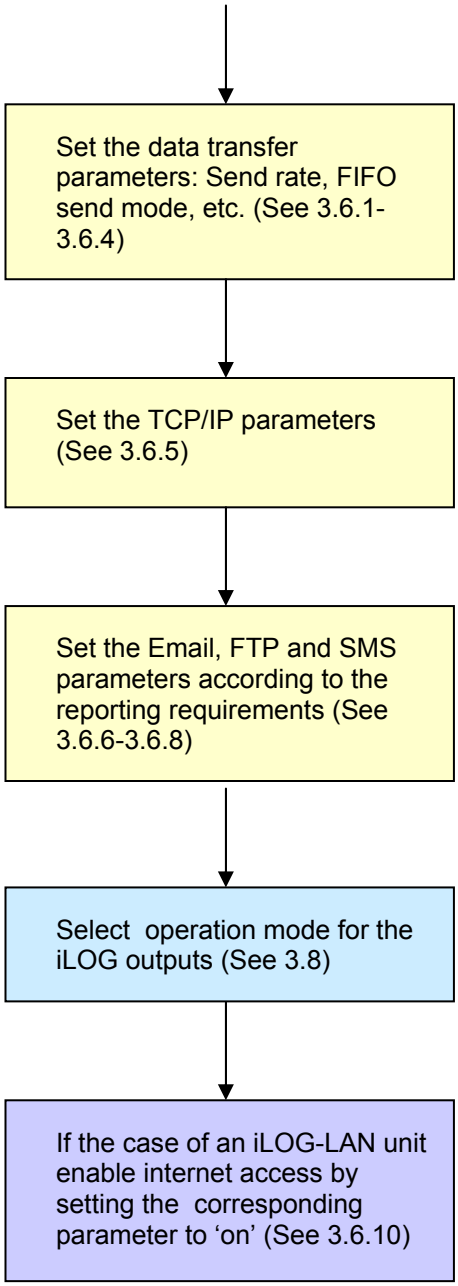
A standard D9 serial cable (straight through) can be used to connect the **auxilliary serial port** with a host computer.

2.5 Connecting a GSM modem to COM2

A GSM modem can be connected to the **auxilliary serial port** for alarm annunciation via SMS (iLOGPlus-LAN). Use a standard modem cable or see the COM2 port pin layout in Appendix 8.3 to prepare the proper cable.

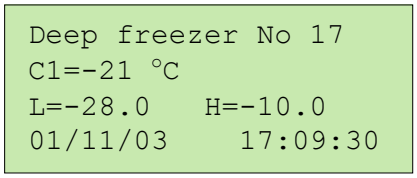
2.6 Quick setup




Set the data transfer parameters: Send rate, FIFO send mode, etc. (See 3.6.1-3.6.4)
Set the TCP/IP parameters (See 3.6.5)
Set the Email, FTP and SMS parameters according to the reporting requirements (See 3.6.6-3.6.8)
Select operation mode for the iLOG outputs (See 3.8)
If the case of an iLOG-LAN unit enable internet access by setting the corresponding parameter to 'on' (See 3.6.10)

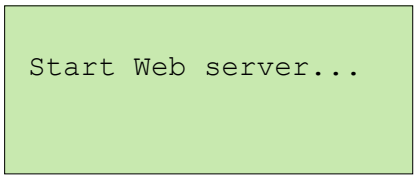
2.7 Power on

iLOGPlus is powered on as soon as it is connected with power. After running the parameter loading procedure, the main sceen appears.



The main screen displays real time measurement and alarm limits for every analog channel, the current date and time. Use the function keys **F1** to **F6** to view a specific channel.

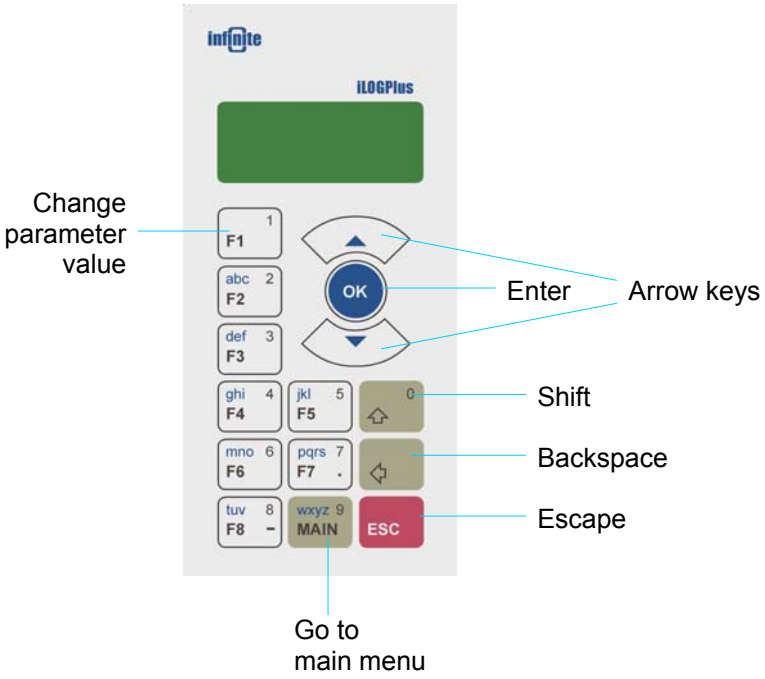
After a little while the web server is automatically launched (only iLOGPlus-LAN).



After the first power up, the unit has default parameters as they are set in the factory settings (see Appendix 8.5). Press <**MAIN**> to enter the menus and proceed with setup.

3. Setup

2.4 Entering the menus



Picture 3.1, Keyboard layout

To access the iLOGPlus menus press <**MAIN**>. Enter the password and press <**OK**> or press <**ESC**> to exit.

```
Application Settings
Password:****

ESC:Return
```

```
Main
>Setup
 Commissioning
 Test comms
```

The cursor symbol **>**, points to the menu option you can select by pressing <**OK**>. To exit the current menu option and return to the previous option without saving any changes press <**ESC**>. To return directly to the main display press the button <**MAIN**>.

Symbols **v** and **^**, on the right of the display, indicate the presence of more menu options below or above the visible screen. Use the arrow keys (▲▼) to move up and down through the menu options.

To erase a character use the **backspace** button <⇦>.

For negative numbers enter the **minus character** by pressing <▼> <**F8**>.

To enter characters from the menu press the appropriate number as many times as is needed until the character appears on the display.

List of available characters:

Button	Characters
1	1.@\/:- +&=,<space>,#,*,",'
2	2abc(ABC)
3	3def(DEF)
4	4ghi(GHI)
5	5jkl(JKL)
6	6mno(MNO)
7	7pqrs(PQRS)
8	8tuv(TUV)
9	9wxyz(WXYZ)
0	0

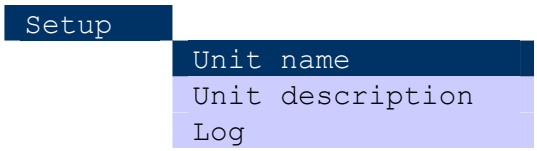
Table 2

 Backslash character '\' may appear on some unit display as '¥".

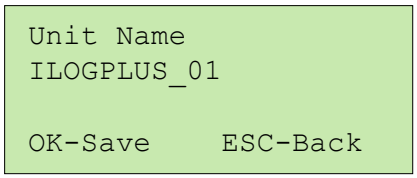
Uppercase/Lowercase switch keys: up arrow (▲), down arrow (▼).

3.2 Unit identity

3.2.1 Unit name



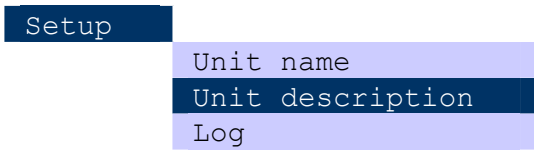
You can set or change the unit name, which is used to identify the unit in all report transmissions and on the web page.

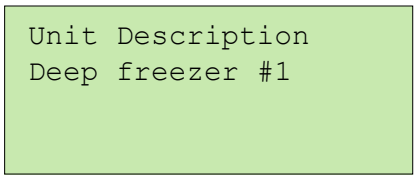


Use the keyboard to enter the unit name. Maximum length is 15 characters. To save the change press <**OK**>. To exit, without saving, press <**ESC**>.

Default Unit name is: iLOGPlus01

3.2.2 Unit description





You can set an optional **description** of the unit, for better idendification. Description maximum length is 60 characters. It can be viewed in reports and also on the web page.

To save the change press <**OK**>. To exit, without saving, press <**ESC**>.

Default: iLOGPlus telemetry unit

3.3 Logging parameters

3.3.1 Logging mode

Setup	Unit description	
	Log	Logging mode
	Measurements	Log channels
	Alarm	Log value

With this option, you can choose the logging format of data in the FIFO memory.

```
Channels: Separately
Alarms  : Yes
DI      : Yes
F1-Change   OK-Next
```

The following settings exist:

To change an option press <**F1**>, to move to next option press <**OK**>.

Channels

Available options: '**Separately'**, '**All'**.

Option '**Separately**' adds a record for the measurement data of each channel in the FIFO memory. Option '**All**' adds a record with the measurement data of all channels. The first option saves memory if only a subset of the channels is used by the application (one or two) and gives the advantage of conditional logging (see 3.3.2). The second option is preferable, if most or all channels are used and conditional logging is not necessary.

Default: '**All'**

Alarms

Available options: '**Yes'** or '**No**'.

You can choose to log the alarm states or not.

DI (Digital Inputs).

Available options: '**Yes**' or '**No**'.

You can choose to log digital input states or not.

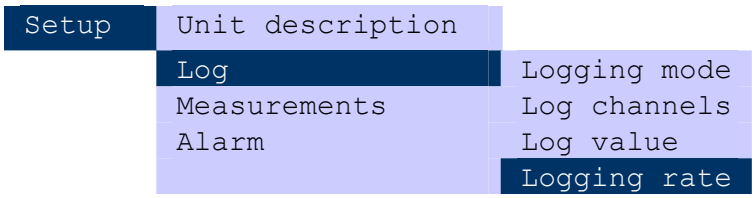
After pressing <**OK**> to the last option the following screen appears:

```
      WARNING!
  ALL RECORDS WILL
    BE DELETED!
OK-Save    ESC-Back
```

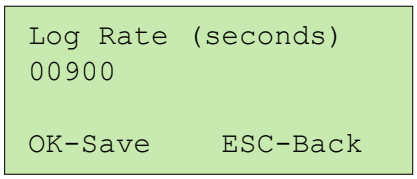
The message warns that all existing records in the FIFO memory will be deleted and the memory will be formatted with the new format.

Press <**OK**> to accept the changes and enable formatting or press <**ESC**> to cancel and exit.

3.3.4 Logging rate



With this option, you can set the time period between two subsequent logs.
Range: 2 – 65535 sec



Default value: 900 (15 minutes).
To save the change press <**OK**>. To exit, without saving, press <**ESC**>.

3.4 Measurements

3.4.1 Analog channels

Setup	Unit description	
	Log	
	Measurements	Analog IN
	Alarm	Pulse IN
	Communication	Digital IN

Use this option to set parameters for the analog inputs channels 1-4 of the main unit and x1.-x4 of the expansion units, as also the virtual analog channels 5-6 of the pulse counting digital inputs (see 3.4.2).

```
Select AI
1

OK-Confirm ESC-Back
```

Select a channel by giving the channel number (1-8) and press <**OK**>.

To return to previous menu press <**ESC**>.

The convention for numbering the analog channels is the following:

Main unit:	A1- A4
Analog input expansion #1:	A11-A14
Analog input expansion #2:	A21-A24
Analog input expansion #3:	A31-A34
Virtual analog channel on DI3:	A201
Virtual analog channel on DI4:	A202
Power supply voltage monitor:	A203

The “Analog IN” menu item provides access to the following parameters:

Description, **Enabled**, **Logged**, **Validated**, **Unit**, **Log value**, **Alarm mode**, **Scale Lo**, **Scale Hi**, **Alarm Lo**, **Alarm Hi**, **Sensor Lo**, **Sensor Hi**, **Scheduled**, **Calibration, Conditioning, RTD supply, Gain, Excitation.**

Description

The channel description permits channel naming. The channel name is used in the reports and on the web page.

Default value: Channel + input number, e.g. ‘Channel 21’

Channel description maximum length is **20 characters**.

Enabled

This parameter enables or disables reading of the analog input. Only enabled channels can be logged or used for alarming.

Default value: ‘YES’ for analog inputs A1-4 of the main unit. All other channels are disabled.

Logged

This parameter enables or disables logging of the analog input measurement.

Default value: 'YES' for analog inputs A1-4 of the main unit. All other channels are disabled.

Validated

This parameter selects between continuous and conditional logging of the analog input measurement.

Available selections are: Yes, No

The selection 'YES' is possible only if the logging mode is set to **'Separately'**.

If the channel is enabled, you can choose whether the measurements of channels will be logged continuously ('No') or conditionally ('Yes').

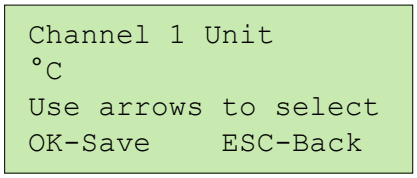
Continuously (**-**) means that the measurements are logged according to the logging time rate.

Conditionally (**V**) means that the measurements for the relevant channel will be logged according to logging time rate, but only if the respective digital input is set (DI1 for AI1, DI2 for AI2, D11 for A11, D21 for A21 and so on).

Default value: 'No' (continuously).

Unit

Permits selection of the measurement physical unit.



Selectable units are:

Symbol	Unit	Measurement
-	Step	A/D
%	Percentage	Humidity
°C	degree Celsius	Temperature
°K	degree Kelvin	Temperature
°F	degree Fahrenheit	Temperature
mm	Milimeter	Displacement
cm	Centimeter	Displacement
m	Meter	Displacement
km	kilometer	Displacement
ft	foot	Displacement
m2	square meter	Area
ft2	square foot	Area
m3	cubic meter	Volume
lt	litre	volume
ft3	foot cubed	volume
kg	kiLOGPlusram	mass
g	gram	mass
N	newton	force
lb	pound	force
dyn	dyne	force
kp	kilopond	force
Pa	pascal	pressure
bar	bar	pressure

At	atmosphere	pressure
m/s	meter/sec	velocity
ft/s	feet/sec	velocity
m/s2	meter per second squared	acceleration
g	gravity	acceleration
cd	candela	luminous intensity
lm	lumen	luminous flux
J	joule	energy
Wh	watt hour	energy
kWh	kilowatt hour	energy
erg	erg	energy
W	watt	power
hp	horsepower	power
kW	kilowatt	power
MW	megawatt	power
Hz	hertz	frequency
kHz	kilohertz	frequency
MHz	megahertz	frequency
GHz	gigahertz	frequency
A	ampere	current
kA	kilo ampere	current
V	volt	voltage
kV	kilo volt	voltage
S	siemens	conductance
cal	calorie	heat
kcal	kilocalorie	heat
Btu	British thermal unit	heat
<Custom>	User defined	

Table 3

A custom unit (up to 5 characters) can be defined by the user.

Log value

With this option, you can select the internal measurement value processing of the channel measurements during logging.

Available options are: **Average**, **Maximum**, **Minimum**, **Instant**

Default value: Average

Alarm mode

Use this option, to select between instant and delayed alarm for the analog channel. Instant alarm is annunciated immediately when the conditions for alarm for the corresponding channel are met. Delayed alarm is annunciated after the ellapsing of a predefined alarm delay (see 3.5.3).

Available options are: **I** (**instant**), **D** (**delayed)**

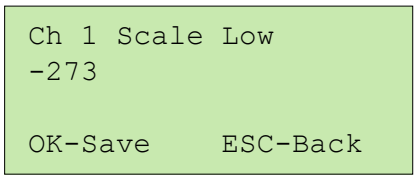
Default value: D (delayed)

Scale Lo

Use this option to set the minimal scale value.

Default value: 0

Range: -32768..32767



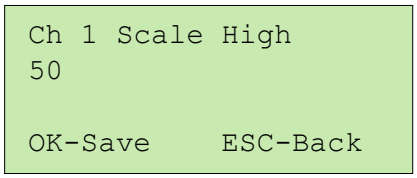
If the Scale Lo value is changed the existing offset calibration is cancelled.

Scale Hi

Use this option to set the maximal scale value.

Default value: 4095

Range: -32768 .. 32767



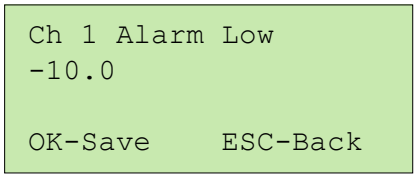
If the Scale Hi value is changed the existing offset calibration is cancelled.

Alarm Lo

Use this option to set the alarm low limit.

Default value: 0

Range: Scale low .. Scale high

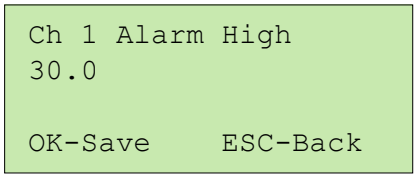


Alarm Hi

Use this option to set the alarm low limit. Enter the appropriate value and press <**OK**>. To exit without saving, press <**ESC**>.

Default value: 0

Range: Scale Low .. Scale High



Sensor Lo

Sensor Low represents the raw A/D reading at Scale low.

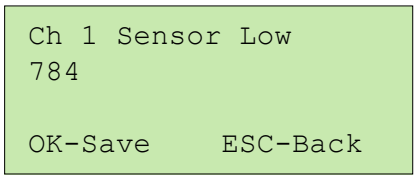
The following example explains the setting of this value. A 4-20mA sensor is used in this example. The 0-20mA scale corresponds to a range of 0-3921 when digitized by the iLOGPlus A/D. The Sensor Lo value is calculated as follows:

Sensor Lo=3921*Scale low/Scale high=3921*4/20=784

Another way is to set the default Scale Lo and Hi values (0, 4095) connect a current source and adjust the 4 mA low limit. Read the digitized value on the display under menu selection 'View I/O' (see 5.4) and adjust 'Sensor Lo' to this value (See 8.3 for details).

Default value: 0

Range: 0 .. 4095



If the Sensor Lo value is changed the existing offset calibration is cancelled.

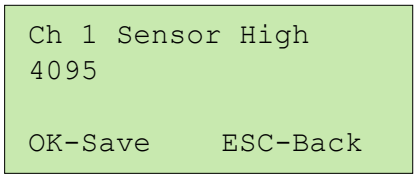
Sensor Hi

Sensor Low represents the raw A/D reading at Scale High.

Default value: 4095

Range: 0 .. 4095

In the example of the 4-20mA sensor, this value is 3921.



If the Sensor Hi value is changed the existing offset calibration is cancelled.

See Appendix 8.3 for more information on these settings.

Scheduled

Analog inputs can be read and logged continuously or according to a sensor power up schedule (see 3.4.2).

By setting this parameter to 'Yes', the respective analog input will be read and recorded only during the sensor power up intervall.

Available values: 'Yes', 'No'

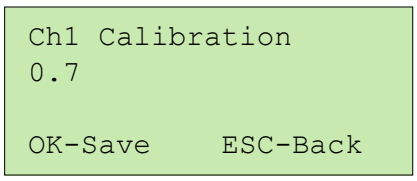
Default value: 'No'

Offset calibration

Calibration setting permits correction of small **offset** deviations of the measuring sensor. The calibration range is given as a percent of the total scale. For example: suppose that the Scale Lo is –50 and Scale Hi is 50, then the total scale is: 100. The calibration range will be: from -5% of Total Scale to 5% of Total Scale, which means from -5 to +5.

Use the arrow keys to adjust the calibration value in 0.1% steps.

To save the value press <**OK**>. To exit without saving, press <**ESC**>.



Whenever Scale High, Scale Low, Sensor High, Sensor Low are changed the current calibration is reset to 0.

Conditioning

Use this option to select special conditioning (processing) of the raw measurement as for example to compensate deviations caused by nonlinear sensors.

Available options: none, PT100

Default: none

RTD excitation (only channels 1, 2)

Use this option to declare the use of the internal current source (S+, S- on SCT-04E) for RTD sensor excitation.

Available options: OFF, ON

Default: OFF

Gain (only channels 1, 2)

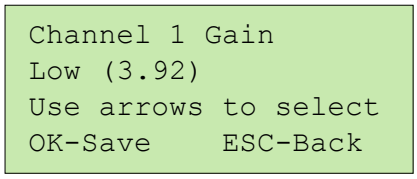
Use this option to adjust input signal gain.

Avalable options: low (3.92) and high (10).

Select Low gain for the following ranges: 0-1V, 0-20/4-20mA, AD592

Select High gain for the following ranges: RTD and input voltage signals under 400 mV.

See Appendix 8.3 for more information on this setting.



3.4.2 Special main unit parameters

Gain (Channels AI 1, AI 2 only)

Use this option to adjust input signal gain.

Available options: low (3.92), high (10).

Default: low

Select Low gain for the ranges: 0-1V, 0-20/4-20mA, AD592

Select High gain for the ranges: RTD and input voltage signals under 400 mV.

RTD excitation (Channels AI 1, AI 2 only)

Use this option to declare the use of the internal current source (S+, S- on SCT-04) for RTD sensor excitation.

Available options are: OFF, ON

Default: OFF

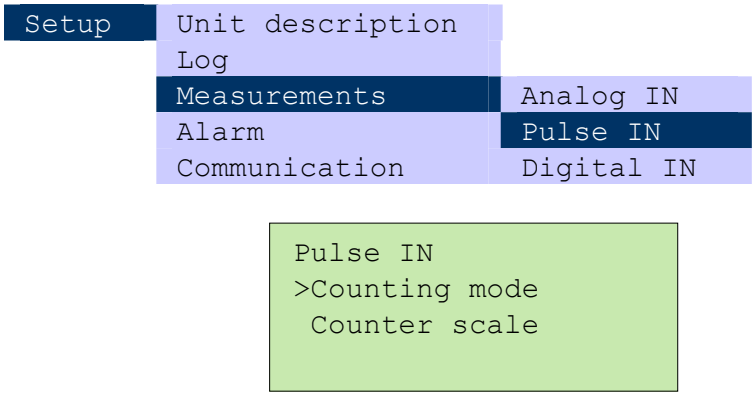
Sensor power up interval (Schedule)

Use this option to set a time interval in [min] for powering up external sensors through the main unit output O1. This options refers to analog channels with the option 'Scheduled' enabled.

Default value: 15

Range: 0 .. xxx

3.4.3 Pulse counting channels



Counting mode

This option enables the counting function for digital inputs **DI3** and **DI4**. The option applies only for inputs that are not used for conditional logging (see 3.3.2). Available options are:

L: For low frequency signals in the range of 0.001 to 32 Hz.

H: For higher frequency signals in the range of 10 to 3200 Hz.

C: Counter function.

T: Totalizer function.

- : Pulse counting disabled (**default**).

The counter and totalizer functions establish a 4 byte counter with preset and clear for the corresponding digital input. By the totalizer function is logging disabled. See 4.5 and 4.6 for setting preset value and clearing the totalizer.

The selection of options **L** or **H** generates a corresponding virtual analog channel (5 or 6).

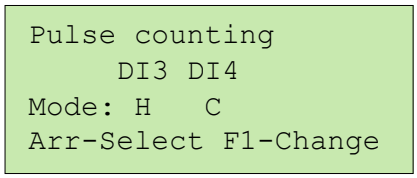
Option L: raw scale is 0..32000 for 0-32 Hz with 0.001 Hz resolution.

Option H: raw scale is 0-32000 for 0-3200.0 Hz. with 0.1Hz resolution
(Counting period is 10 sec).

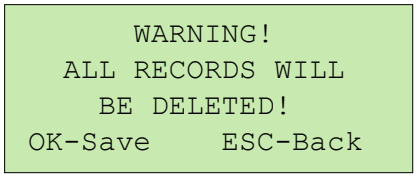
Options L and H generate the virtual channels AI5 for DI3 and AI6 for DI4. See 3.4.1 for setting scale and alarm limits.

Option C generates virtual channels AI7 for DI3 and AI8 for DI4.

Channels generated with the H, L, C options are automatically logged in the FIFO. Logging is disabled for option T.



If a logged channel is generated, the following screen appears:



Press <**OK**> to accept the changes and enable FIFO formatting or press <**ESC**> to cancel and exit.

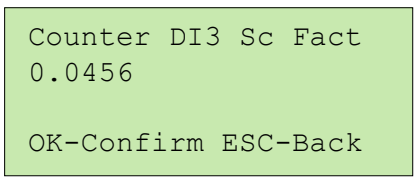
If you select the counter or the totalizer function you can set a corresponding preset value for alarm as described in 3.7.6.

Counter scale factor (DI3, DI4)

This option is relevant, only for pulse inputs with counting mode **C** and **T**.

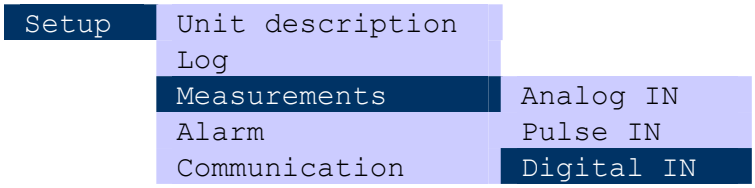
The pulse count is multiplied with this factor.

Default: 1, Range: 0.0000..1

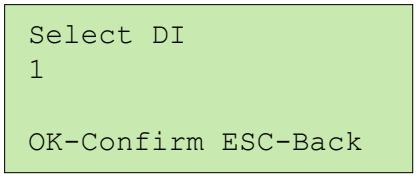


. To save the change press <**OK**>. To exit, without saving, press <**ESC**>.

3.4.4 Digital inputs



Use this option to set parameters for the digital input channels 1-4 of the main unit and x1-x4 of the expansion units.



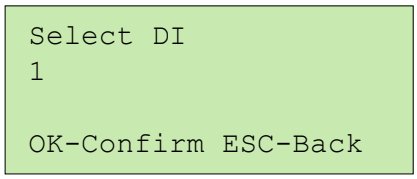
The convention for numbering the digital channels is the following:

Main unit:	D1- D4
Analog input expansion #1:	D11-D14
Analog input expansion #2:	D21-D24
Analog input expansion #3:	D31-D34

The “Digital IN” menu option provides access to the following parameters:
Description, **Enabled**, **Logged**, **Function**, **Alarm mode.**

Description

Use this option to name a digital input. The name is used in the reports and on the web page.



Default value: ‘DI ’ + input number, e.g. ‘DI 21’

Channel description maximum length is 20 characters.

Enabled

This parameter enables or disables reading of the digital input. Only enabled channels can be logged or used for alarming.

Default value: ‘YES’ for analog inputs A1-4 of the main unit. All other channels are disabled.

Logged

This parameter enables or disables logging of the digital input state.

Default value: ‘NO’

Function

Use this option to set the use of the digital input.

Available options are:

Not used (N): Alarm disabled (Default)

U: Alarm on the 0 to 1 transition

D: Alarm on the 1 to 0 transition

B: Alarm on both transitions

Function selection of DI channels that are used for valaidation or for counting purposes cannot be changed.

Alarm mode

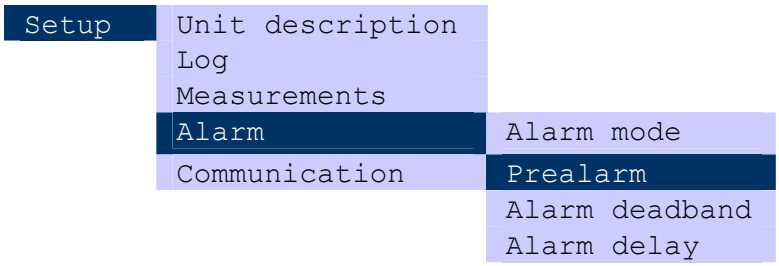
Use this option, to select between instant and delayed alarm for the digital channel. Instant alarm is annunciated immediately when the conditions for alarm for the corresponding channel are met. Delayed alarm is annunciated after the ellapsing of a predefined alarm delay (see xxx).

Available options are: **I** (**instant**), **D** (**delayed)**

Default value: D (delayed)

3.5 Alarm parameters

3.5.1 PreAlarm limit



Use this to set the prealarm low and high limits for the analog channels. The prealarm range is given as a 10% percent of the total scale. For example: If Scale Lo is –50 and Scale Hi is 50, then total Scale is: 100. Assuming that Alarm Hi value is 30 and Alarm Lo value is –30 for the specific channel and the prealarm limit is set to 3%, then the prealarm will occur at:

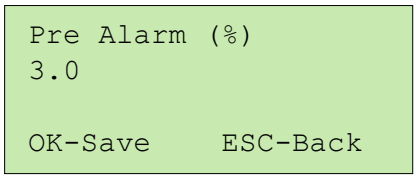
Prealarm high:

(Alarm Hi)-(3% of total scale) = 30 – 3 = 27.

Prealarm low:

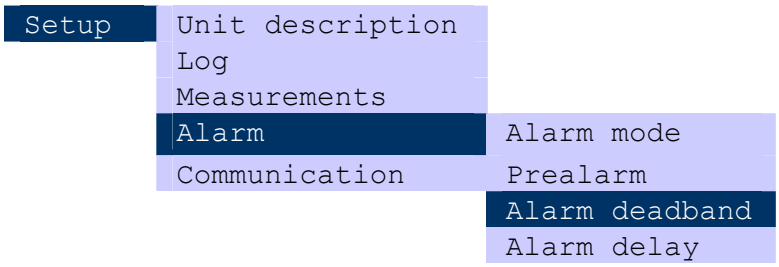
(Alarm Low)+ (3% of Total Scale) = -30 + 3 = -27.

Default: 0.0, Range: 0.0..19.9



Enter the appropriate value using the keyboard. To save the change press <**OK**>. To exit without saving, press <**ESC**>.

3.5.2 Alarm deadband

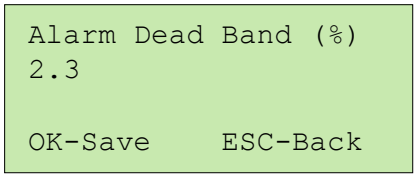


Use this option to set the alarm deadband (hysteresis) for the analog channels. Alarm deadband is small range of total scalewhere the alarm state remains indifferent, by holding its last value in order to avoid output relay bouncing.

The Alarm deadband is given as a percent of the total scale.

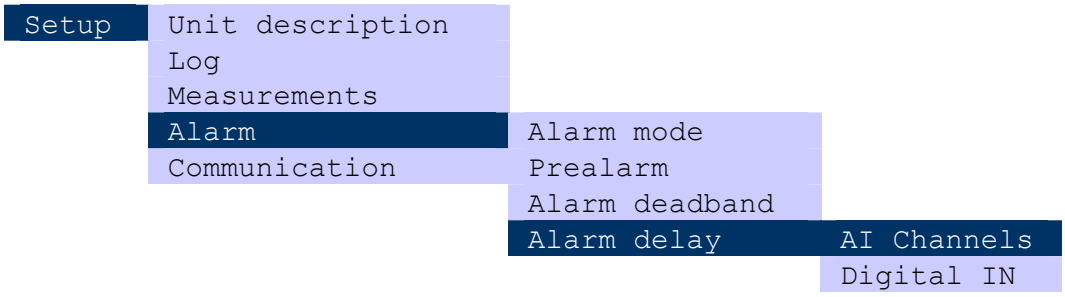
Default: 0.3, Range: 0.0.. 9.9

To select the desired value use the keyboard. To save the value press <**OK**>. To exit without saving, press <**ESC**>.



The Alarm Dead Band applies only for the alarm limits and not for prealarm.

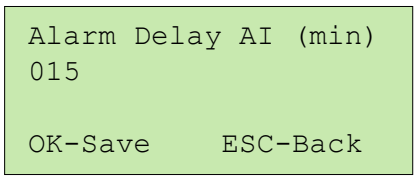
3.5.3 Alarm delay (Analog channels)



Use this option to set delay time of alarm annunciation for the analog channels. The values are entered in minutes.

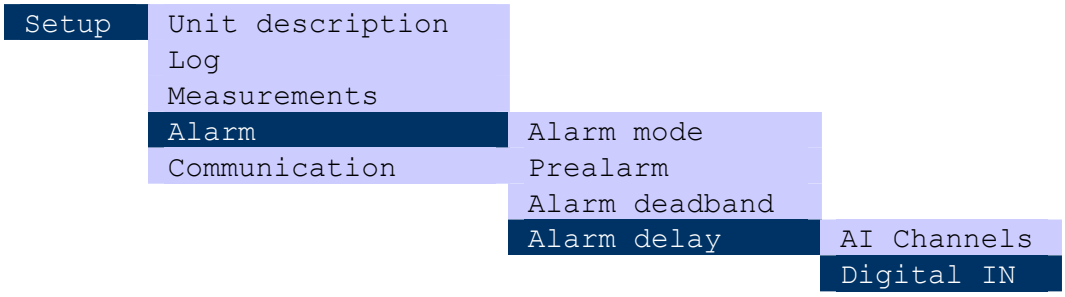
Default: 000, Range: 000…999

To save the values press <**OK**>. To exit without saving, press <**ESC**>.



The Alarm delay applies only for Alarm annunciation and not for Prealarm.

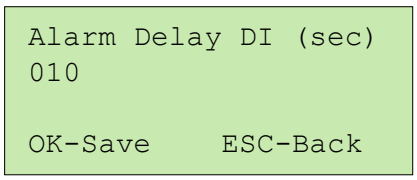
3.5.4 Alarm delay (Digital inputs)



Use this option to set delay time of alarm annunciation for the digital inputs. The values are entered in seconds.

Default: 000, Range: 000…999

To save the values press <**OK**>. To exit without saving, press <**ESC**>.



The Alarm delay applies only for Alarm annunciation and not for Prealarm.

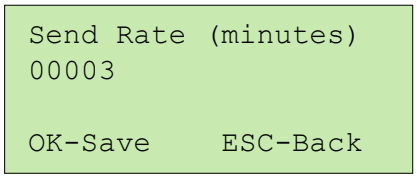
3.6 Communication

3.6.1 Send rate

Setup	Alarm	
	Communication	Send rate
	Web page	FIFO send mode
	Digital outputs	Data send mode
		Alarm send mode
		Internet param

Use this opton to set the rate of sending the logged records. After ellapsing of the time period defined in the Send rate, the unit sends the logged data to the defined recipients and clears the data FIFO.

Default: 043200, Range: 000000…999999



To save the changes press <**OK**>. To exit, without saving, press <**ESC**>.

3.6.2 FIFO Send mode

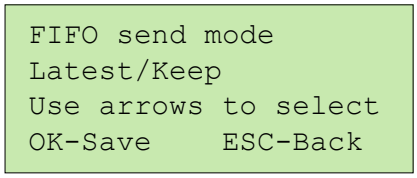
Setup	Alarm	
	Communication	Send rate
	Web page	FIFO send mode
	Digital outputs	Data send mode
		Alarm send mode
		Internet param

Use this opton to set the mode for sending FIFO records. Available options are:

Latest/Keep (**default**): The new records logged after the last data transmission are included in the send file. Transmitted records are kept in the FIFO memory.

All/Keep: All FIFO records are included in the send file. Transmitted records are kept in the FIFO memory.

All/Clear: All FIFO records are included in the send file and then cleared.



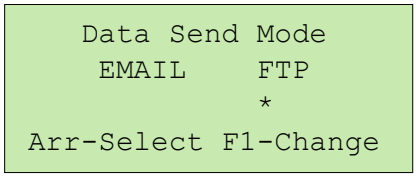
To save the changes press <**OK**>. To exit, without saving, press <**ESC**>.

3.6.3 Data send mode

Setup	Alarm	
	Communication	Send rate
	Web page	FIFO send mode
	Digital outputs	Data send mode
		Alarm send mode
		Internet param

Use this option to set the type of communications that will be used to send the logged data.

Available options are: E-mail, FTP



Default: Both off

Use the arrows to select an option. To change the state of the options, press <**F1**>. You can choose one option, both or none.

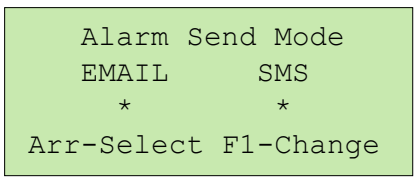
Press <**OK**> to save the setting or <**ESC**> to cancel.

3.6.4 Alarm Send Mode

Setup	Alarm	
	Communication	Send rate
	Web page	FIFO send mode
	Digital outputs	Data send mode
		Alarm send mode
		Internet param

Use this option to set the type of communications that will be used to send the alarm messages.

Available options are: **E-mail**, **SMS**

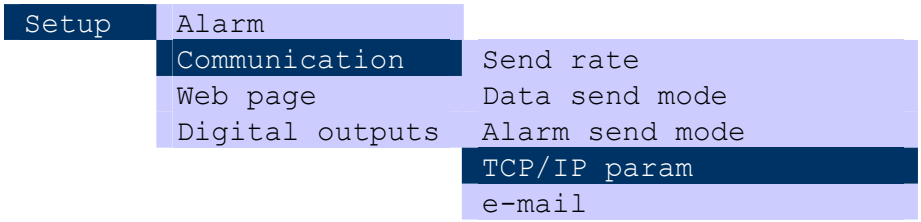


Default: Both off

Use the arrows to select an option. To change the state of the options, press <**F1**>. You can choose one option, both or none. Press <**OK**> to save the setting or <**ESC**> to cancel.

3.6.5 TCP/IP parameters

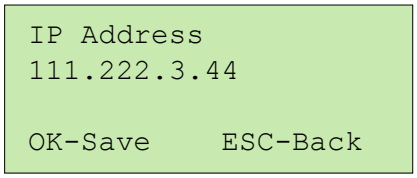
ILOGPLUS-LAN



Use this option to set the parameters for the TCP/IP protocol.
The option includes following settings:
IP Address, DNS, Gateway, Subnet Mask

IP Address

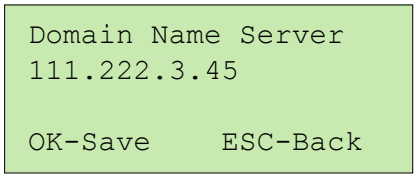
Defines an IP Address for the unit.
Default: 192.168.1.45



To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

DNS

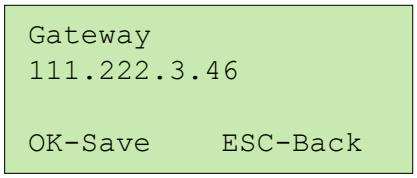
Defines the IP address of the Domain Name Server (DNS) in the TCP/IP network.
Default: 0.0.0.0



To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

Gateway

Defines the IP address of the Gateway to Internet, in the TCP/IP network.
Default: 0.0.0.0

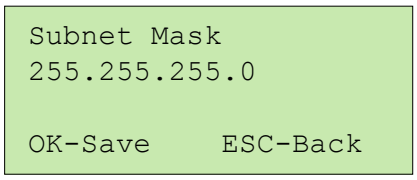


To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

Subnet Mask

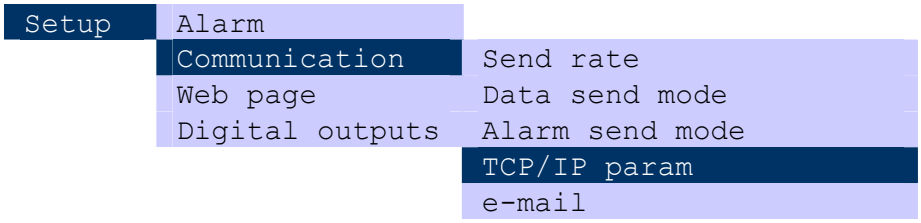
Defines the Subnet mask.

Default: 255.255.255.0



To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

iLOGPlus-EDM & iLOGPlus-GSM



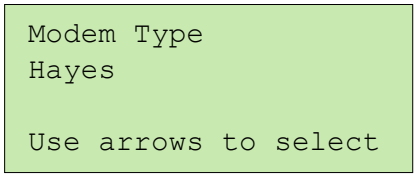
Use this option to set the parameters for the TCP/IP protocol.

The option includes following settings:

Modem type, ISP Username, ISP Password, Modem Init String, View IP address.

Modem Type

Use this option to select a modem type.



Default value: Hayes (iLOGPlus-EDM), GSM (iLOGPlus-GSM)

Available options are:

iLOGPlus-EDM: Hayes, GSM P1, GSM P2 and CDMA, **default: Hayes**

iLOGPlus-GSM: GSM P2 fixed

Select: **GSM P1** for **General GSM** and **Siemens GSM** modems.

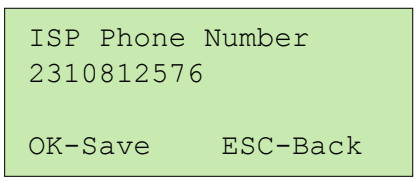
GSM P2 for **Wavecom GSM & CDMA** modems.

Use the arrows to select the modem type. To save the change press <**OK**>. To exit, without saving, press <**ESC**>.

ISP Phone no

Use this option to can set the ISP (Internet Service Provider) phone number.

Default: -



Press <**OK**> to save the setting or <**ESC**> to cancel.

ISP Username

Use this option to set the ISP account user name.

Default: -

```
ISP Username
frigo

OK-Save    ESC-Back
```

In case of a GPRS connection the ISP User name is commonly fixed to: ***99***1#** (Ask the GSM provider for the proper ISP User name).

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

ISP Password

Use this option to set the ISP account password.

Default: -

```
ISP Password
****

OK-Save    ESC-Back
```

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

During password entry you see the characters typed in. During normal menu browsing, the password is invisible.

Modem Init String

Use this option to set the a initialization string for the external or internal modemmodem.

```
Modem Init String
AT&FE0X0L3

           ESC-Back
```

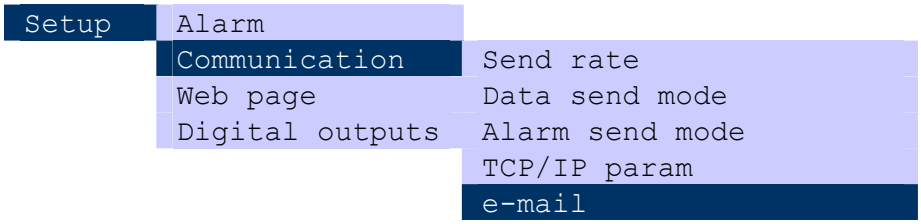
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

Modem type	Common initialization string
Hayes	AT&FE0X0L3 (default)
GSM	-
GPRS	AT+CGDCONT=1,\"IP\",\"**APN**\"

Common value for APN is ‘internet’.

Ask your GSM provider for the proper APN.

3.6.6 Email parameters

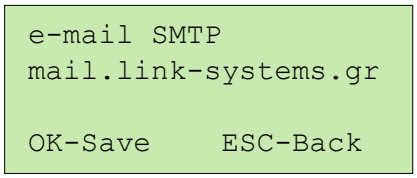


Use this option to set parameters for sending e-mail. The option includes following settings: e-mail SMTP, e-mail POP3, e-mail Username, e-mail Password, e-mail Receivers.

E-mail SMTP

Defines the e-mail SMTP server (outgoing mail server).

Default: -

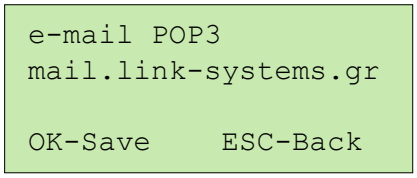


To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

E-mail POP3

Defines the e-mail POP3 server (incoming mail server).

Default: -

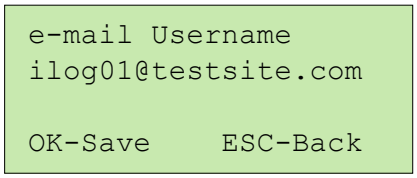


To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

E-mail Username

Defines the e-mail user name of the mail account.

Default: -

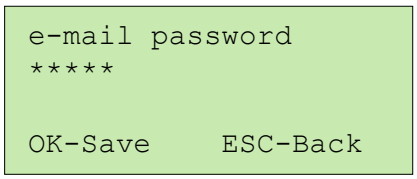


 It is important that you enter the complete e-mail address.

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

E-mail Password

Defines the the mail account password. The maximum password length is 20 characters.



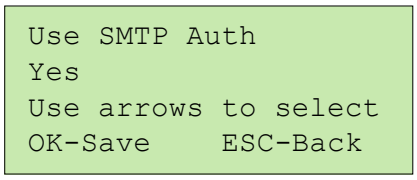
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

During password entry you see the characters typed in. During normal menu browsing, the password is invisible.

SMTP authentication

Some SMTP servers require an authetication procedure involving an additional username and password.

Default: No



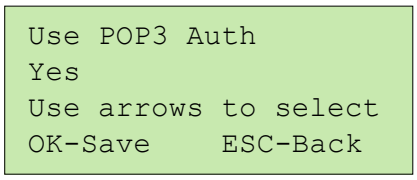
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

Select the respective submenus and type in the additional username and password, if they differ from the defaults.

POP3 authentication

Some SMTP servers require a POP3 authetication procedure involving in some cases an additional username.

Default: No

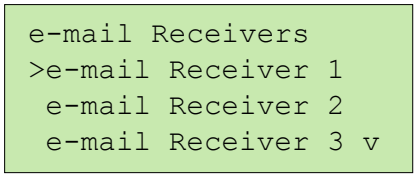


To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

Select the respective submenus and type in an additional username, if a different username from the default one is required.

E-mail Receivers

You can set up to five email recipients.



Use the **arrow keys** to see all options. To select an option press <**OK**>.

For example for e-mail Receiver 1:

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

3.6.7 FTP parameters

Setup	Alarm	e-mail
	Communication	FTP
	Web page	SMS
	Digital outputs	Synchr time

Use this option to set parameters for FTP file transfer of the logged data.
You can define up to 2 FTP servers. Only the first server is an active recipient. The second server is used if the connection to server 1 has failed.

```
FTP Parameters
>FTP Server 1
 FTP Server 2
```

FTP Server 1

Use this option to set parameters for FTP Server 1.

```
FTP Server 1
>Server 1 Address
 User Name
 User Password
```

Press <**OK**> to select an option, or <**ESC**> to exit.

Server 1 Address

Defines the IP address of the main FTP Server.

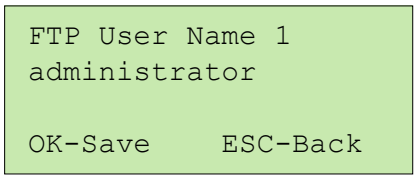
```
FTP Server address 1
ftp.hypernet.gr

OK-Save    ESC-Back
```

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

User Name

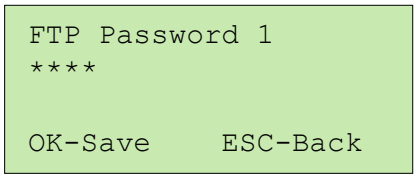
Defines the user name for FTP Server 1.



To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

User Password

Defines the user password for FTP Server 1.

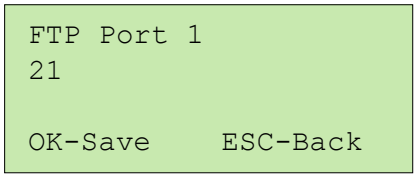


To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

During password entry you see the characters typed in. During normal menu browsing, the password is invisible.

FTP Port number

Defines the port number for FTP Server 1. Default value is 21.

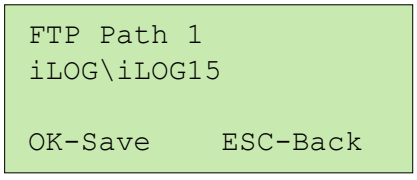


To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

If a second FTP server is available, apply the same procedure as above to provide parameters for the auxilliary server.

FTP Path

Defines a path for FTP Server 1. Default value is '.' (ftp root directory). The path name can be maximal 30 characters.



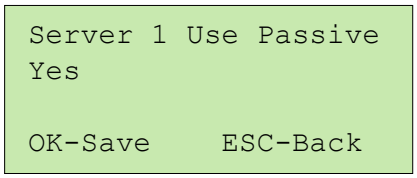
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

If a second FTP server is available, apply the same procedure as above to provide parameters for the auxilliary server.

Use Passive Mode

In active mode FTP (default) the client connects to the FTP server's command port, port 21. The server will then connect back to the client's specified data port. In passive mode FTP the client initiates both connections to the server. If passive mode is required, check this option.

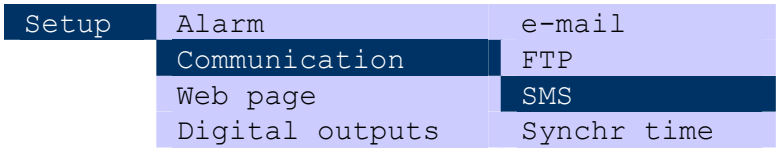
Default: No



To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

If a second FTP server is available, apply the same procedure as above to provide parameters for the auxilliary server.

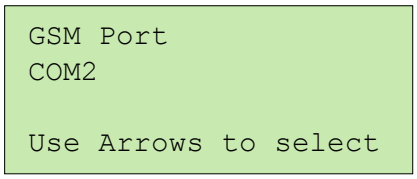
3.6.8 GSM



Use this option to set parameters for a GSM modem connected to one of the serial ports (COM1,COM2). The option includes following settings: GSM Port, GSM Pin, GSM Baud, SMS Center, SMS Receivers.

GSM Port

Defines the port used by the GSM modem.



Use the arrows to select an option:

iLOGPlus-LAN: None (default), COM2.

iLOGPlus-EDM, iLOGPlus-GSM: none, COM1 (internal modem for iLOGPlus-GSM), COM2.

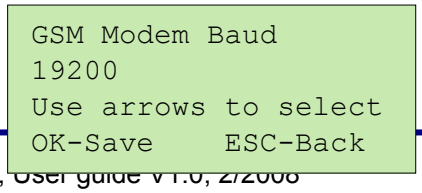
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

GSM Baud

Defines the port baud rate for the communication with the GSM modem.

Acceptable values are: **4800, 9600, 19200, 38400**

Default: 38400



Use the arrow keys to select a value.
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

GSM PIN

Defines the GSM pin number (password).

```
GSM Pin
****

OK-Save    ESC-Back
```

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

During pin number entry you see the characters typed in. During normal menu browsing, the pin number is invisible.

SMS Center

Defines the number for the SMS center.

```
SMS Center
+306976240001

OK-Save    ESC-Back
```

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

SMS Receivers

You can set up to five SMS recipients for alarm annunciation. Alarm SMS are sent to all recipients.

```
SMS Receivers
>SMS Receiver 1
 SMS Receiver 2
 SMS Receiver 3 v
```

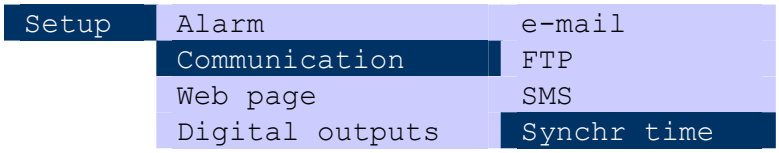
Use the **arrow keys** to select an option. To select an option press <**OK**>.
For example for SMS Receiver 1:

```
SMS Receiver 1
+306946567893

OK-Save    ESC-Back
```

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

3.6.9 Send time synchronization

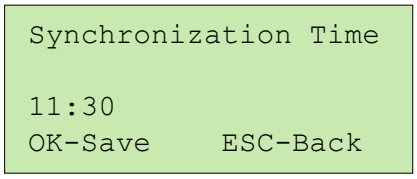


Use this option to define a day time mark, which is used to synchronize the send rate of logged data in the day period.

Example:

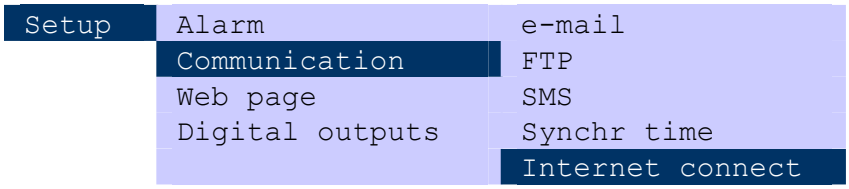
If you set the send rate (see 3.6.1) to half day (720 min) and 'Synchr time' to 11:30, then one data transmission will occur at 11:30, the following at 23:30 and so on.

Default value: 00:00



To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

3.6.10 Internet connect



Use this option to enable or disable connection to Internet at start up.

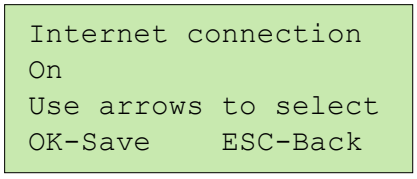
Available options: On, Off

Default settings:

iLOGPlus-LAN: **On**

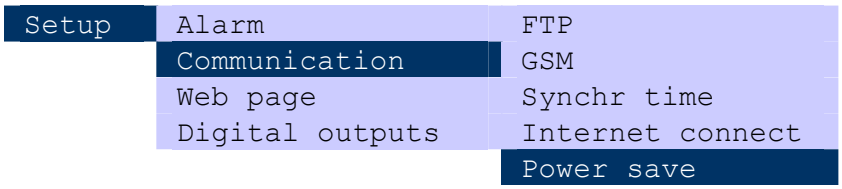
iLOGPlus-EDM, GSM: **Off**

Use the arrow keys to select an option.



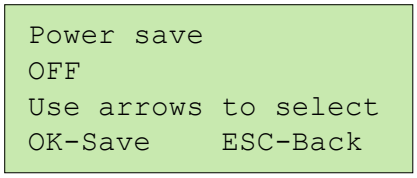
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

3.6.11 Power save



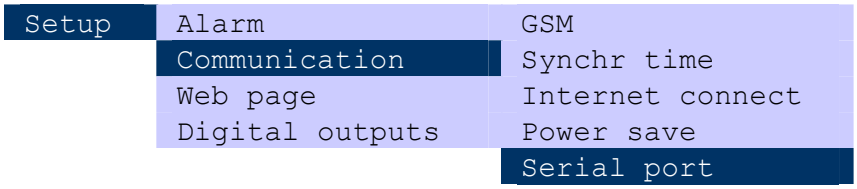
iLOGPlus-EDM and iLOGPlus-GSM control the power supply of the communication section, including the internal or external modem in order to save power for battery operation (Power save='ON'). The communication section is powered up only during data or SMS transmission and once every hour to look for incoming SMS. Use this option to set the preferred supply mode. This parameter should be set to 'OFF' state to enable instant SMS receiving.

Default: ON

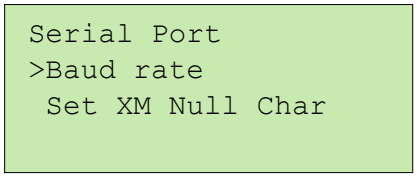


Use the **arrow keys** to select a value.
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

3.6.12 Serial port configuration



Use this option to define parameters for the auxilliary serial port (COM 2).



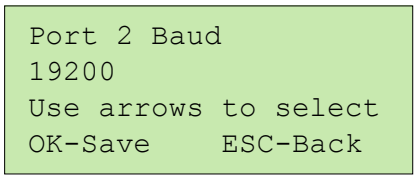
Use the **arrow keys** to select an option. To select an option press <**OK**>.

Baud rate

Use this option to define baud rate for the serial port 2, in case of uploading logged data to a host computer. All other settings are fixed as follows:

Data: 8 bit, **parity**: none, **Stop**: 1 bit

Available values are: 4800, 9600, 19200, 38400



Use the **arrow keys** to select a value.

To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

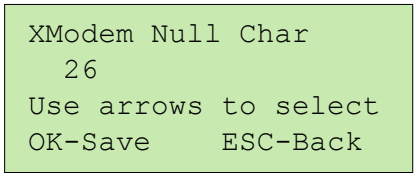
Set XM Null Char

Use this option to set the XModem protocol **null char** for local communications (ASCII value).

Value range: **0 - 255.**

Default: **26**

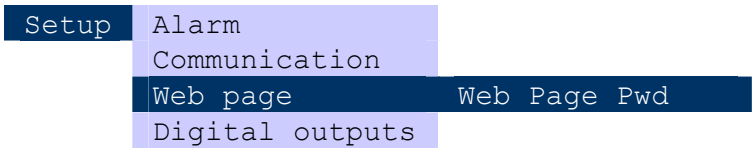
Use the arrows to select the appropriate value.



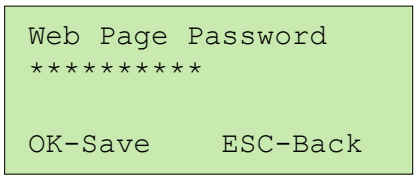
To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

3.7 Web Page

3.7.1 Web page password



Use this option to set a remote user password for the Web Page.

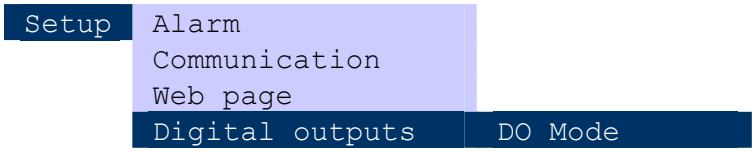


To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

During password entry you see the characters typed in. During normal menu browsing, the password is invisible.

3.8 Digital Outputs

3.8.1 Digital output mode



Use this option to select the function mode for digital outputs DO1, DO2. Digital Output Mode.

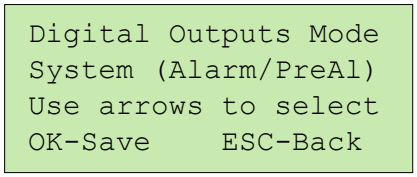
Available options: System (Alarm/PreAl), User

Default: System

System (Alarm/PreAl): The outputs are used by the system to monitor prealarm and alarm using a lamp on DO1 and a sirene on DO2.

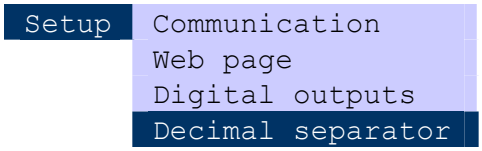
User: The output state of each output is user selectable and can be set remotely over the web page, TCP or SMS command.

Use the arrow keys to select an option.



To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

3.9 Decimal separator

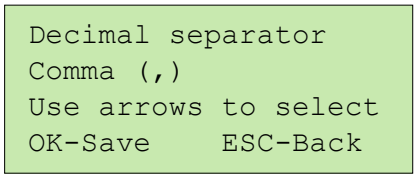


Use this option to select the character for the decimal number separator to be used in the measurements data file (See section 8.1).

Available options: Period(.), Comma (,)

Default: Period(.)

Use the arrow keys to select an option.



To save the setting press <**OK**>. To exit, without saving, press <**ESC**>.

4. General settings and commissioning

4.1 Setting date and time

```
Setup
Commissioning      Set RTC
Test comms         Start web server
Connect to host    Clear FIFO
View I/O           Clear event log
View counters      Clear counter
View FIFO          Counter preset
                   Factory settings
                   Firmware upgade
```

Use this option to preset date and time.

```
Set RTC Time

4 04/01/01 05:19:37
OK-Save    ESC-Back
```

The first number indicates the day of the week, as follows:

1: Sunday
2: Monday
3: Tuesday
4: Wednesday
5: Thursday
6: Friday
7: Saturday

The date format is day/month/year (DD/MM/YY) and the time format hour:minutes:seconds (HH:MM:SS).

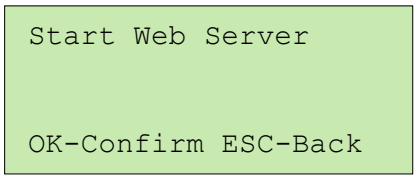
Use the **up arrow** to move the cursor to the right or the **down arrow** to move the cursor to the left. The cursor is blinking to show its position.

Set the current time and press <**OK**> to preset the clock or press <**ESC**> to leave it unchanged and exit.

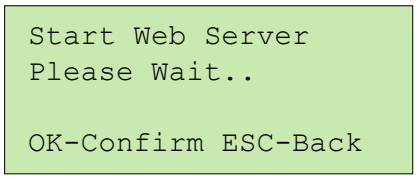
4.2 Starting the web server

Setup	
Commissioning	Set RTC
Test comms	Start web server
Connect to host	Clear FIFO
View I/O	Clear event log
View counters	Clear counter
View FIFO	Counter preset
	Factory settings
	Firmware upgade

Use this option to start the web server manually. If the 'Internet connect' parameter (see 3.6.10) is off, it is set to on.



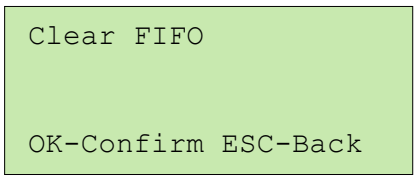
To start the web server press <**OK**>. To exit, without saving, press <**ESC**>. The following message appears on the display during launching:



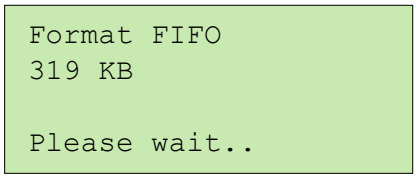
4.3 Clear FIFO

Setup	
Commissioning	Set RTC
Test comms	Start web server
Connect to host	Clear FIFO
View I/O	Clear event log
View counters	Clear counter
View FIFO	Counter preset
	Factory settings
	Firmware upgade

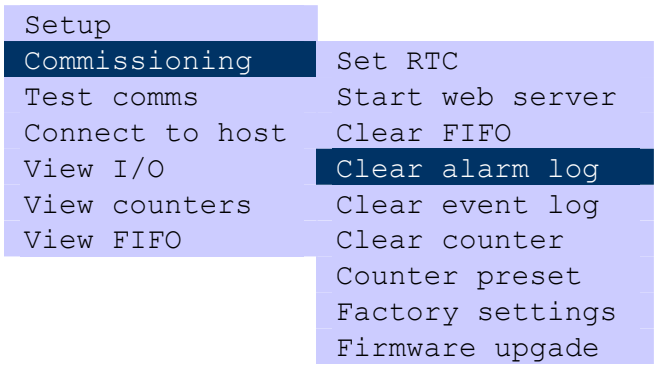
This option deletes existing logged data and formats the FIFO memory.



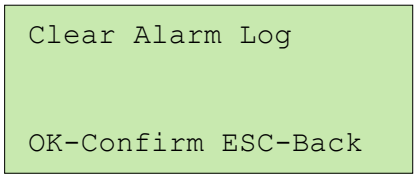
To start FIFO formatting press <**OK**>. To cancel, press <**ESC**>.



4.4 Clear alarm log

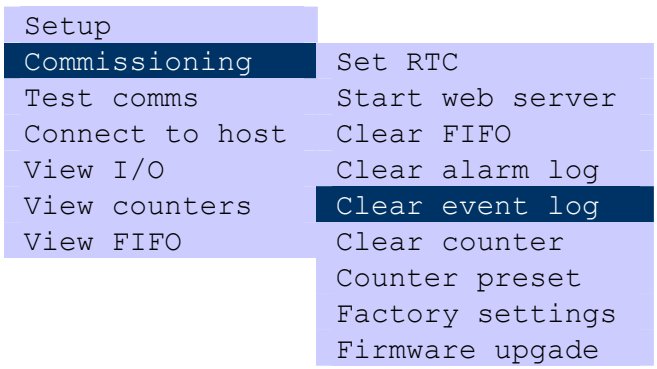


The unit keeps an alarm log file.
This option empties the alarm log.

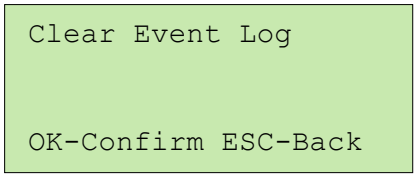


Press <**OK**> to delete existing alarm records. To cancel, press <**ESC**>.

4.5 Clear event log

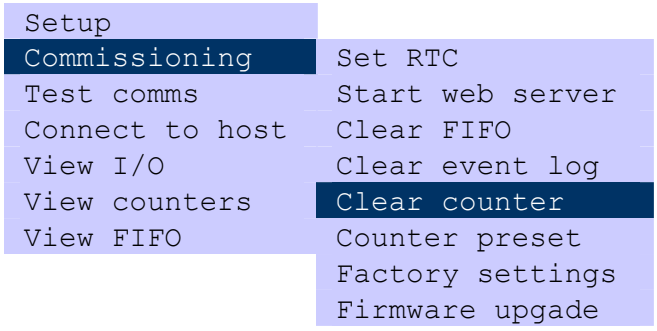


The unit keeps an event log file containing start up date/time marks, communication errors and related events.
This option empties the event log.

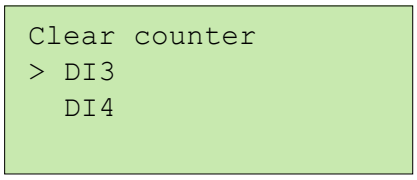


Press <**OK**> to delete existing event records. To cancel, press <**ESC**>.

4.6 Clear counter

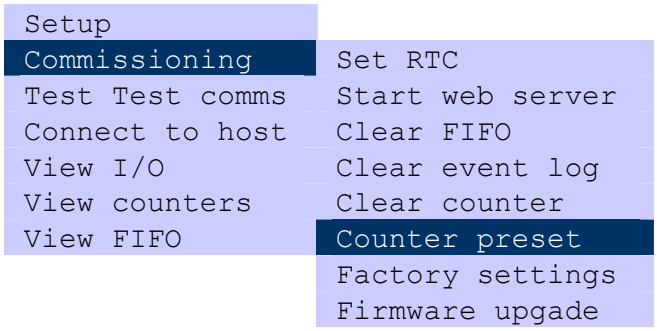


Use this option to clear a counter or totalizer (see 3.4.2). Use the **arrow keys** to select the totalizer.

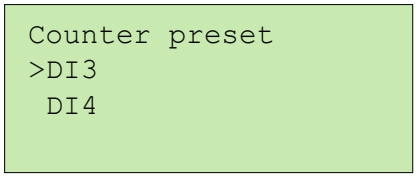


Press <**OK**> to clear the totalizer. To cancel the entry, press <**ESC**>.

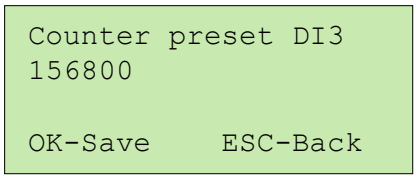
4.7 Counter preset



Use this option to set a starting value for a counter or totalizer (see 3.4.2). Use the **arrow keys** to select the counter or totalizer. The current preset value appears below. Type in the new value.

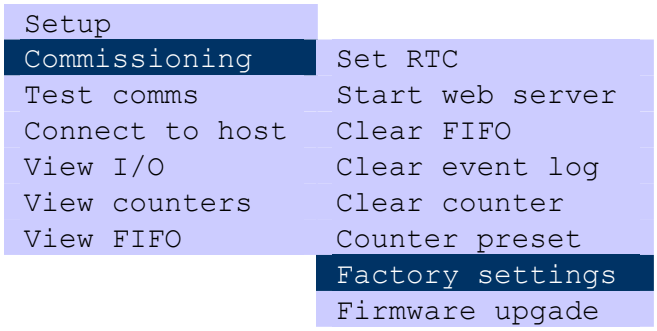


Select counter and press <**OK**. To cancel, press <**ESC**>.

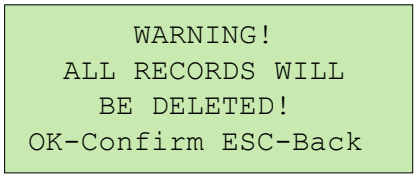


To save the preset value press <**OK**>. To exit, without saving, press <**ESC**>.

4.8 Factory settings



Use this option to restore all parameters and settings with their default values. All logged data will be erased and the FIFO memory will be formatted.



Press <**OK**> to confirm or <**ESC**> to cancel.

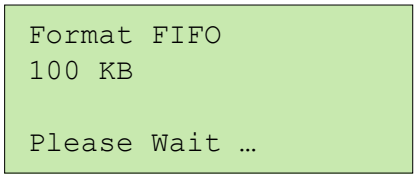
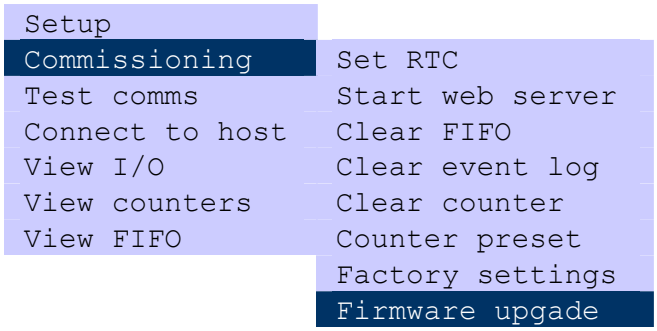
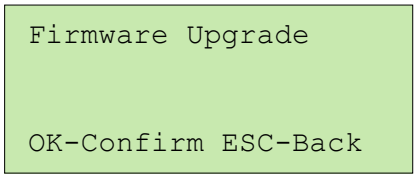


Table 3 contains the default values of all parameters (see Appendix 8.5).

4.9 Firmware upgrade



Use this option to download new firmware to the unit using a PC connected to the serial port.

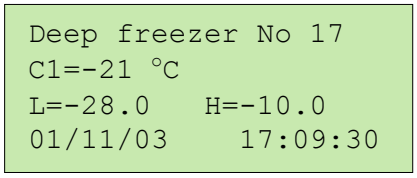


The firmware upgrade is described in Appendix 8.4.

5. Operation

5.1 Main screen & key functions

The main sceen displays the channel values.



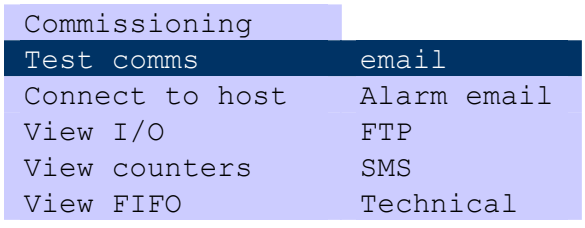
Available key functions

F1..F8	Switch the display to channel 1..8 respectively.
Arrow keys	Switch the diplay to the next (previous) channel
MAIN	Enters the main menu
⇧ **ESC**	View IP address
⇧ **F8**	Alarm acknowledge. After acknowledging, DO2 goes low (Alarm sirene function), while DO1 remains high (Alarm lamp function), see 3.8.1.

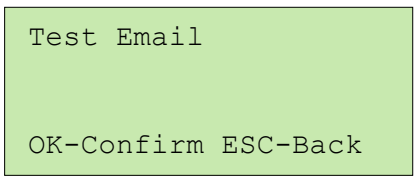
5.2 Diagnostics

5.2.1 Testing communication

E-mail



Use this option to test e-mail transfer by sending a test e-mail with the logged data to the selected recipients.



Press <**OK**> to confirm.

```
Test Email
Please wait…

OK-Confirm ESC-Back
```

If the transfer has been completed successfully:

```
Test Email
OK

OK-Confirm ESC-Back
```

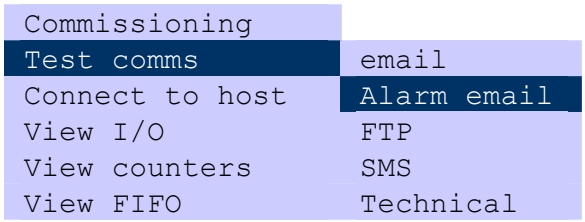
If the transfer has not suceeded:

```
Test Email
Comm error -106

OK-Confirm ESC-Back
```

See Appendix 8.7 for details on communication errors.

Alarm e-mail



Use this option to test e-mail transfer by sending a test e-mail with the current alarms to the selected recipients.

```
Test Alarm email


OK-Confirm ESC-Back
```

Press <**OK**> to confirm.

```
Test Alarm email
Please wait…

OK-Confirm ESC-Back
```

If the transfer has been completed successfully:

```
Test Alarm email
OK

OK-Confirm ESC-Back
```

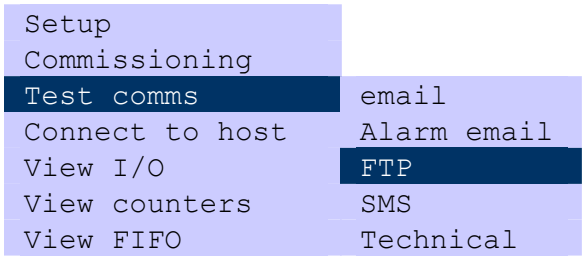
If the transfer has not suceeded:

```
Test Alarm email
Comm error -106

OK-Confirm ESC-Back
```

See Appendix 8.7 for details on communication errors.

FTP



Use this option to test FTP transfer by connecting to the selected FTP server and sending a file with the logged data.

```
Test FTP


OK-Confirm ESC-Back
```

Press <**OK**> to confirm.

```
Test FTP
Please wait…

OK-Confirm ESC-Back
```

If the transfer has been completed successfully:

```
Test FTP
OK

OK-Confirm ESC-Back
```

If the transfer has not suceeded:

```
Test FTP
Comm error -1003

OK-Confirm ESC-Back
```

See Appendix 8.7 for details on communication errors.

SMS

```
Setup                 
Commissioning         
Test comms            email
Connect to host       Alarm email
View I/O              FTP
View counters         SMS
View FIFO             Technical
```

Use this option to test FTP transfer by connecting to the selected FTP server and sending a file with the logged data.

```
Send Test SMS


OK-Confirm ESC-Back
```

Press <**OK**> to confirm.

```
Send Test SMS

Setting params…
OK-Confirm ESC-Back
```

If the transfer has been completed successfully:

```
Send Test SMS
OK

OK-Confirm ESC-Back
```

If the transfer has not suceeded:

```
Send Test SMS
Comm error -1000

OK-Confirm ESC-Back
```

See Appendix 8.7 for details on communication errors.

Technical

```
Setup
Commissioning
Test comms          email
Connect to host     Alarm email
View I/O            FTP
View counters       SMS
View FIFO           Technical
```

This option is intended for service purposes. Do not use it.

5.2.2 Viewing I/O values and states

```
Setup
Commissioning
Test comms
Connect to host
View I/O
View counters
View FIFO
View alarm log
```

Use this option to view the raw analog values after digitizing and digital I/O states.
Analog raw values of channels 1-6 are displayed:

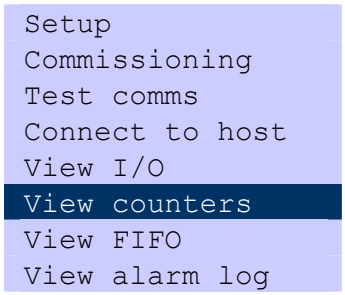
```
C1-2: 0475 1585
C3-4: 4095 0001
C5-6: 0000 0000
Press any key..
```

Press <**ESC**> to exit or any key to view digital I/O states.

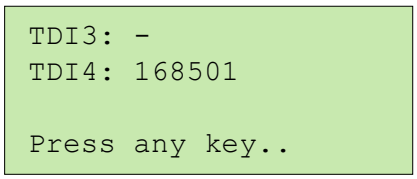
```
DI1-4: 0  0  0  0
DO1-2: 1  1

Press any key..
```

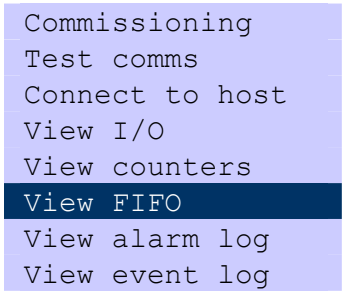
5.2.3 Viewing the totalizer values



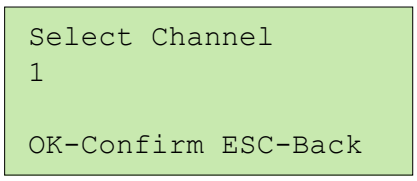
Use this option to view the totalizer values if any configured using the option 3.4.2.



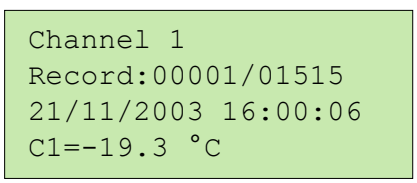
5.2.4 Viewing the logged data



Use this option to view the logged records.



Select a channel by giving the channel number (1-6) and press <**OK**>.
To return to previous menu press <**ESC**>. Use the arrow keys to browse to next or previous record.

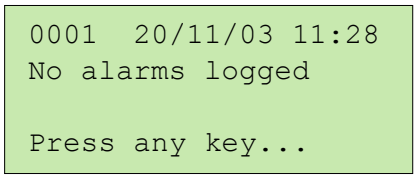


Press <**ESC**> to quit.

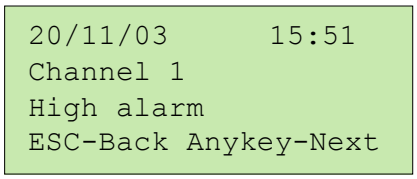
5.2.5 Viewing the alarm log

Use this option to view the logged records in the system alarm log.

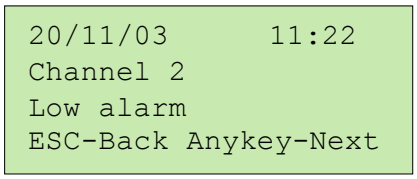
In case of no alarm records:



In case of existing alarm records.



Press any key to view the next record.



Press <**ESC**> to quit.

5.2.6 Viewing the event log

```
View counters
View FIFO
View event log
View IP address
```

Use this option to view the logged records in the system event log.

```
0001  20/11/03 11:28
Factory Settings

ESC-Back Anykey-Next
```

Press any key to view the next record.

```
0002  20/11/03 15:51
Startup

ESC-Back Anykey-Next
```

```
0003  20/11/03 06:17
FTP Error

ESC-Back Anykey-Next
```

```
0003  20/11/03 06:17
e-mail Error

ESC-Back Anykey-Next
```

Press <**ESC**> to quit.

5.2.9 View IP address

```
View counters
View FIFO
View event log
View IP address
Test H/W
```

Use this option to view the IP address (dynamic or static.

```
IP Address
111.222.3.44

Press any key..
```

5.3 Connecting to a PC

5.3.1 Uploading data

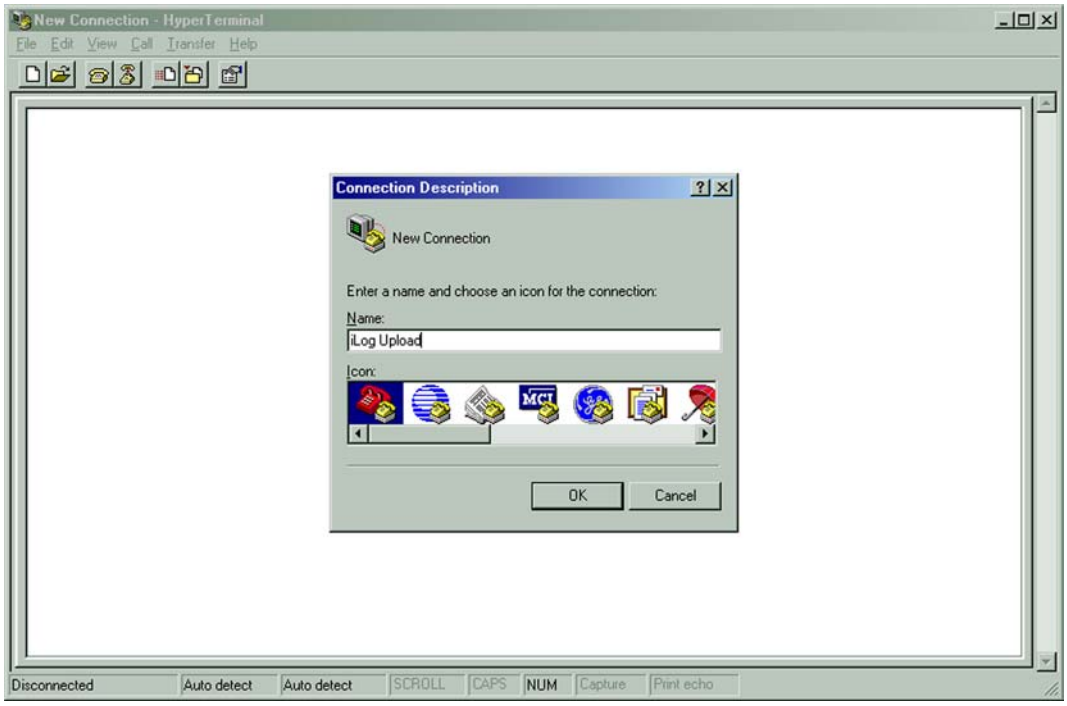
Setup	
Commissioning	
Test comms	
Connect to host	Upload FIFO
View I/O	iLOGPlus Transporter
View counters	
View FIFO	

Use this option to upload the logged data to a PC.

- Connect the PC to the iLOGPlus unit (See 2.4).
- Set the baud rate of the iLOGPlus serial port (See 3.6.9)

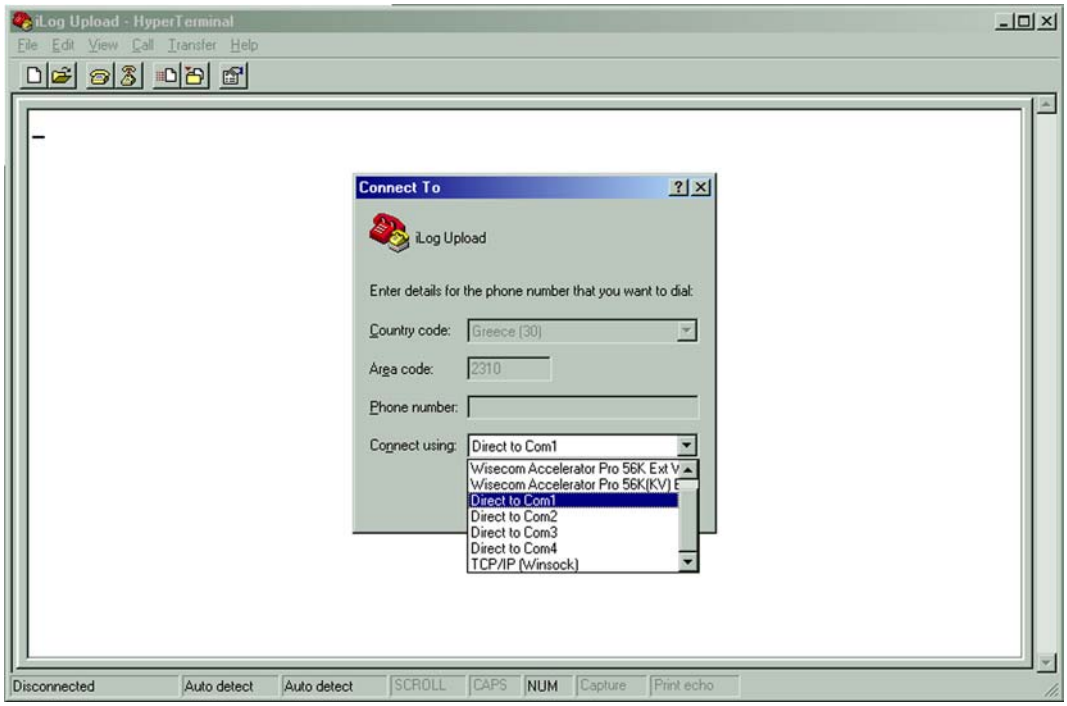
PC side:

Launch the Hyperterminal and create a new connection.



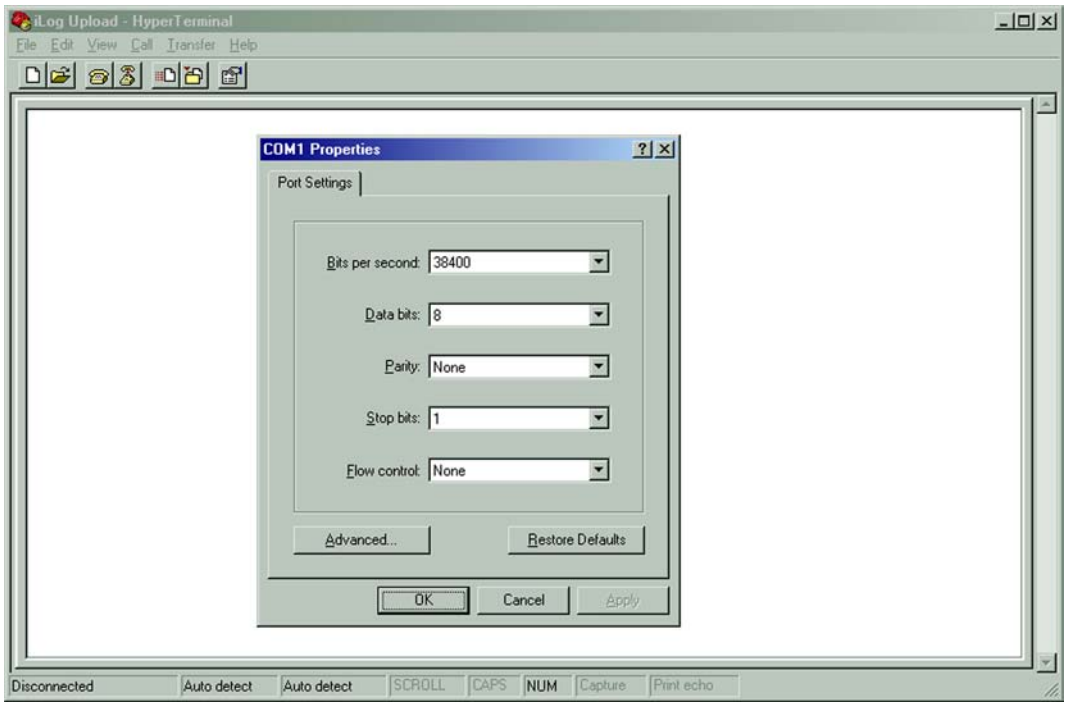
Press <**OK**> to create the connection

Select connection type ‘Direct to COMx’ and press <**OK**>.

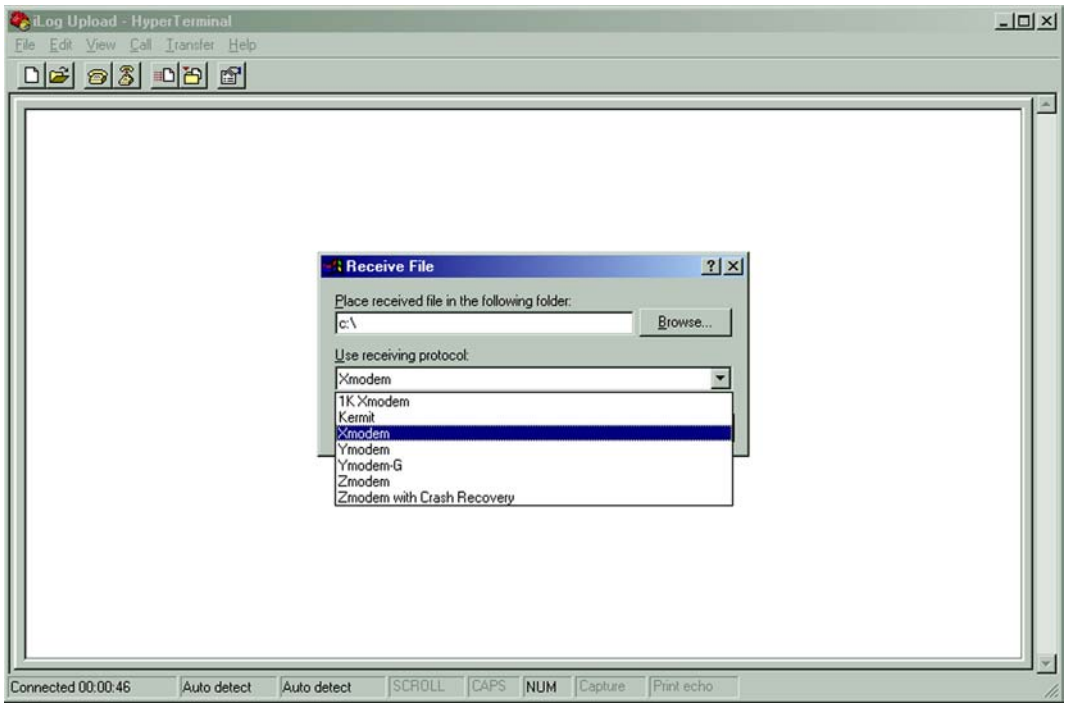


Set the proper parameters for the selected serial port.

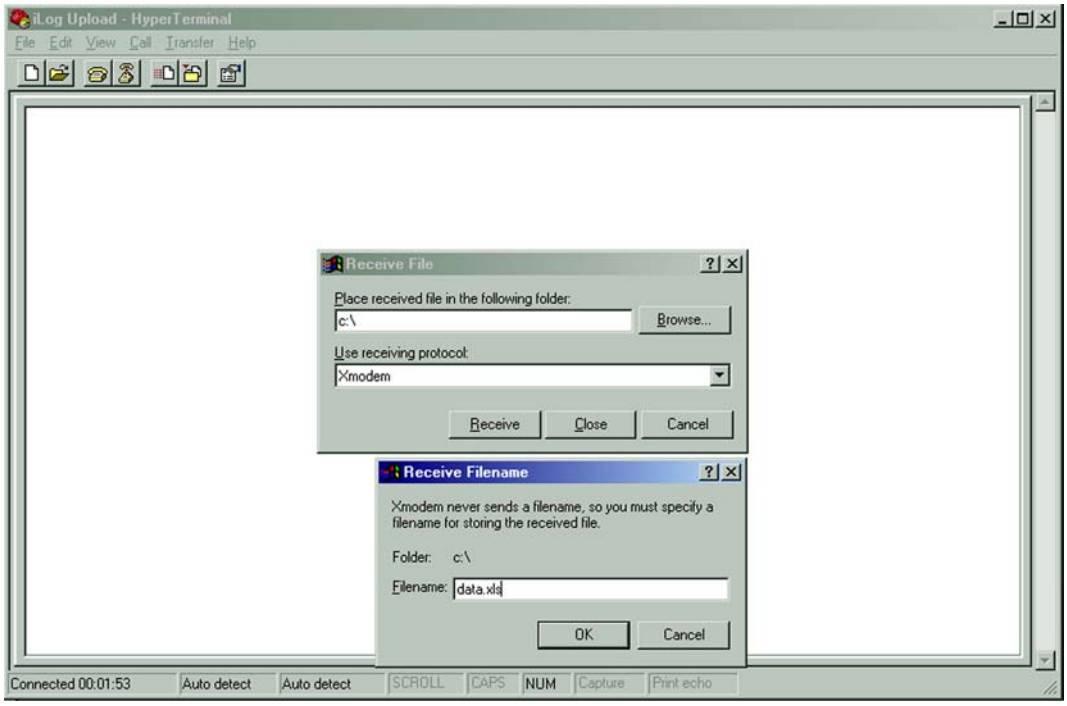
Bits per second:	38400
Data bits:	8
Parity:	none
Stop bits:	1
Flow control:	None



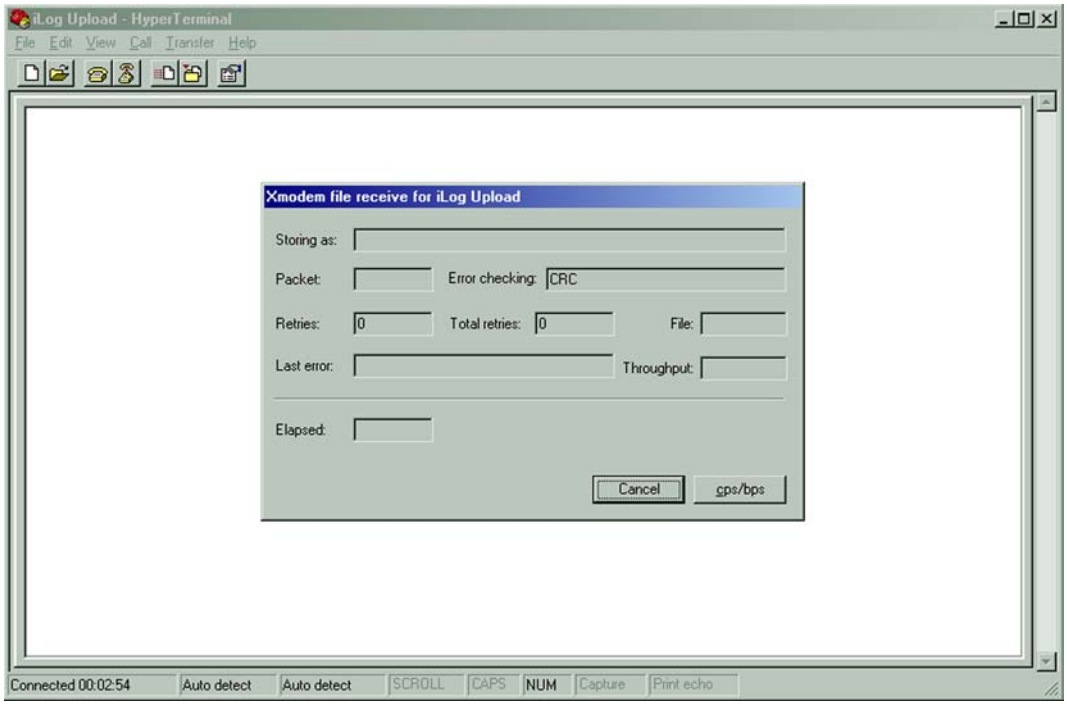
Press <**OK**> to proceed. From the Hyperterminal menus, select the 'Transfer → Receive File…' option.



Set the protocol option to 'XMODEM'. Specify a path for the data file and the file name.



The uploading screen appears:



iLOGPlus side:

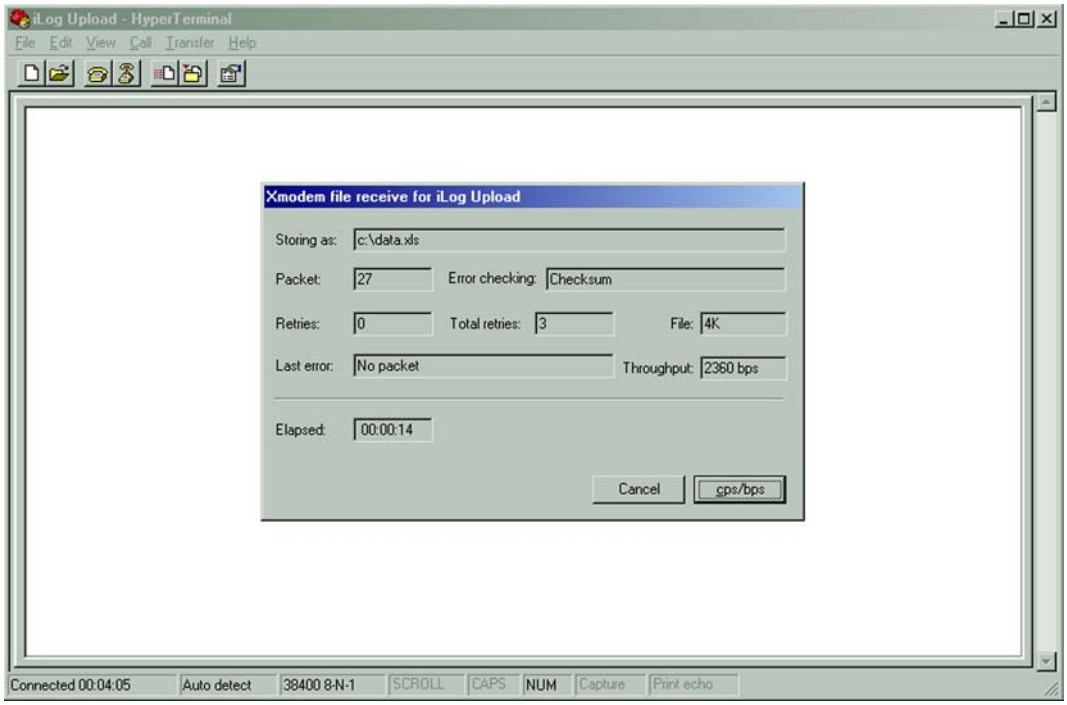
```
Connect to Host
>Upload FIFO
```

Press <OK> to select the menu.

```
Waiting for receiver
Init TimeOuts..
Retries: 001
```

PC side:

Hyperterminal expects data packets with the CRC error checking option. After a while it switches automatically to the checksum option which is the error checking mode for iLOGPlus. Uploading begins:



iLOGPlus side:

During uploading:

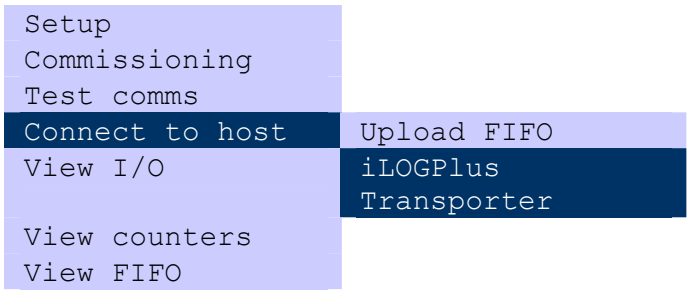
```
Uploading Data
Packs sent:001
Curr Pack Err:000
```

If the connection fails:

```
Uploading failed..

Press any key..
```

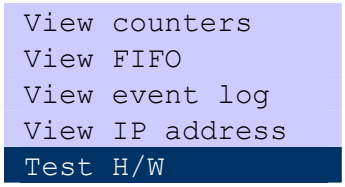
5.3.2 Using iLOGPlus Transporter for exchanging parameters



Use this option to connect to the iLOGPlus Transporter application (Firmware > 2.0 is required!). iLOGPlus Transporter supports:

- Reading of the current device configuration.
- Uploading a user configurated parameter file to the iLOGPlus device.
- Downloading the FIFO data in a PC file.
- Archiving configurations in a data base file and reporting.

5.4 Hardware test procedures



This option is intended for service purposes and requires special test equipment. **Do not use it!**

5.5 Remote control

There are two ways to control the iLOGPlus unit remotely:

- Using the TCP commands
- Using SMS commands

5.5.1 TCP commands

TCP (SOAP) commands can be used to communicate on-line with the iLOGPlus unit by means of TCP packets after opening a socket connection.

The unit should have a static IP address and be connected to the internet (see 3.6.10), for using this option. Section 8.5 contains a table with the available TCP commands.

5.5.2 SMS commands

SMS commands can be applied if the hardware meets the requirements and the respective settings are selected. Section 8.5 contains a table with the available SMS commands.

ILOGPLUS-GSM supports SMS receiving through the internal GSM modem.

iLOGPlus-EDM supports SMS receiving with a GSM modem attached on one of the two serial ports (COM1 or COM2).

ILOGPLUS-LAN supports SMS receiving with a GSM modem attached on the auxilliary serial port (COM2).

Following settings must be made to enable SMS receiving:

- **Setup/Communication/GSM:** Set the parameters **GSM port, GSM Baud, GSM PIN, SMS center, SMS recipients** (See 3.6.8). Only GSM port must be set for iLOGPlus-GSM (COM1). **iLOGPlus accepts SMS commands only from users listed in the SMS recipients list!**
- **Setup/Communication/Power save:** The Power Save parameter must be set to 'Off' to enable instant SMS receiving (See 3.6.11). If Power save is 'ON', incoming SMS are served once every hour.

SMS receiving is enabled one minute after power up. All received SMS messages, during this startup period, are deleted.

6. Specifications

Protection	IP40
Temperature range	-10°C, +55°C, operating
Dimensions	154 x 84 x 38 mm
Weight	0.3 kg
Display	LCD 4x20 characters, backlight
Keyboard	membrane, 15 buttons
Mounting	Suspension element with snap-in locking device, Optional DIN rail mounting kit.
Supply voltage iLOGPlus unit SCT-04E-12 SCT-04E-24	 12 .. 30 VDC 12 .. 15 VDC 24 .. 27 VDC
Supply current ILOGPLUS unit SCT-04E-12 SCT-04E-24	 LAN: 110 mA (150 max), EDM : 50 mA (110 max), GSM : 50mA (2 A max) 10 mA (100 mA max) 10 mA (100 mA max)
Analog inputs ILOGPLUS unit SCT-04E	 4, resolution 12 bit AI 1, 2 → Gain: 3.917 (low), 10 (High) AI 3, 4 → Gain: 3.917 0-20mA /4-20mA: Input resistance = 50Ω AD592: Input resistance = 2.7 KΩ
Digital inputs	4, pull, GND..Vcc
Digital outputs ILOGPLUS unit SCT-04E-0-x	 2, open collector, 30V/100mA 2, relay, 250V, 10A
Serial port (COM2)	Baud rate: 4800 to 38400 bps
	Protocols: XMODEM (Checksum), SMS
Main communication port (COM1)	ILOGPLUS-LAN: Ethernet LAN, 10BaseT
	ILOGPLUS-EDM: RS232 serial port
	ILOGPLUS-GSM: GSM/GPRS modem internally connected to COM1
	Protocols: General Internet Protocols (IP, TCP, DNS, POP3, HTTP, FTP, Web server)
Interfaces	iLOGPlus-LAN: RJ45 Ethernet connector (COM1)
	iLOGPlus-EDM: 9 pin D-connector (COM1), 6 pin mini Western socket (Modem power supply control)
	iLOGPlus-GSM: SMA connector for GSM antenna
	Power, I/O, COM2: 25 pin D-connector
Log Memory	FIFO, approx. 10000 records (512K SRAM), power fail safe
Pulse counting	2 (DI3, DI4), 100Hz, 4 byte • Frequency measurement in the range of 0-32 Hz (L). • Frequency measurement in the range of 0-3.2 KHz (H). • Totalizing function up to 4,294,967,295 with preset and clear

SMS communication	Alarm messaging in GSM Text Format in conjunction with external GSM modem (iLOGPlus-LAN)
Web server	HTML pages (32 KB max)
GSM Features (iLOGPlus-GSM)	Output power: Class 4 (2W at 850, 900 MHz) Class 1 (1W at 1800, 1900 MHz) GPRS: Compliant with SMG32 (R97)

Table 4

7. Troubleshooting

Display remains black after power on	• Check power connection • Check for reverse polarity • Check fuse (1A) on SCT-04E adaptor. • Read chapter 2.2.1
After power on DO1, DO2 outputs get high.	• Press <SHIFT-F8> to acknowledge alarm. • Set the appropriate alarm limits and alarm modes for the analog channels and digital inputs (see chapter 3.4.1, 3.4.3, 3.5)
The analog values seem not to be correct.	• Check sensor cabling and jumper settings for the corresponding channel on the SCT-04E adaptor (see 2.2.2) • Set the correct analog channel measurement parameters (see 3.4.1). • Use the calibration option to correct sensor deviations (see 3.4.1)
No records are logged.	• Channel loggings are probably disabled. • Check and set parameters for logging (See 3.3.2, 3.3.1)
E-mail or FTP transfer fail when using the according test option (See 5.1.1, 5.1.2, 5.1.3).	• Check the cable connection to Ethernet (see 2.3). • Check and set the internet parameters (see 3.6.4) • For automatic data transfer set the parameters in 3.6.1, 3.6.2, 3.6.3 and 3.6.8.
Alarm SMS fail when using the according test option (See 5.1.4).	• Check the GSM modem cabling and the GSM antenna (see chapter 2.5) • Check the GSM parameters (see chapter 3.6.7)
Cannot select digital input DI3 or DI4 for counting.	• The input is probably used for conditional logging of the corresponding analog channel (see 3.3.2)
Alarm annunciation switches frequently between on and off state.	• Find the alarm source by viewing the current channel values. • Disable alarm annunciation for unused channels. • Set a higher alarm deadband value for a specific analog cahannel (see 3.5.3)

Table 5

8. Appendix

8.1 Data transfer formats

8.1.1 File name

The files are named according to the following convention:

Station Name_MMDD_hhmm

MM: month, DD: day, hh: hour, mm: minute

Example: iLOGPlus01_0424_1222.xls

8.1.2 File format

The TSV format (**Tab separated format**) is used for data file transfer.

Two channels logged in one record

Station iLOGPlus01 4.1

AI1 Temp 1
AI2 Temp 2

DI1 Chiller1
DI4 Chiller4

DATE	TIME	AI1	AI2	ALARM1	ALARM2	DI1	DI2	DI3	DI4
24/4/2004	11:15:00	-3.1	-4.6			0	0	0	1
24/4/2004	11:30:00	-2.9	-4.2			0	0	0	1
24/4/2004	11:45:00	-3.0	-4.7			0	0	0	1
24/4/2004	12:00:00	-2.8	-4.5			0	0	0	1
24/4/2004	12:15:00	-3.2	-4.6			0	0	0	1

ALARM LIST

DATE	TIME	CHANNEL	TYPE
24/4/2004	12:15:56	DI4	L
24/4/2004	12:17:26	DI1	H
24/4/2004	12:18:30	AI1	H
24/4/2004	12:18:34	AI2	H
24/4/2004	12:19:24	AI1	A
24/4/2004	12:19:24	AI2	A
24/4/2004	12:19:24	DI1	A
24/4/2004	12:19:24	DI4	A
24/4/2004	12:20:00	DI1	H
24/4/2004	12:20:00	DI4	L
24/4/2004	12:20:54	DI1	A
24/4/2004	12:20:54	DI4	A

Separated logging

Station iLOGPlus01 4.1

AI1 Temp 1
AI2 Temp 2

DI1 Chiller1
DI4 Chiller2

DATE	TIME	CHANNEL	VALUE	ALARM	DI1	DI2	DI3	DI4
24/4/2004	13:15:00	1	-4.2		0	0	0	1
24/4/2004	13:15:00	2	-8.4		0	0	0	1
24/4/2004	13:30:00	1	-3.8		0	0	0	1
24/4/2004	13:30:00	2	-9.2	H	0	0	0	1
24/4/2004	14:00:00	1	-3.9		0	0	0	1
24/4/2004	14:00:00	2	-6.8		0	0	0	1

ALARM LIST

DATE	TIME	CHANNEL	TYPE
24/4/2004	13:15:56	DI4	L
24/4/2004	13:17:26	DI1	H
24/4/2004	13:18:30	AI1	H
24/4/2004	13:19:24	AI1	A
24/4/2004	13:19:24	DI1	A
24/4/2004	13:19:24	DI4	A
24/4/2004	13:20:00	DI1	H
24/4/2004	13:20:00	DI4	L
24/4/2004	13:20:54	DI1	A
24/4/2004	13:20:54	DI4	A

8.1.3 Alarm annunciation

Alarm message (e-mail body, SMS)

iLOGPlus-Test Channel 2 High Alarm

Alarm aknowledgment report message (e-mail body, SMS)

iLOGPlus-Test 3 alarms acknowledged (channels: 1, 2, 3)

8.2 Parameter default values

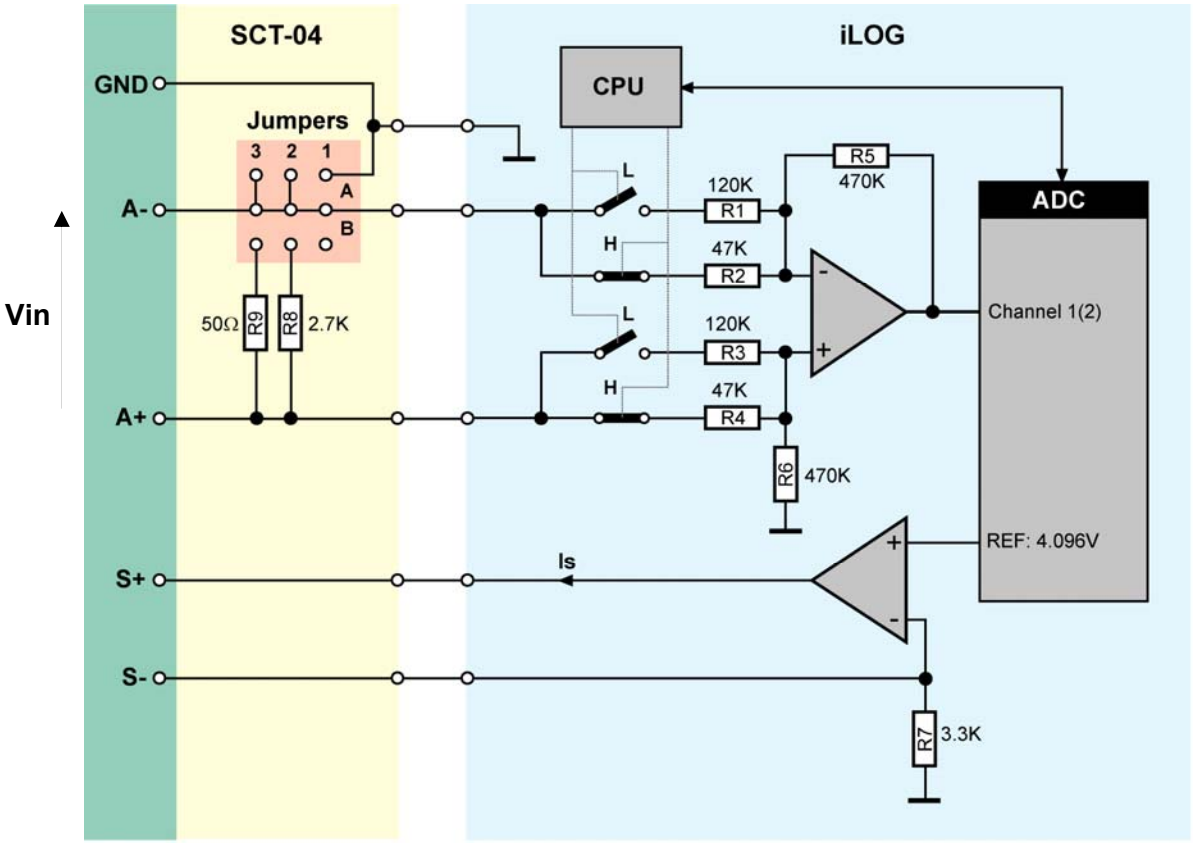
Parameter	Default Value
Unit Name	iLOGPlus01
Unit Description	iLOGPlus telemetry unit
Channel x Description	Channel x
Unit	(none)
Scale Low	0
Scale High	4095
Alarm Low	0
Alarm High	4095
Calibration	0
Gain	Low
Counting mode	- (disabled)
Alarm mode	Delayed (all channels)
Prealarm	0
Alarm Dead Band	0.5
Alarm Delay	0
Logging Mode	All
Log Channels	All enabled
Log Value	Average
Logging Rate	900 (15 minutes)
Sending Rate	1440 minutes (24 hours)
Sending Mode	E-mail and FTP disabled
Alarm send mode	E-mail and SMS disabled
IP Address (LAN)	192.168.1.45
DNS, Gateway (iLOGPlus-LAN)	0.0.0.0
Subnet Mask (LAN)	255.255.255.0
Modem type	iLOGPlus-EDM: Hayes, iLOGPlus-GSM: GSM P2
ISP Phone No (EDM, GSM)	-
ISP Username, Password	-
Modem Init string (Hayes only)	AT&FE0X0L3
e-mail SMTP, POP3	-
e-mail User Name, Password	-
e-mail Receivers	-
SMTP Auth	No
POP3 Auth	No
FTP Server x Address	-
FTP User Name, Password, x	-
FTP Port x	21
Use Passive Mode x	No
Synchronization time	00:00
Power save	ON
GSM port	none
GSM Baud (COM1)	38400 (Fixed by iLOGPlus-GSM)
Other SMS parameters	-
Web Sever mode	iLOGPlus-LAN: Always on, iLOGPlus-EDM, GSM: Off
COM2 baud rate	38400
XM Null Char	26
Menu password	2466 (fixed)
Firmware upgrade password	13579 (fixed)

Table 7

8.3 Analog measurements

8.3.1 Signal conditioning circuits

Channels 1, 2



Analog channels 1, 2 feature switchable gain and a current source (S+, S-) for driving current through variable resistance sensors (RTD, strain gauges, etc.)

The A/D converter uses a voltage reference of 4.096V.

High gain (H switches closed, L switches open)

The ADC input voltage is calclulated by the formula:

Vadc=Vin * R5/R2= Vin * 10

Low gain (L switches closed, H switches open)

The ADC input voltage is calclulated by the formula:

Vadc=Vin * R5/R1= Vin * 3.917

Example:

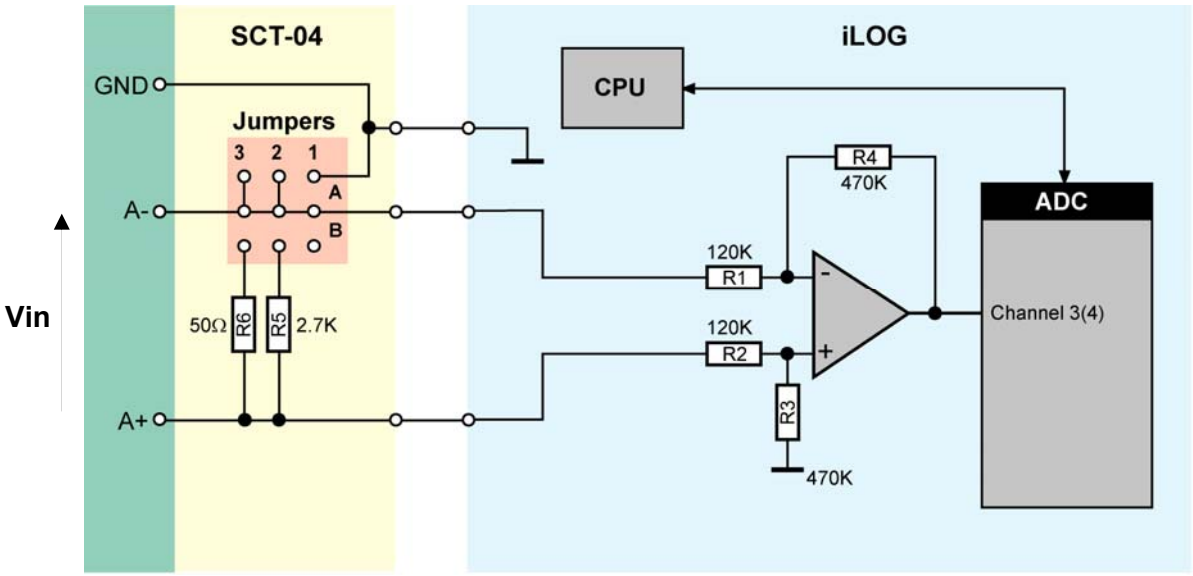
Vin= 243.5 mV, Gain= High

Vadc= 2.435 V, Raw digital value= 2435

The current driven by the current source is calculated by the formula:

Is=Vref/R7=1.24 mA

Channels 3, 4



Analog channels 3, 4 feature fixed gain.

The ADC input voltage is calclulated by the formula:

Vadc=Vin * R4/R1= Vin * 3.917

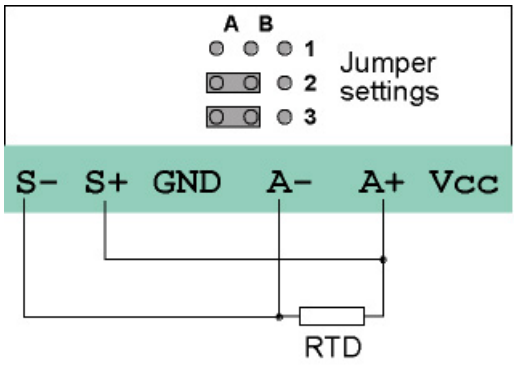
Example:

Vin= 612.3 mV, Gain= High

Vadc= 2.398 V, Converted value= 2398

8.3.2 Applications

Connecting a PT100 temperature sensor (-50..595 °C)



Channel setup for the main unit:

PT100 is a resistive sensor with almost linear characteristic in the range of -30 to 120 °C. Measurement is accomplished by driving a current of 1.24 mA through the sensor and measuring the voltage drop across it. The internal current source is used for the sensor supply.

The PT100 resistance is 100Ω at 0 °C and 138.5 Ω at 100 °C. The resistance change in this almost linear section is 0.385 Ω /°C. Using this scaling factor and assuming an overall linear characteristic:

The input voltage drop at -50 °C is:
Vin= (100-0.385*50) Ω * 0.00124 A = 0.1001 V
Vadc = 100.1 mV * Gain = 100.1 mV * 10 = 1001 mV
The converted value is 1001. Set the Sensor low parameter to this value.
The voltage drop at 595 °C is:
Vin= (100+0.385*595) Ω * 0.00124 A = 0.408053 V
Vadc = 408.1 mV * Gain = 408.1 mV * 10 = 4081 mV
The converted value is 4081. Set the Sensor high parameter to this value.

Scale low	Scale high	Sensor low	Sensor high	Gain	Linearization
-50 °C	595 °C	1001	4081	High	PT100

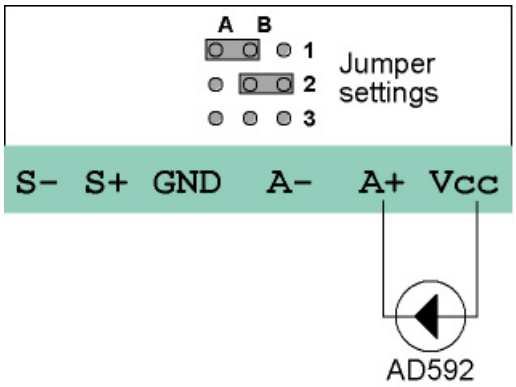
RTD Excitation
ON

Channel setup for the GE-AI-4 expansion unit:
The excitation current of the internal current source is 2 mA.
The input voltage drop at -50 °C is:
Vin= (100-0.385*50) Ω * 0.002 A = 0.1615 V
Vadc = 161.5 mV * Gain = 161.5 mV * 3.931 = 635 mV
The converted value is 635. Set the Sensor low parameter to this value.
The voltage drop at 595 °C is:
Vin= (100+0.385*595) Ω * 0.002 A = 0.658 V
Vadc = 658 mV * Gain = 658 mV * 3.931 = 2587 mV
The converted value is 2587. Set the Sensor high parameter to this value.

Scale low	Scale high	Sensor low	Sensor high	Gain	Linearization
-50 °C	595 °C	635	2587	High	PT100

RTD Excitation
-

Connecting a AD592 temperature sensor



Channel setup for the main unit:

The AD592 is an integrated circuit temperature transducer that provides an output current proportional to absolute temperature. For a wide range of supply voltages the transducer acts as a high impedance temperature dependent current source of 1 μA/K.

The AD592 delivers 248 μA at –25 °C. The jumper settings on SCT-04E drive this current through the 2.7K (R8) resistor. The voltage drop at –25 °C is:

Vin= 0.000248 A * 2700 Ω = 669.6 mV

Vadc = 669.6 mV * Gain = 669.6 mV * 3.917 = 2623 mV

The converted value is 2623. Set the Sensor low parameter to this value.

The sensor delivers 378 μA at 105 °C. The voltage drop at 105 °C is:

Vin= 0.000378 A * 2700 Ω = 1020.6 mV

Vadc = 1020.6 mV * Gain = 1020.6 mV * 3.917 = 3.997.7 mV

The converted value is 3998. Set the Sensor high parameter to this value.

Scale low	Scale high	Sensor low	Sensor high	Gain	Linearization
-25°C	105 °C	2623	3998	Low	none

Channel setup for the GE-AI-4 expansion unit:

With a 2K7 external resistor (recommended):

The AD592 delivers 248 μA at –25 °C.

Vin= 0.000248 A * 2700 Ω = 669.6 mV

Vadc = 669.6 mV * Gain = 669.6 mV * 3.931 = 2632 mV

The converted value is 2632. Set the Sensor low parameter to this value.

The sensor delivers 378 μA at 105 °C.

Vin= 0.000378 A * 2700 Ω = 1020.6 mV

Vadc = 1020.6 mV * Gain = 1020.6 mV * 3.931 = 4012 mV

The converted value is 4012. Set the Sensor high parameter to this value.

Scale low	Scale high	Sensor low	Sensor high	Gain	Linearization
-25°C	105 °C	2632	4012	Low	none

With a 2K0 external resistor:

The AD592 delivers 248 µA at –25 °C.

Vin= 0.000248 A * 2000 Ω = 496 mV

Vadc = 496 mV * Gain = 496 mV * 3.931 = 1950 mV

The converted value is 1950. Set the Sensor low parameter to this value.

The sensor delivers 378 µA at 105 °C.

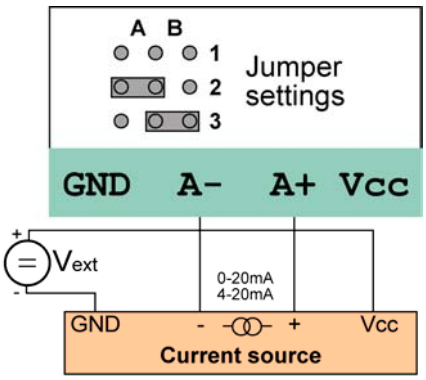
Vin= 0.000378 A * 2000 Ω = 756 mV

Vadc = 756 mV * Gain = 756 mV * 3.931 = 2972 mV

The converted value is 2972. Set the Sensor high parameter to this value.

Scale low	Scale high	Sensor low	Sensor high	Gain	Linearization
-25°C	105 °C	1950	2972	Low	none

Connecting a 4-20mA pressure sensor



Channel setup for the main unit:

The sensor delivers 4 mA at 0 bar and 20 mA at 10 bar. The jumper settings on SCT-04E drive the current through the 50Ω (R9) resistor. The voltage drop at 0 bar is:

Vin= 0.004 A * 50 Ω = 0.2 V

Vadc = 200 mV * Gain = 200 mV * 3.917 = 783.4 mV

The converted value is 783. Set the Sensor low parameter to this value.

The sensor delivers 20 mA at 10 bar. The voltage drop at 10 bar is:

Vin= 0.020 A * 50 Ω = 1 V

Vadc = 1000 mV * Gain = 1000 mV * 3.917 = 3917 mV

The converted value is 3917. Set the Sensor high parameter to this value.

Scale low	Scale high	Sensor low	Sensor high	Gain	Linearization
0 bar	10 bar	783	3917	Low	none

Channel setup for the GE-AI-4 expansion unit:

Vin= 0.004 A * 50 Ω = 0.2 V

Vadc = 200 mV * Gain = 200 mV * 3.931 = 786.2 mV

The converted value is 786. Set the Sensor low parameter to this value.

The sensor delivers 20 mA at 10 bar. The voltage drop at 10 bar is:
Vin= 0.020 A * 50 Ω = 1 V
Vadc = 1000 mV * Gain = 1000 mV * 3.931 = 3931 mV

The converted value is 3931. Set the Sensor high parameter to this value.

Scale low	Scale high	Sensor low	Sensor high	Gain	Linearization
0 bar	10 bar	786	3931	Low	none

8.4 SOAP & SMS commands

SOAP commands can be used to communicate on-line with the iLOGPlus unit with TCP packets after opening a socket connection.

The SOAP commands are in ASCII format. The command parts are separated with ',' and terminated with a carriage return (ASCII 13).

Use a TELNET terminal application to verify the use of the SOAP commands.

The TCP port number of iLOGPlus is 14473.

Example: TELNET 192.168.1.45 14473

All SOAP commands, except command 0400, can also be given via SMS (Firmware Version >1.6)

8.4.1 Viewing system parameters

The general format for reading commands is:

Command ID<CR>

Testing Communications		
0000	Echo	

Station Characteristics		
0001	Get Station Name	
0002	Get Station Description	
0003	Get Firmware Version	

Analog Input Properties		
0020	Get AI Channel Usage	0020,A
0021	Get AI Channel Description	0021,A
0022	Get AI Channel Unit	0022,A
0023	Get AI Channel Scale	0023,A
0024	Get AI Channel Sensor Scale	0024,A
0025	Get AI Channel Calibration Value	0025,A
0026	Get AI Channel Gain	0026,A
0027	Get AI Channel Linearization Method	0027,A
0028	Get AI Channel Log Value	0028,A
0029	Get AI Channel Alarm Levels	0029,A
0030	Get AI Channel Alarm Mode	0030,A

Digital Input Properties		
0040	Get DI Channel Usage	0040,D
0041	Get DI Channel Description	0041,D
0042	Get DI Channel Alarm Mode	0042,D

Digital Output Properties		
0050	Get DO Mode	

Logging Parameters		
0060	Get Log Mode	
0061	Get Log Rate	

Alarm Parameters

0070	Get Alarm Info Mode	
0071	Get Alarm Delay	
0072	Get Dead Band	
0073	Get Prealarm	

Counter Parameters		
0090	Get Counter Scale Factors	

Sending Parameters		
0100	Get Logs Sending Mode	
0101	Get FIFO Sending Status	
0102	Get Send Rate	
0103	Get Synchronization DateTime	

Connection Parameters (iLOGPlus GSM/EDM)		
0110	Get Modem Type	
0111	Get ISP Phone	
0112	Get ISP UserName	
0113	Get Modem Initialization String	

Connection Parameters (iLOGPlus LAN)		
0110	Get IP Address	
0111	Get DNS	
0112	Get Gateway	
0113	Get Subnet Mask	

E-mail Parameters		
0130	Get SMTP Server	
0131	Get POP3 Server	
0132	Get E-mail User	
0133	Get E-mail Receivers	
0134	Get SMTP Authentication	
0135	Get SMTP Authentication User	
0136	Get POP3 Authentication	
0137	Get POP3 Authentication User	

FTP Parameters		
0140	Get FTP Servers	
0141	Get FTP Users	
0142	Get FTP Paths	
0143	Get FTP Port Numbers	
0144	Get FTP "Use Passive Mode" options	

SMS Parameters		
0150	Get GSM Port	
0151	Get GSM Baud	
0152	Get SMSC Phone Number	
0153	Get SMS Receivers	

Miscellaneous		
0190	Get Decimal Separator	
0191	Get XModem Null Character	
0192	Get Power Supply Voltage	

8.4.2 Commissioning commands

Commands		
0400	Set iLog Parameter	0400,B,A,V
0420	Update Web Page Constant Parameters	
0500	Read RTC Time	
0501	Set RTC Time	0501,W,DD/MM/YY,HH:MN:SS
0505	Set Synchronization Time	0505,HH:MN
0510	Read Current AI Values	0510,M
0511	Read Current DI/DO Values	0511,M
0515	Set/Reset DO	0515,O,V
0520	Reset Terminal	
0521	Clear FIFO	
0530	Get Alarm Log Entries Number	
0531	Read Alarm Log Entry	0531,N
0532	Clear Alarm Logs	
0540	Get Event Log Entries Number	
0541	Read Event Log Entry	0541,N
0542	Clear Event Logs	
0550	Send Logs Via FTP	
0551	Send Logs Via E-mail	
0560	Read Counters	
0561	Set Counter	0561,C,V
0562	Clear Counter	0562,C
0570	Get RAM Packets Number	
0571	Read RAM Packet	0571,N
0580	Get Next FIFO Record	
0581	Get Previous FIFO Record	
0582	Get FIFO Records Number	
0583	Enter Communication Mode	
0584	Exit Communication Mode	

SMS Commands		
0600	Connect to the Internet	0600,NN

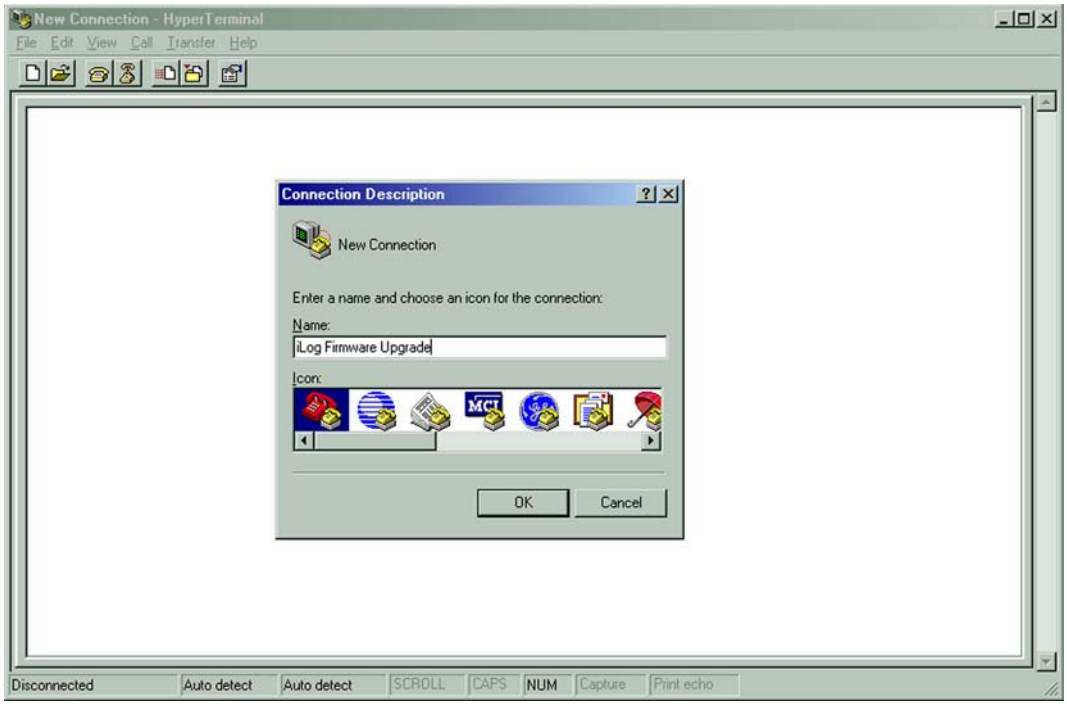
8.5 Firmware upgrade procedure

Connect the iLOGPlus serial port to the PC using the proper serial cable.

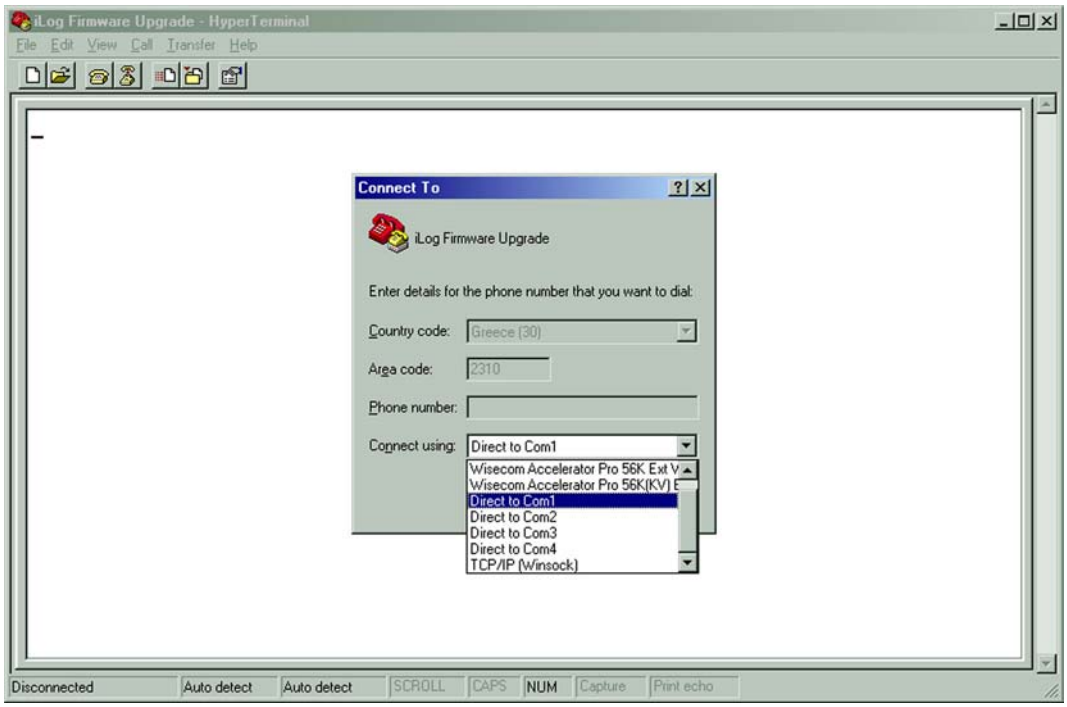
Be sure to provide secure power supply to the iLOG unit. It is not possible to repeat the upgrade procedure, if during downloading the power fails. In such a case, the unit must be serviced!

PC side

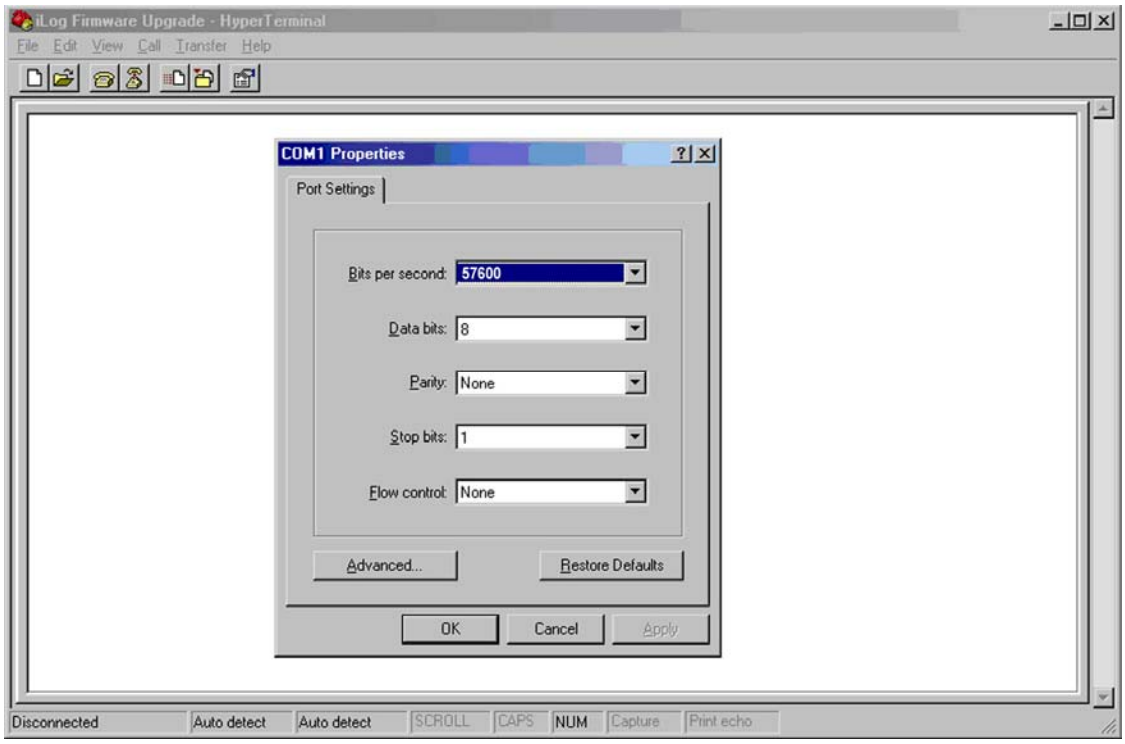
Launch the Hyperterminal and create a new connection.



Press <**OK**> to create the connection.



Select connection type ‘Direct to COMx’ and press <**OK**>.



Set the proper parameters for the selected serial port.

Bits per second:	57600
Data bits:	8
Parity:	none
Stop bits:	1
Flow control:	None

Press <**OK**> to proceed.

ILOGPlus side

Select the Firmware upgrade option:

```
Setup
Commissioning      Set RTC
Test comms         Start web server
Connect to host    Clear FIFO
View I/O           Clear event log
View counters      Clear counter
View FIFO          Counter preset
                   Factory settings
                   Firmware upgade
```

```
Firmware Upgrade


OK-Confirm ESC-Back
```

Press <**OK**> to confirm:

```
Firmware Upgrade
Password:

ESC-Return
```

Type in the password for firmware upgrade. Following screen appears:

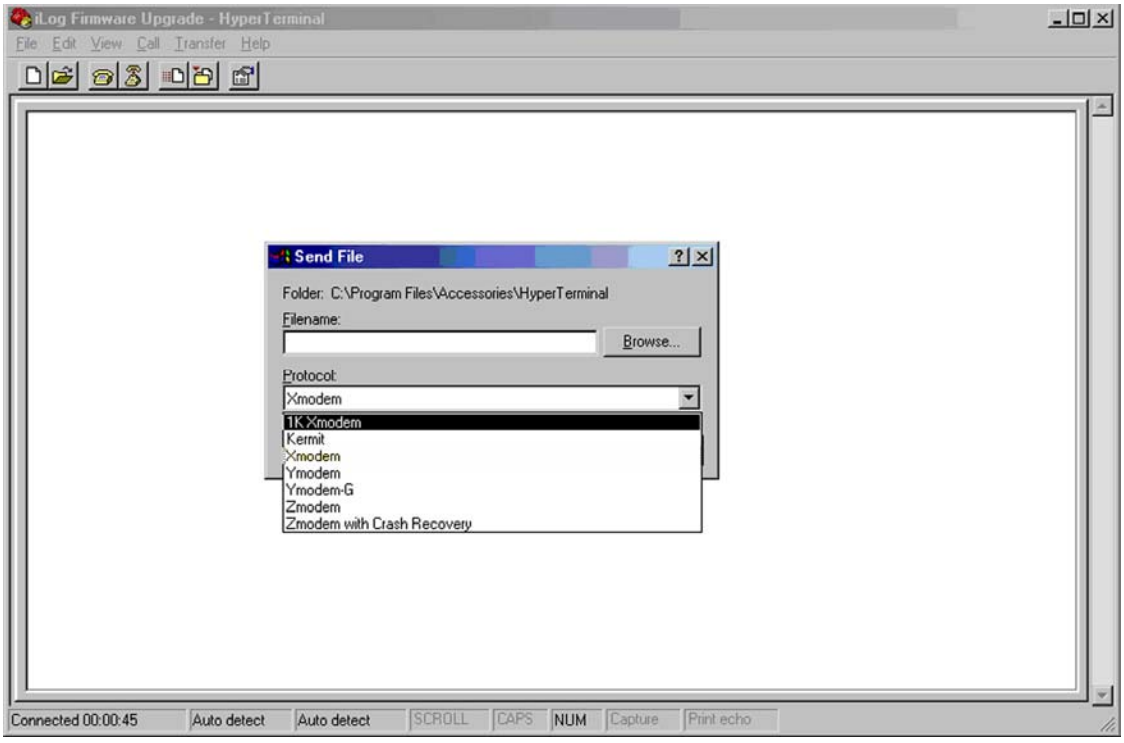
```
PLEASE WAIT...
```

After a few seconds the download screen appears:

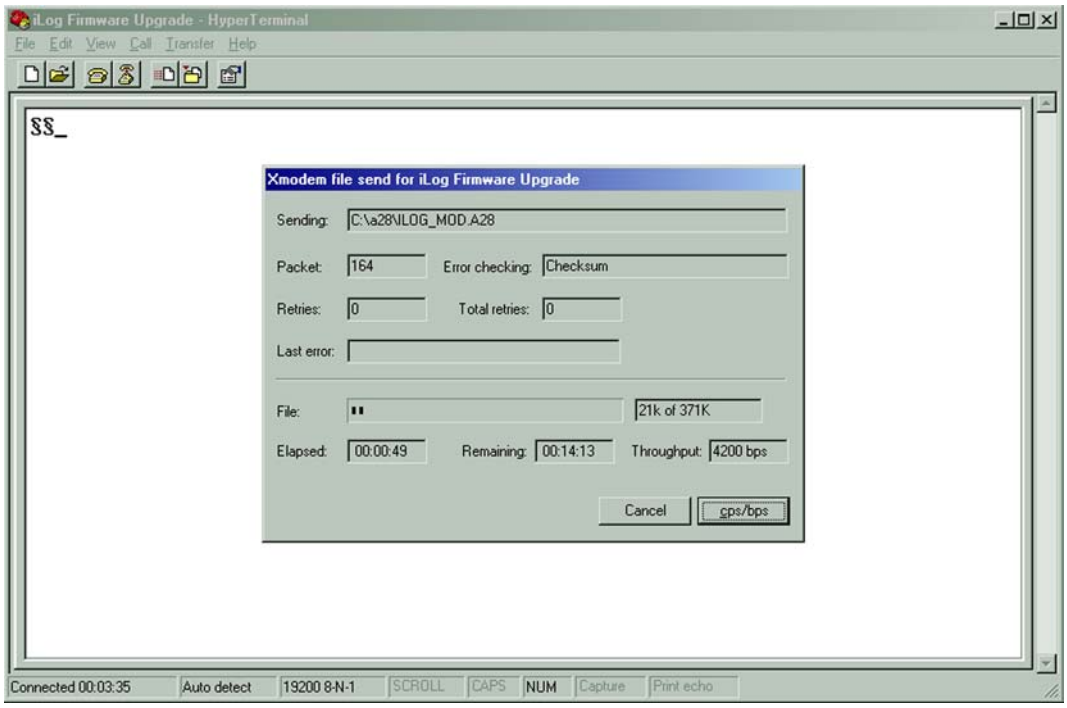
```
Receiving Data
Packs Received:0
Curr Pack Err :0
```

PC side

From the Hyperterminal menus, select the 'Transfer → Send File…' option. Browse and select the Firmware upgrade file.



For protocol option select '1K XMODEM' and press the button 'Send".



The download procedure begins.

iLOGPlus side

```
Receiving Data
Packs Received:12
Curr Pack Err :0
```

The download procedure has an approximate duration of 15 minutes. The following screen appears on completion:

```
Closing Connection
Total Packets:2964
Close Retries:1
```

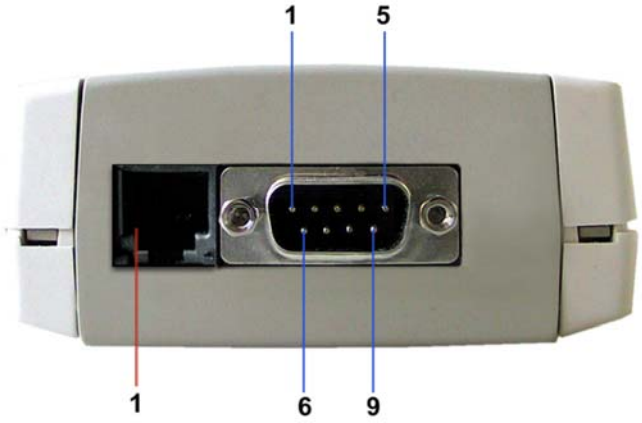
The iLOGPlus unit restarts after a few seconds. The firmware upgrade procedure is completed.

8.6 Communication errors

46 DNS expected 57 Error when trying to establish PPP 59 Error when trying to establish POP3 58 Error when trying to establish SMTP 70 Modem failed to respond 71 No dial tone response 72 No carrier modem response 73 Dial failed 74 Connection with ISP lost 75 Access denied to ISP server 76 Unable to locate POP3 server 77 POP3 server timed out 78 Access denied to POP3 server 79 POP3 failed 81 Unable to locate SMTP server 82 SMTP server timed out 83 SMTP failed 104 No DNS defined 105 No POP3 defined 106 No MBX (mailbox) defined 107 No MPWD (mailbox password) defined 108 No TOA (addressee) defined 109 No REA (return address) defined 110 No SMTP defined 111 Binary email data overflow 200 Socket does not exist 201 Socket empty on receive 202 Socket not in use 203 Socket Down 204 No available sockets 205 Socket receive buffer full 206 PPP open failed for socket 207 Error creating socket 208 Socket send error 209 Socket receive error 210 PPP down for socket 212 Socket flush error 213 Socket pwait no UDP error 214 Socket pwait error 215 Socket no carrier error 401 No IP address	507 FTP server not found 508 Timeout when connecting to FTP server 509 Failed to login to FTP server (bad username or password or account) 510 FTP command could not be completed 511 FTP data socket could not be opened 512 Failed to send data on FTP data socket 513 FTP shutdown by remote server 1003: FTP connection failed 1004: Cannot create FTP file 1016: Cannot write FTP file 1032: Closing FTP file failed 1064: Closing FTP connection failed

Table 8

8.7 iLOGPlus EDM: Connectors layout



8.7.1 COM1 connector

Pin	Acronym	Signal
1	DCD	Data Carrier Detect
2	RxD	Receive Data
3	TxD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Signal Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	-	-

Table 9

8.7.2 Modem power switch connector

Pin	Acronym	Signal
1	-	-
2	-	-
3	COM	Common
4	NO	Normal open
5	-	
6	-	

Table 10

8.8 Internal web page

iLOG RTU/Data logger

Station name: iLogPlus01 **Description:** iLogPlus telemetry unit

Device parameters					
Logging rate	900 sec	Sending rate	1440 min	Sync time	00:00
Email recipients	-				
SMS recipients	-				
FTP	OFF	Email Data	OFF	Email Alarm	OFF
FIFO records	016011	Free space (records)	016007		

Channel data

Last update: 15/04/08 15:49:55

Channel	Value	Unit	Scale	High limit	Low limit
Channel 1	0.0	-	0..4095	4095.0	0.0
Channel 2	0.0	-	0..4095	4095.0	0.0
Channel 3	0.0	-	0..4095	4095.0	0.0
Channel 4	0.0	-	0..4095	4095.0	0.0
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Not in use	-	-	-	-	-
Power supply voltage	13.4	V	0..28	28.0	0.0

Digital Inputs	
Not in use	-
Not in use	-

Picture 4: Web page No. 1

The iLOGPlus RTU/data loggers incorporate an internet site with two web pages.

The first page contains the actual device settings and a table with the on-line measurements. The second page appears after pressing the 'Change Settings' button and facilitates on-line parameter settings.

iLOG RTU/Data logger

Device					
Logging Rate	900 sec		Sending Rate	1440 min	
Sync time	00:00		Send FTP	ON	OFF
Send E-mail (Data)	ON	OFF	Send E-mail (Alarm)	ON	OFF
Set Date/time	Date (dd/mm/yy)		Time (hh:mm:ss)		
Reset device			Clear FIFO		

Submit parameters

E-mail Recipients			
E-mail Recipient 1	-	E-mail Recipient 2	
E-mail Recipient 3		E-mail Recipient 4	
E-mail Recipient 5			

Submit parameters

SMS Recipients			
SMS Recipient 1	-	SMS Recipient 2	
SMS Recipient 3		SMS Recipient 4	
SMS Recipient 5			

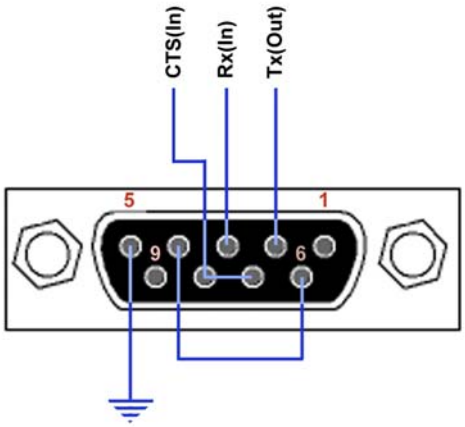
Submit parameters

Picture 5: Web page No. 2

Following changes can be made:

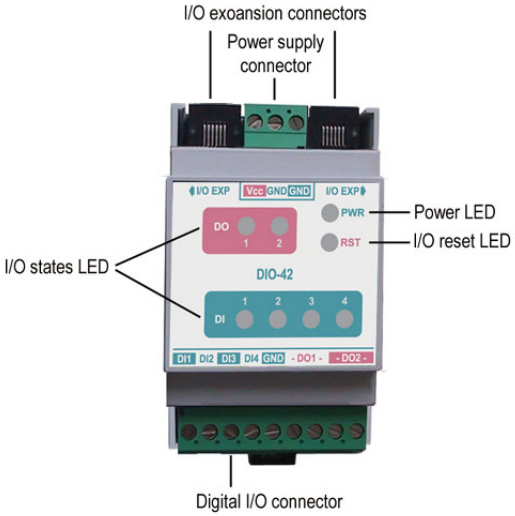
- Logging rate
- Sending rate
- Email recipients
- SMS recipients
- Syncronization time
- Enable/disable of FTP and Email sending
- Preset the internal real time clock
- Preset the channel alarm limits
- Resetting the iLOGPlus device
- Clearing the FIFO memory

8.9 RS232 connector pin layout (COM2, SCT-04E-x)



8.10 I/O expansion modules

8.10.1 GE-DIO-42 digital I/O expansion

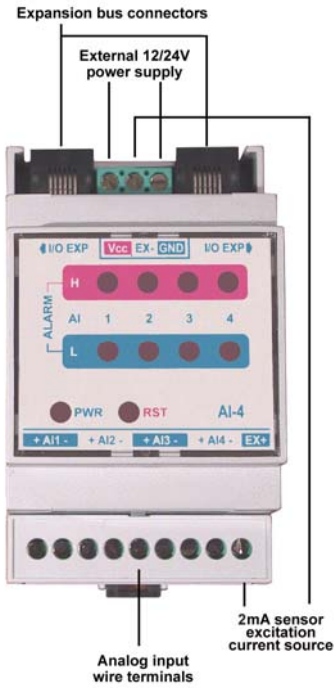


The modules can be supplied over the expansion bus by putting a jumper on J14 of the SCT-04E adaptor (see 2.2) or externally through the module power supply connector.

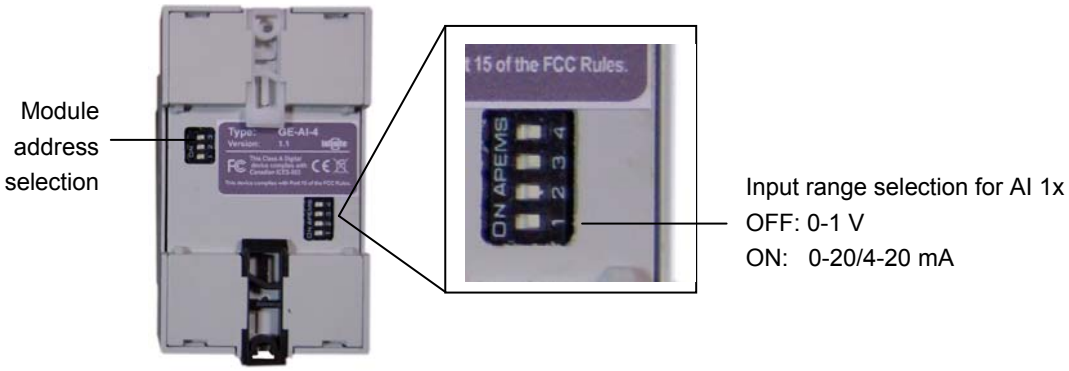
The identification of an expansion module is determined by the triple DIP switch settings on the rear side of the module. The settings can be derived from the following table:

Dip switch settings	Module number (m)
	DI 1x
	DI 2x
	DI 3x

8.10.2 GE-AI-4 analog input expansion



The modules can be supplied over the expansion bus by putting a jumper on J14 of the SCT-04E adaptor (see 2.2) or externally through the module power supply connector.



The identification of an expansion module is determined by the triple DIP switch settings on the rear side of the module. The settings can be derived from the following table:

Dip switch settings	Module number (m)
	AI 1x
	AI 2x
	AI 3x

The input range of each analog input can be selected between 0-1V (DSW OFF) and 0-20mA (DSW ON) by means of the quad dip switch on the rear panel.

An internal current source is available (EX+, EX- terminals) for exciting PT100 sensors with 2 mA.

The following table contains the scale and Sensor low/high values for the common ranges:

Sensor	Scale	Sensor low	Sensor high	Gain
-	0-1V	0	3931	3.931
-	0-20mA	0	3931	3.931
-	4-20mA	786	3931	3.931
PT100	-50…595°C	635	2587	3.931