DATAKOM

Tel: +90-216 466 84 60
Fax: +90-216 364 65 65
datakom@datakom.com.tr
http://www.datakom.com.tr

APPLICATION NOTE

Ethernet Configuration Guide for D-500 D-700	
PRODUCTS AFFECTED:	D-500 / D-700
WRITTEN BY:	Metin Hekimoglu
DATE:	09-05-2012
Issue	02

Related documents	Rainbow Plus D-500 D-700 Installation Guide Rainbow Plus D-500 D-700 Usage Guide Dynamic DNS Account Setting for D-500 D-700 RainbowScada Installation Guide RainbowScada User Guide

Introduction

The D-500/700 unit offers a 10/100Mbits/s ethernet port as standard accessory. This document emphasizes the configuration of the ethernet port.

Through the Ethernet port, below features are supported:

-Web server
-Web client (used for dynamic dns update)
-Modbus over IP
-SNMP
-SMTP (simple mail transfer protocol)
-Central Monitoring

Ethernet connections

ETHERNET CABLE

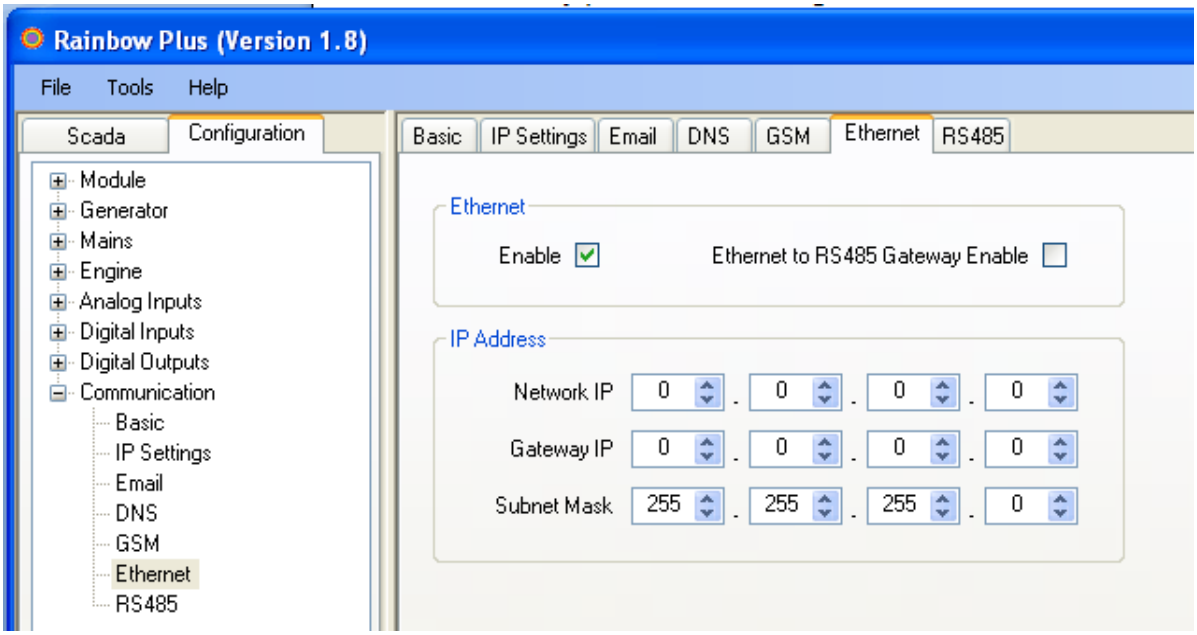
Connect the D-500/700 device to your local area network (LAN) with a standard ethernet cable.

Ethernet Port Technical Specifications	
Description:	IEEE802.3 compliant, 10/100 Base-TX RJ45 ethernet port with indicating leds
Data rate:	10/100 Mbits/s, auto detecting
Connector:	RJ45
Cable type:	CAT5 or CAT6
Isolation:	1500 VAC, 1 minute
Max distance:	30m.
Functionality:	Embedded TCP-IP, Web Server, Web Client, SMTP, e-mail, SNMP, Modbus over IP

Ethernet port setup

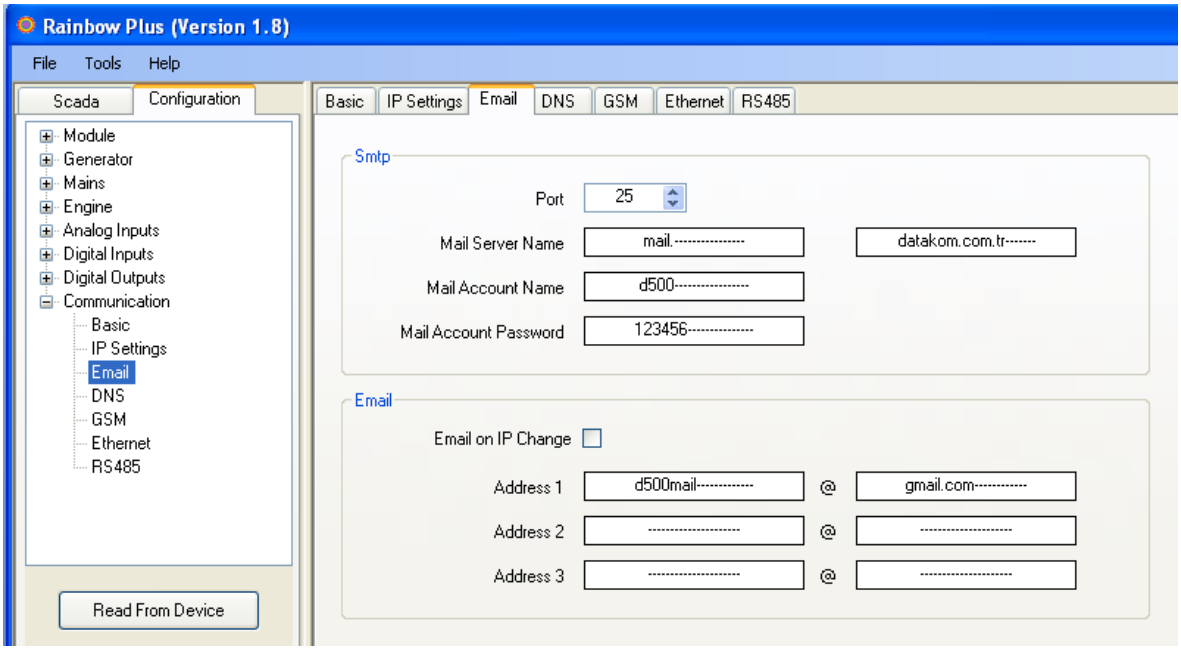
The ethernet port setup is performed using the RainbowPlus program.
The RainbowPlus installation and usage is explained in related documents.
Only parameter setting will be referenced in this document.

1) Open the ***RainbowPlus*** program
2) Connect to the unit through USB
3) Select ***Configuration*** mode
4) Read parameters from device.
5) Select ***Communication>Ethernet*** tab. This page contains ethernet parameters.



6) Enable ***Ethernet Enable*** parameter. This parameter enables all IP services through ethernet port (web server, web client, SMTP, Modbus over IP, SNMP) after saving to the D-500/700 device.
7) Do not change ***Network IP*** section. The **000.000.000.000** setting causes the D-500/700 device to request an IP from the local network switch.
   If the local network switch is not DHCP server enabled (cannot give local IP) then this field is necessary. In this case write an IP address in the form **192.168.002.xxx** in the Network IP field. (xxx denotes any number between 20 and 250)
8) Do not change ***Gateway IP*** section. The **000.000.000.000** setting causes the D-500/700 device to request the Gateway IP from the local network switch.
9) Do not change ***Subnet Mask*** section. The **255.255.255.000** setting allows 255 IP addresses in the local network.

10) Select ***Communication>E-mail*** tab. This page contains E-mail related parameters.

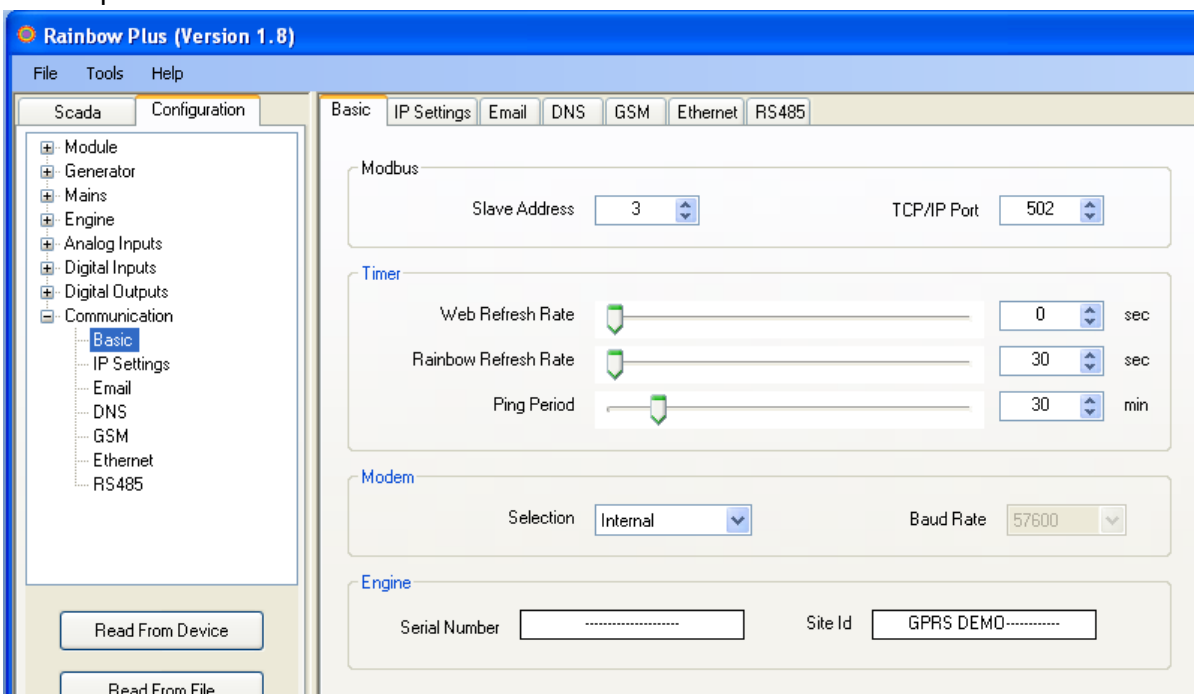


11) SMTP field should be filled appropriately. This is the e-mail address from where the unit will send e-mail messages. The information is the same as used in a computer.

12) Select ***E-mail on IP Change*** parameter as required. If this parameter is enabled, the D-500/700 device will send an e-mail message each time the IP is changed.

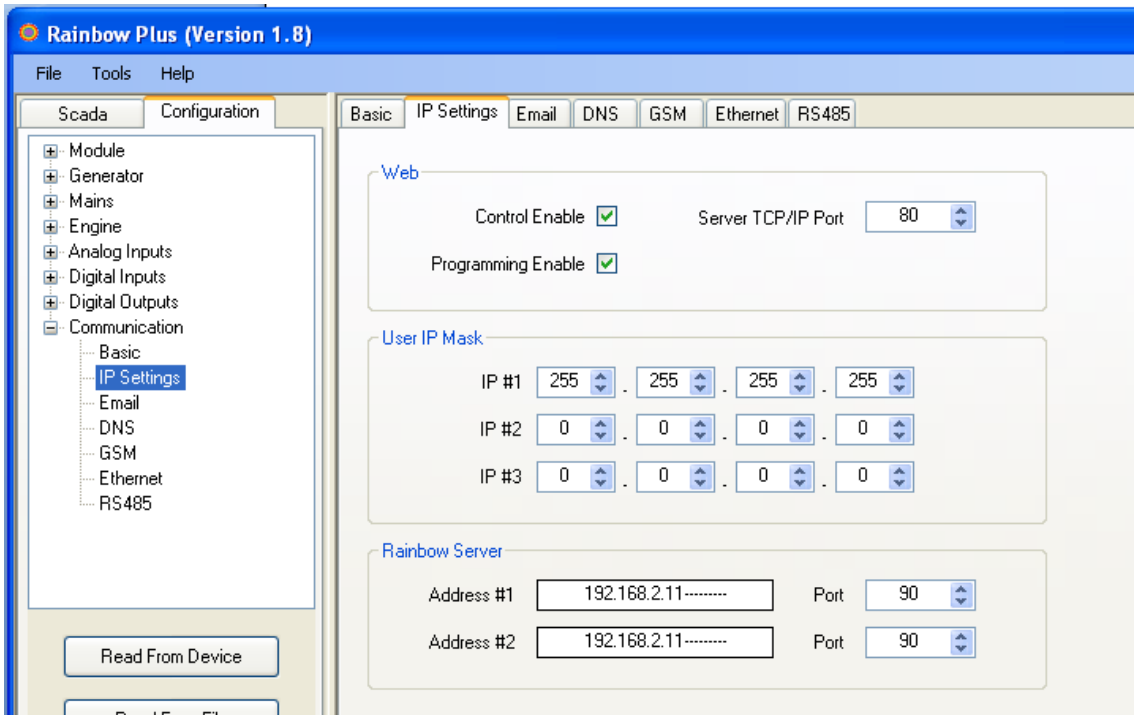
13) ***E-mail address 1 (2/3)*** is the address to where e-mail messages will be sent. If e-mails are required, enter your e-mail addresses here. If e-mails are not required, then enter blank fields here. The unit can send up to 3 e-mails at once.

14) Select ***Communication>Basic*** tab. This page contains IP related communication parameters.



15) ***Engine Serial Number*** and ***Site Id*** information are used in the header of SMS and e-mail messages for the identification of the genset sending these messages. Please enter these fields correctly for your ease of operation.

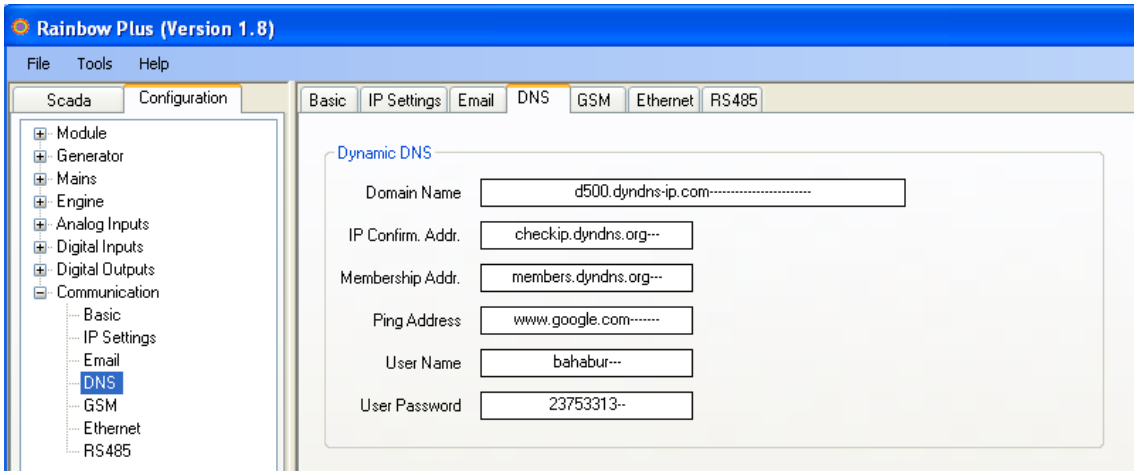
16) Do not change ***Web Refresh Rate, Rainbow Refresh Rate*** and ***Ping Period*** parameters.



17) ***User IP Mask*** parameters are used for restricting the external access to the embedded web server. Leave these fields unchanged as above for unrestricted access. Please consult **Datakom** for more details.

18) ***Rainbow Server Adresses*** are used for ***RainbowScada*** remote monitoring program. If RainbowScada program is installed, the IP address (or domain name) of the central monitoring PC should be entered. If only one center is used, enter both addresses the same. Set the ***Rainbow Server Port*** to the same value set in the ***RainbowScada*** program.

19) Select ***Communication>DNS*** tab. This page contains dynamic DNS update information.

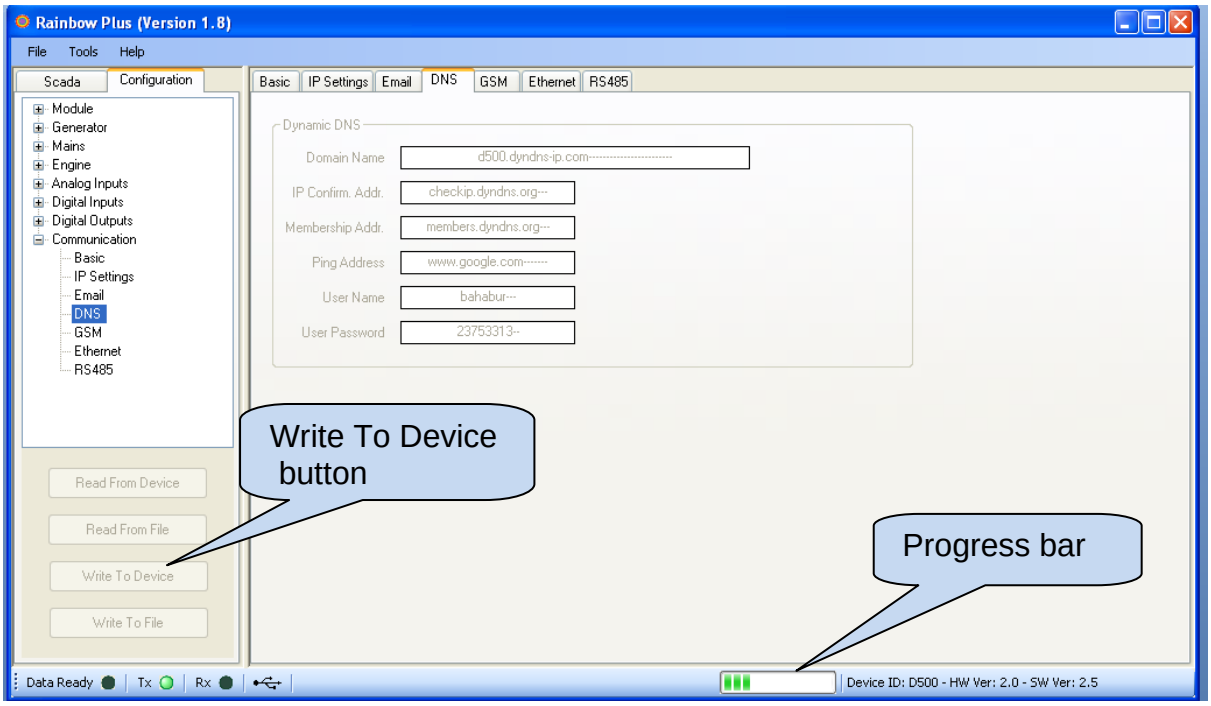


20) ***IP Confirmation address*** and ***Membership Address*** fields should not be modified and must be left as per above settings.

21) ***Ping Address*** may be set as required. But above address is the most reliable one. It is advised to leave it unchanged as above. This address is used for the verification of internet connectivity.

22) ***Domain Name***, ***User Name*** and ***User Password*** are necessary for using the ***dynamic dns*** service. The account creation is emphasized in ***Dynamic DNS Account Setting for D-500 D-700*** document. These parameters are created while opening a dyndns account.

23) When parameter editing is over, click ***Write To Device*** button. A progress bar will open.



24)When the progress bar disappears the write process is done.

Access to Embedded Website

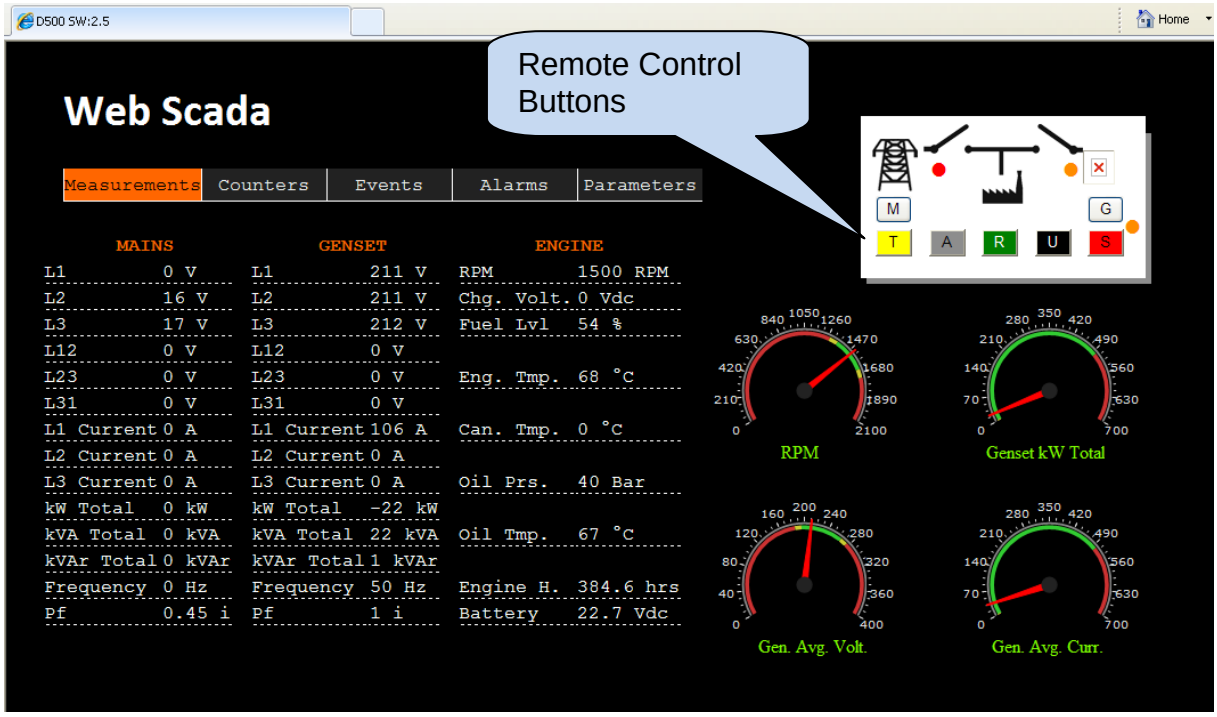
The easiest and most stable access is performed through **Static IP address**. Please check your **webmaster** for the availability of static IP address.

If static IP is available, the embedded web page is simply open by writing ***http://<IP address>*** on your browser's address bar. The IP address is constituted by 4 numbers separated by points.
Example: ***http:// 78.179.212.6***

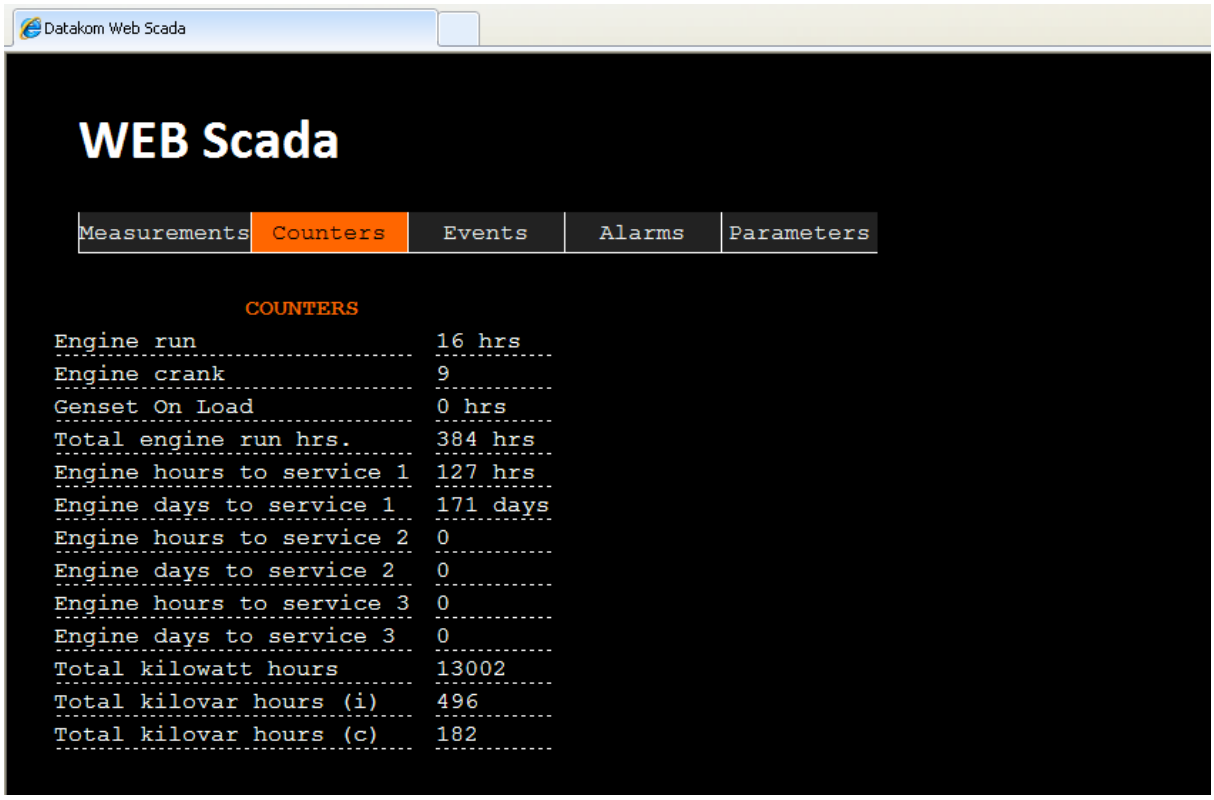
If static IP is not available, then the use of dynamic dns service is necessary. A dynamic DNS account should be open and data should be set in the device as explained in this document.

The device will record its current IP address to the dnydns account and the access will be made by writing the **<domain name>** in the browser address bar.
Example: ***http://datakom-d500.dyndsn-ip.com***

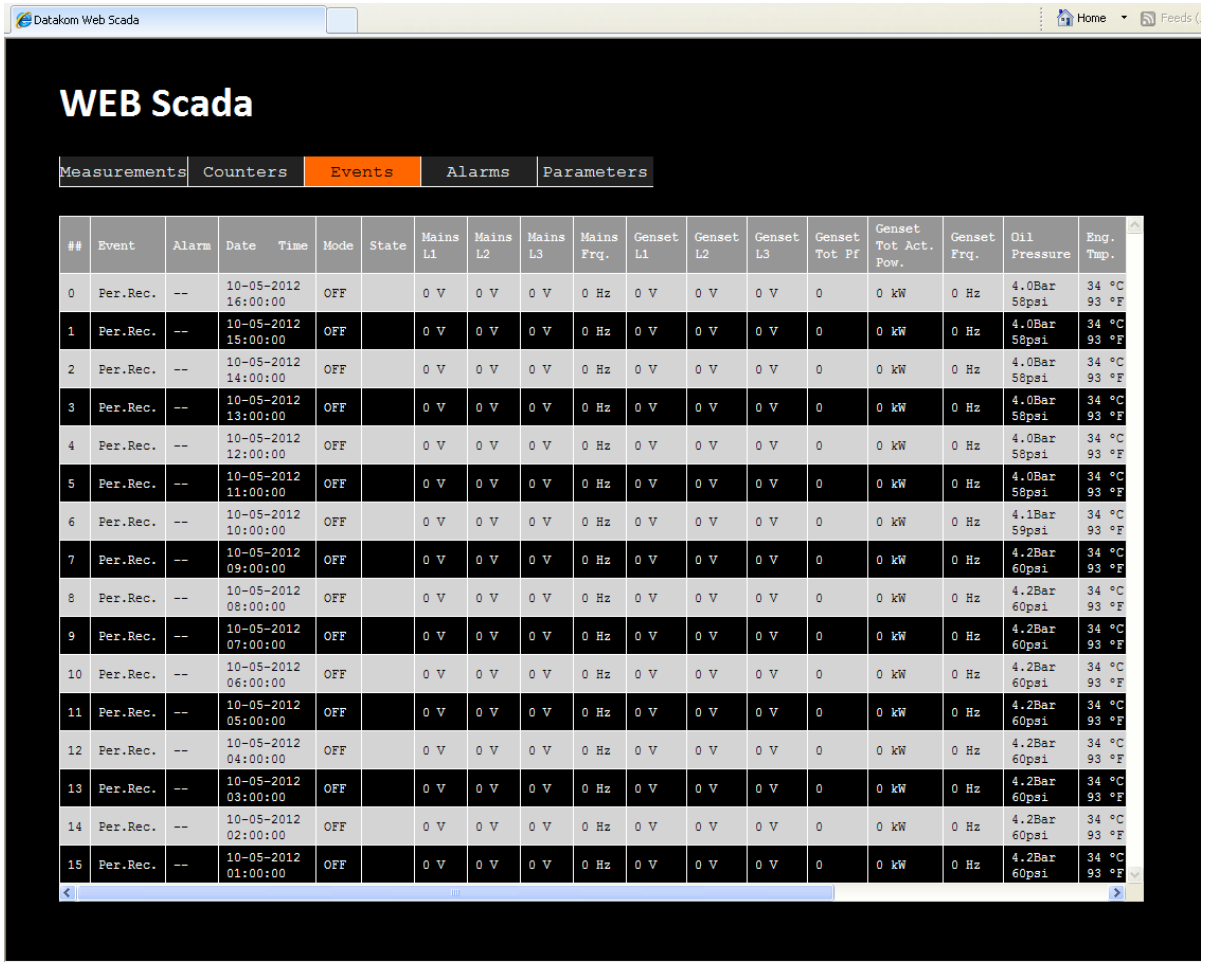
The embedded web server allows both monitoring and control of the device. A sample digital monitoring page is below.



A sample counter display page is below:

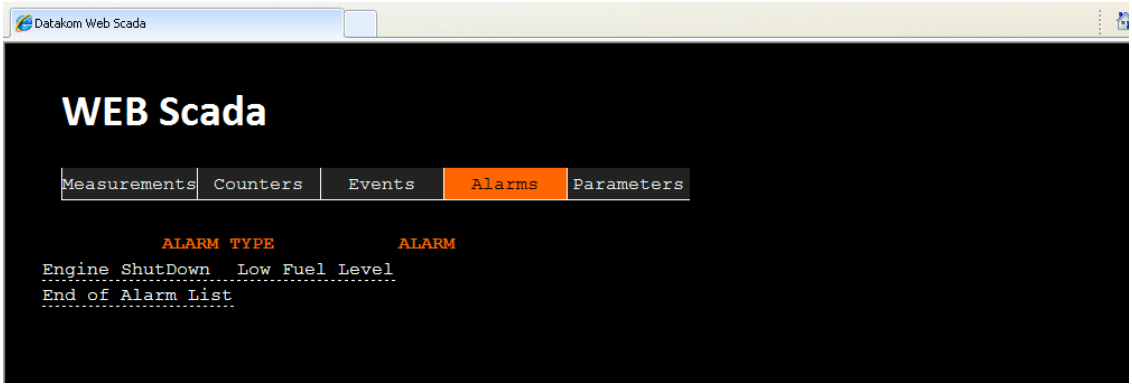


Sample Event Log file. Last 15 events are available in the embedded web server.

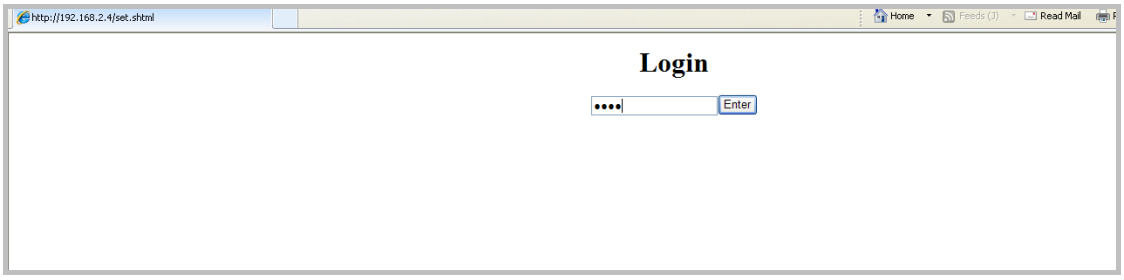


##	Event	Alarm	Date Time	Mode	State	Mains L1	Mains L2	Mains L3	Mains Frq.	Genset L1	Genset L2	Genset L3	Genset Tot Pf	Genset Tot Act. Pow.	Genset Frq.	Oil Pressure	Eng. Tmp.
0	Per.Rec.	--	10-05-2012 16:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.0Bar 58psi	34 °C 93 °F
1	Per.Rec.	--	10-05-2012 15:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.0Bar 58psi	34 °C 93 °F
2	Per.Rec.	--	10-05-2012 14:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.0Bar 58psi	34 °C 93 °F
3	Per.Rec.	--	10-05-2012 13:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.0Bar 58psi	34 °C 93 °F
4	Per.Rec.	--	10-05-2012 12:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.0Bar 58psi	34 °C 93 °F
5	Per.Rec.	--	10-05-2012 11:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.0Bar 58psi	34 °C 93 °F
6	Per.Rec.	--	10-05-2012 10:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.1Bar 59psi	34 °C 93 °F
7	Per.Rec.	--	10-05-2012 09:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F
8	Per.Rec.	--	10-05-2012 08:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F
9	Per.Rec.	--	10-05-2012 07:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F
10	Per.Rec.	--	10-05-2012 06:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F
11	Per.Rec.	--	10-05-2012 05:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F
12	Per.Rec.	--	10-05-2012 04:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F
13	Per.Rec.	--	10-05-2012 03:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F
14	Per.Rec.	--	10-05-2012 02:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F
15	Per.Rec.	--	10-05-2012 01:00:00	OFF		0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	4.2Bar 60psi	34 °C 93 °F

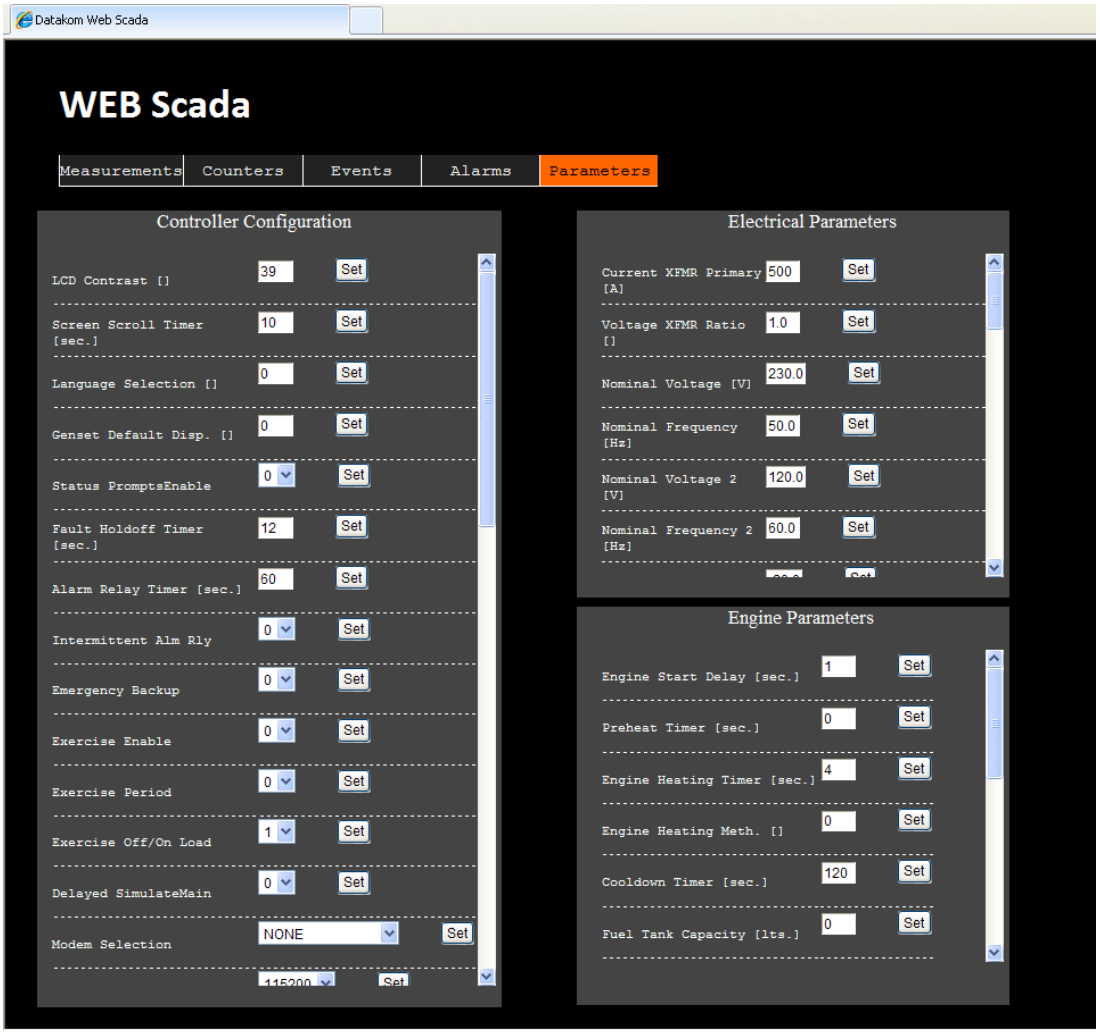
A sample alarm list.



Programming is avalable with password entry. The password is “9876”.



Various parameters are available for web programming. Change the value then click ***Set*** button.

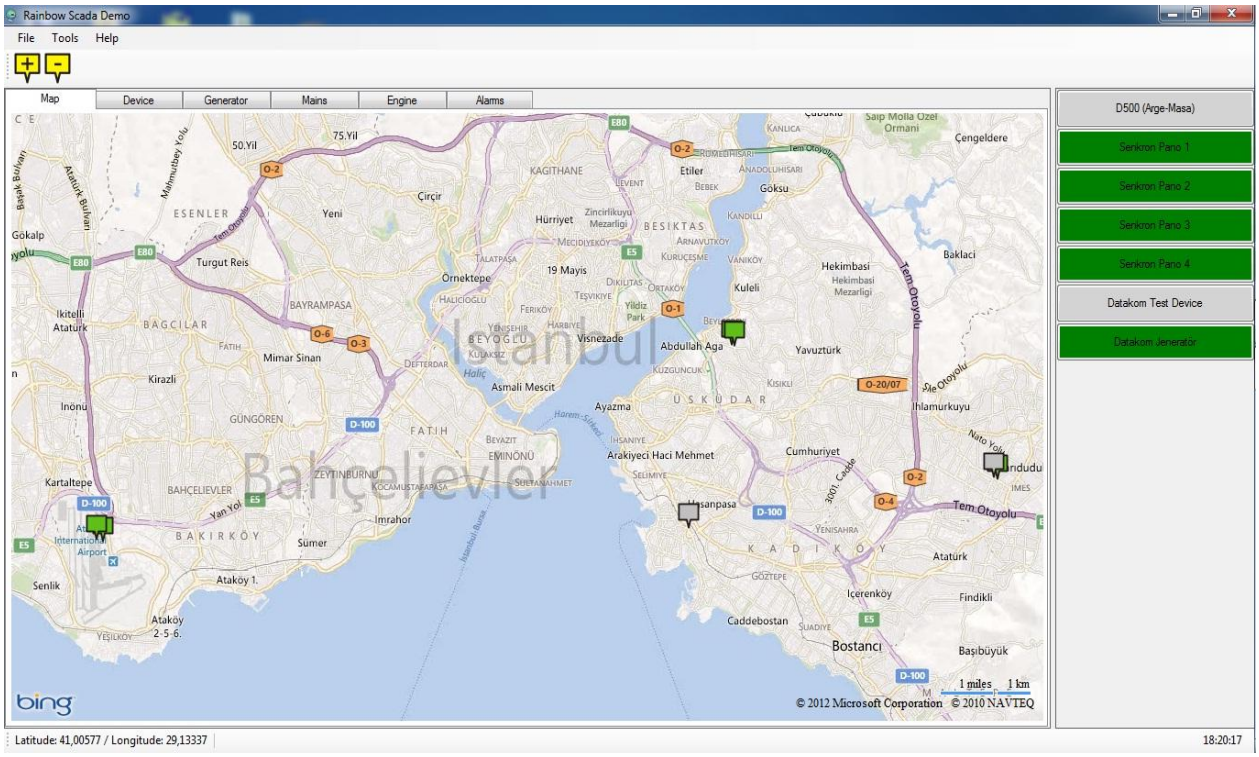


Central Monitoring

The RainbowScada program will allow the central monitoring of a large number of gensets through internet.

Please read documents on RainbowScada installation and Rainbow Scada usage for more details.

A sample Rainbow Scada screen is below.



The program represents each unit as a coloured box on the map. The map is downloaded from the internet. The colour of the box will indicate the genset status for easy follow_up of the whole network.

An additional status and address bar at the right side of the screen will show the system structure and status.

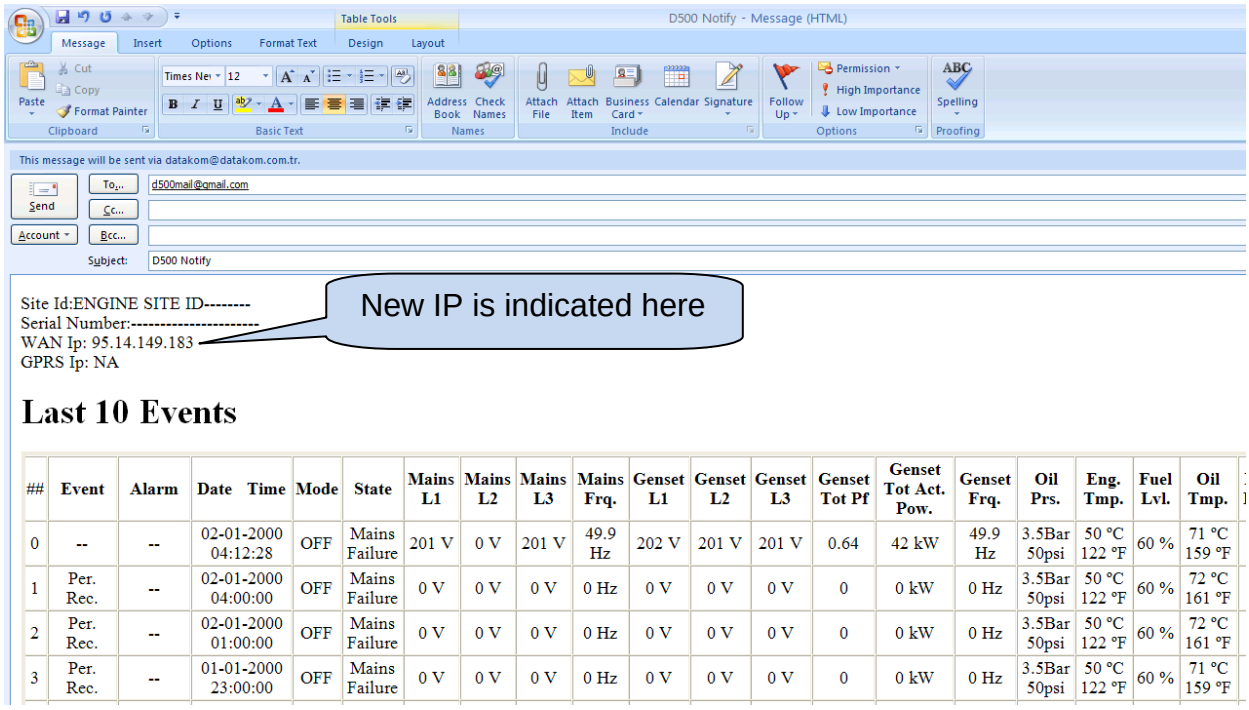
Information E-mail Messages

The D-500/700 is able to send an e-mail message when the Ethernet IP number is changed.

This message is enabled or disabled by below program parameters:

Communication>Options1>Miscallenous>E-mail on IP Change

A sample message is below:



Last 10 Events

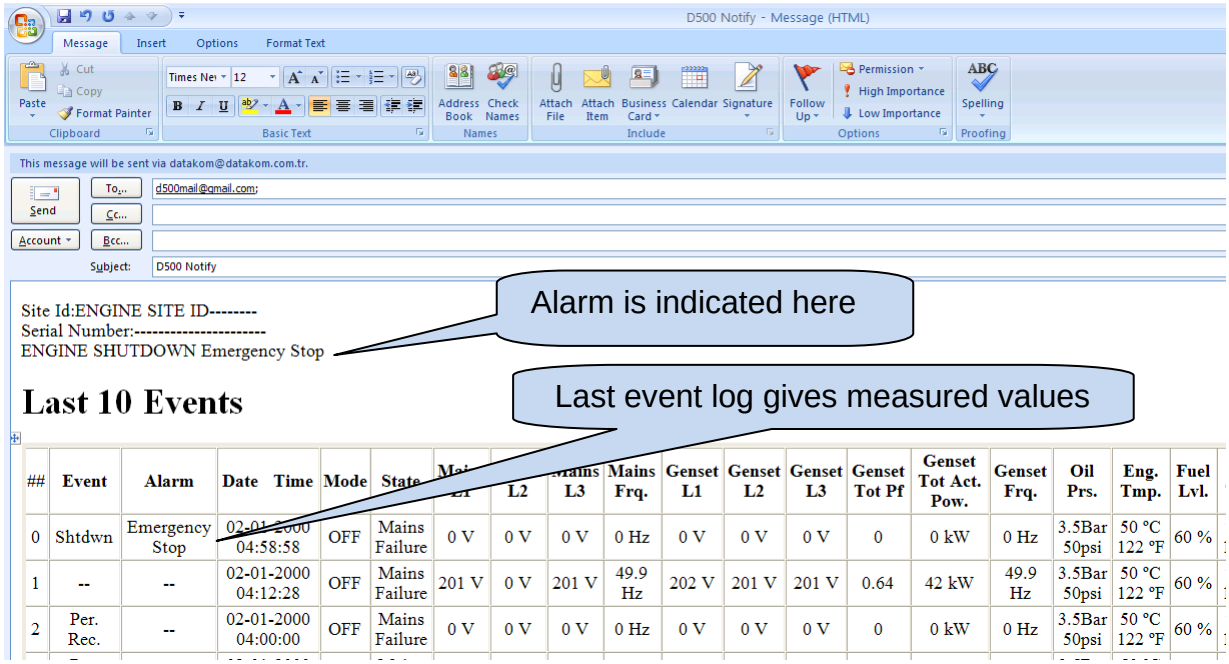
##	Event	Alarm	Date Time	Mode	State	Mains L1	Mains L2	Mains L3	Mains Frq.	Genset L1	Genset L2	Genset L3	Genset Tot Pf	Genset Tot Act. Pow.	Genset Frq.	Oil Prs.	Eng. Tmp.	Fuel Lvl.	Oil Tmp.
0	--	--	02-01-2000 04:12:28	OFF	Mains Failure	201 V	0 V	201 V	49.9 Hz	202 V	201 V	201 V	0.64	42 kW	49.9 Hz	3.5Bar 50psi	50 °C 122 °F	60 %	71 °C 159 °F
1	Per. Rec.	--	02-01-2000 04:00:00	OFF	Mains Failure	0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	3.5Bar 50psi	50 °C 122 °F	60 %	72 °C 161 °F
2	Per. Rec.	--	02-01-2000 01:00:00	OFF	Mains Failure	0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	3.5Bar 50psi	50 °C 122 °F	60 %	72 °C 161 °F
3	Per. Rec.	--	01-01-2000 23:00:00	OFF	Mains Failure	0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	3.5Bar 50psi	50 °C 122 °F	60 %	71 °C 159 °F

Last 10 event logs together with measured parameters are always appended to the e-mail message.

Alarm E-mail Messages

The D-500/700 sends an e-mail message when any fault condition occurs.

A sample message is below:



##	Event	Alarm	Date Time	Mode	State	Mai... L1	L2	...ains L3	Mains Frq.	Genset L1	Genset L2	Genset L3	Genset Tot Pf	Genset Tot Act. Pow.	Genset Frq.	Oil Prs.	Eng. Tmp.	Fuel Lvl.
0	Shtdwn	Emergency Stop	02-01-2000 04:58:58	OFF	Mains Failure	0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	3.5Bar 50psi	50 °C 122 °F	60 %
1	--	--	02-01-2000 04:12:28	OFF	Mains Failure	201 V	0 V	201 V	49.9 Hz	202 V	201 V	201 V	0.64	42 kW	49.9 Hz	3.5Bar 50psi	50 °C 122 °F	60 %
2	Per. Rec.	--	02-01-2000 04:00:00	OFF	Mains Failure	0 V	0 V	0 V	0 Hz	0 V	0 V	0 V	0	0 kW	0 Hz	3.5Bar 50psi	50 °C 122 °F	60 %

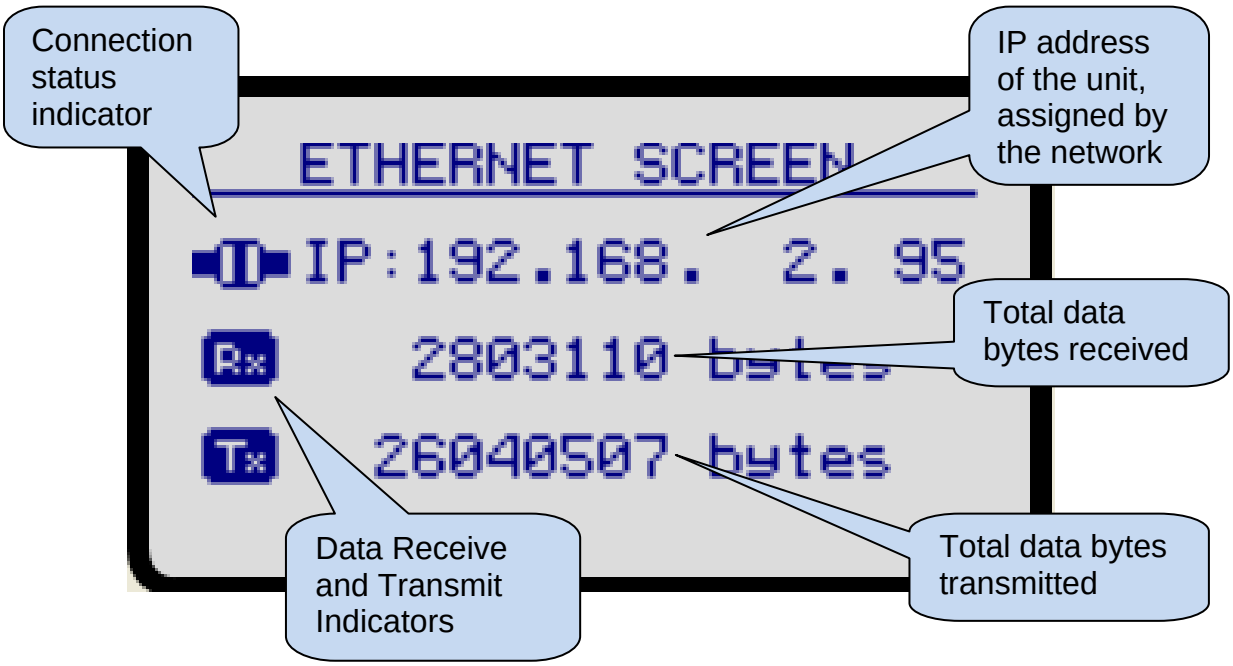
Last 10 event logs together with measured parameters are always appended to the e-mail message.

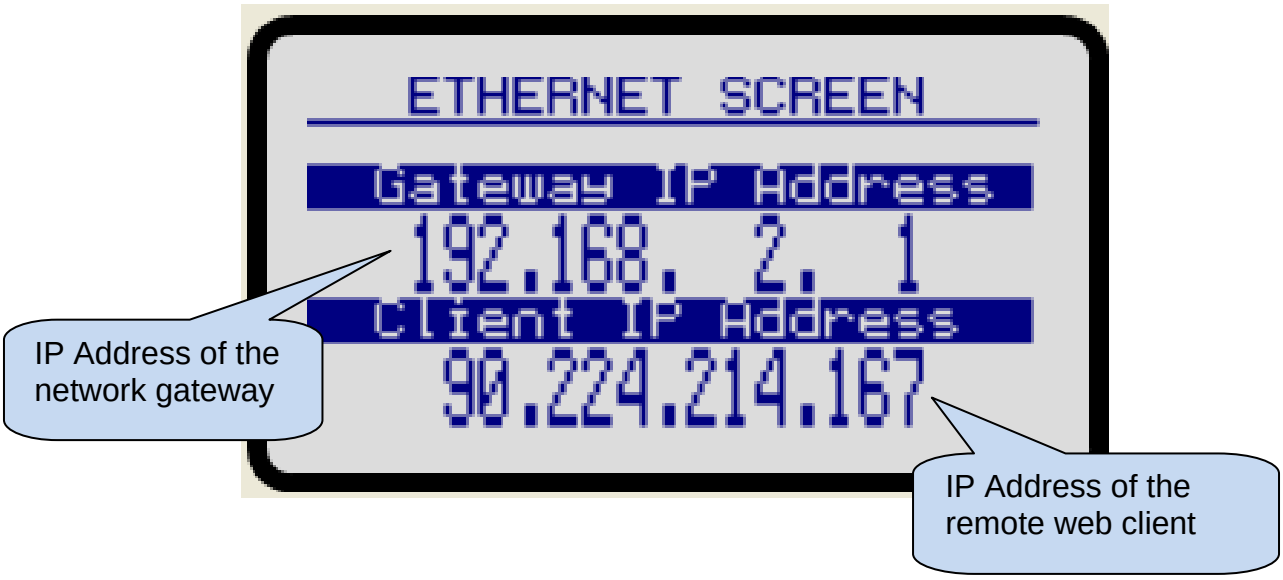
Troubleshooting

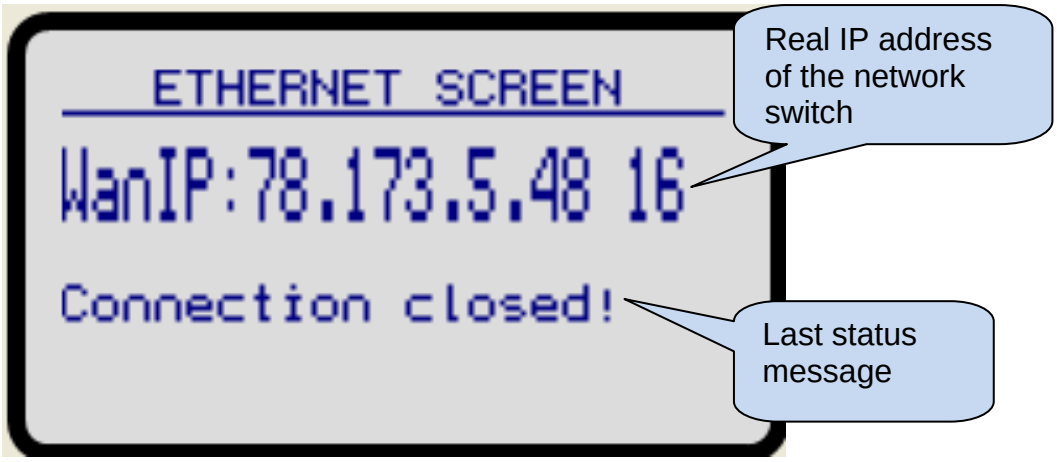
The ethernet connection status is monitored at Ethernet screen pages.

In order to display the Ethernet screen pages press Right or Left Arrow buttons of the D-500/700 device until below screen appears.

More ethernet screens are available. They are accessed by pressing and buttons of the D-500/700 device.







Connection Status Indicators ( ):

This icon displays if the network cable is connected. When the cable is not connected, an unplugged icon will replace the plugged icon.

IP Address:

This field shows the IP address granted by the local network switch.

Data Receive and Transmit Indicators:

These indicators flash when data is received (or transmitted) through ethernet network. Simultaneously data counters are updated.

Data Counters:

These counters increment with data received (or transmitted) through the ethernet port. The ethernet activity is precisely monitored with these counters.

Gateway IP address:

This field shows the IP address of the local network switch.

Client IP address:

This field shows the IP address of the remote web client accessing the web server through ethernet. Only the last client is displayed.

WAN IP Address:

This field shows the real IP address of the network switch.