

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

APPLICATION NOTE

GSM Configuration Guide for D-500 D-700		
PRODUCTS AFFECTED:	D-500 / D-700	
WRITTEN BY:	Metin Hekimoglu	
DATE:	18-04-2013	
Issue	06	

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

Introduction

The D-500/700 unit supports different modem configurations:

-internal GSM modem

-external Datakom GSM modem

Through the GSM modem, below features are supported:

-GPRS class 10

-Web client

-SMTP (simple mail transfer protocol)

-SMS

-Central Monitoring

Modem connections



Do not power-up the D-500/700 unit before inserting the antenna and SIM Card.

The optional internal GSM modem offers the advantage of being internally powered and is fully compatible with the unit.

The 1800/1900 MHz magnetic antenna is supplied together with the internal modem option. The antenna cable is 2 meters long. The antenna is intended to be placed outside of the genset panel for the best signal reception.





The module requires a <u>GPRS enabled SIM card</u> for full functionality.

Voice-only type SIM cards will usually not permit GPRS functionality.

SIM CARD EXTRACTION



SIM CARD EXTRACTION / INSERTION





SIM CARD PLACEMENT

Internal GSM Modem Technical Specifications		
Description:	Quad-band GSM/GPRS 850/900/1800/1900MHz module.	
	GPRS multi-slot class 10/8	
	GPRS mobile station class B	
	Compliant to GSM phase 2/2+.	
	– Class 4 (2 W @850/ 900 MHz)	
	– Class 1 (1 W @ 1800/1900MHz)	
Operating temp range:	-40°C to +85 °C	
Data speed:	max. 85.6 kbps (downlink), max 42.8 kbps (uplink)	
SIM card type:	external SIM 3V/ 1.8V, GPRS enabled	
Antenna:	Quad band, magnetic, with 2m cable	
Module certificates:	CE, FCC, ROHS, PTCRB, GCF, IC, ICASA, REACH	

Modem setup

The modem 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>Basic tab. This page contains communication parameters.

Rainbow Plus (Version 1.8)	Basic tab
File Tools Help	Dasic tab
Scada Configuration	Basic IP Settings Email DNS GSM Ethernet RS485
	Mathin
Communication tab	Slave Address 3 CTCP/IP Port 502
Analog Inputs Digital Inputs Digital Outputs	Timer
Communication	Web Refresh Rate 0 🗢 sec
- IP Settings	Rainbow Refresh Rate 🛛 30 📚 sec
DNS	Ping Period - 30 📚 min
– GSM – Ethernet – RS485	Modem
	Engine
Read From Device	Serial Number Site Id GPRS DEMO

- 6) **Engine Serial Number** and **Site Id** information are used in the header of SMS and email messages for the identification of the genset sending these messages. Please enter these fields correctly for your ease of operation.
- 7) Do not change *Web Refresh Rate, Rainbow Refresh Rate* and *Ping Period* parameters.

8) On *Modem* box select **Internal** or **GSM Datakom** following your modem configuration

Modem					
Selection	Internal 🗸 🗸	Bau	ud Rate	115200	*
	None]			
	Internal				
	GSM Datakom				
	GSM Generic				
	PSIN Modem]			

9) **Baud rate** selection does not apply to internal modem. Select 57400 baud for external modem.

Modem						
	Selection	Internal	*	Baud Rate	115200 🔽	
					2400	1
					4800	
					19200	
					38400	
					57600	
					115200	

10)Select *Communication>IP Settings* tab. This page contains IP related communication parameters.

Rainbow Plus (Version 1.8)	
File Tools Help	
Scada Configuration	Basic IP Settings Email DNS GSM Ethernet RS485
 Module Generator Mains Engine Analog Inputs Digital Inputs Digital Outputs Communication Basic IP Settings Email DNS GSM Ethernet RS485 	Web Control Enable Server TCP/IP Port 80 🗢 Programming Enable Image: Server TCP/IP Port 80 🗢 User IP Mask Image: Server TCP/IP Port 80 🗢 IP #1 255 🌩 255 🌩 255 🌩 IP #2 0 0 0 0 IP #3 0 0 0 0 0
	Address #1 192.168.2.11 Port 90 📚
Read From Device	Address #2 192.168.2.11 Port 90 📚

- 11) 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.
- 12) 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.

Rainbow Plus (Version 2.4)	
File Tools Help	
Scada Configuration	Basic IP Settings Email DNS GSM Ethernet RS485
Functionality Screen Options Timers	Smtp Port 587 🗢
	Mail Server Name smtp.mail yahoo.com
- Time Data Logging	Mail Account Name d500_a
⊞-Generator ⊞-Mains	Mail Account Password d500_1234
i⊞- Analog Inputs i⊞- Digital Inputs	Email
Digital Outputs	Email on IP Change 📃 Mail On Mains Change 🗌
Communication Basic IB Settings	Address 1 @ datakom.com.tr
Email	Address 2 @ datakom.com.tr
	Address 3 @ datakom.com.tr
Read From Device	

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

14) 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.





The originating e-mail address programmed in the SMTP field must be an activated address.

Otherwise the unit will fail to open a session in this server and cannot send e-mail messages.

- **15)** 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.
- **16)** Select *E-mail on Mains Change* parameter as required. If this parameter is enabled, the D-500/700 device will send an e-mail message each time the mains status is changed.
- 17) 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.

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

Rainbow Plus (Version 1.8)	
File Tools Help	
Scada Configuration	Basic IP Settings Email DNS GSM Ethernet RS485
Module Generator Mains Engine Analog Inputs Digital Inputs Digital Outputs Communication Basic IP Settings Email DNS	Dynamic DNS Domain Name d500. dyndns-ip. com IP Confirm. Addr. checkip. dyndns. org Membership Addr. members. dyndns. org Ping Address www.google. com User Name bahabur
GSM Ethernet RS485	User Password 23753313

- **19)** *IP Confirmation address* field should not be modified and must be left as per above settings.
- **20)** *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.

Rainbow Plus (Version 2.4)	
File Tools Help	
Scada Configuration	Basic IP Settings Email DNS GSM Ethernet RS485
Timers Exercise Scheduler Time Data Logging Generator Mains Engine Analog Inputs	Enable GPRS Connection Enable SMS Enable SMS on Mains Change GPRS to RS485 Gateway Enable SMS Commands Enable SMS on IP Change Miscellaneous
Digital Inputs Digital Outputs Communication Basic	GSM Sim Card Pin No Service Center No U33528288888
IP Settings Email	Name internet
GSM	User Name go
Ethernet	User Password go
Read From Device	SMS Phone Number
Read From File	No #1 U33466/5999 No #2 U33475666129 No #3 035278904940 No #4 03342518887
Write To Device	

21) Select Communication>GSM tab. This page contains GSM-GPRS parameters.

- **22)** Enable GPRS Connection Enable parameter. This parameter enables all IP services (web client, SMTP) after saving to the controller.
- 23) Enable SMS Enable parameter.
- 24) Set other parameters in the box as required.
- **25)** If PIN code is used in your SIM card, then enter this code in **GSM Sim Card Pin No** field. Usually new SIM cards come without pin code.
- 26) If Service Center No is not entered, then the controller will use the service center number recorded in the SIM card. If entered, this number will be used. Usually this information is not necessary.
- 27) APN (access point name) information are necessary to connect to the GPRS network, and <u>must</u> be entered correctly. Otherwise connection to the GPRS network may not take place. If APN parameters are faulty, "GPRS unusable/Bad APN " message will appear on the GSM Modem screen. These information is usually supplied by your GSM operator company.
- **28)** Telephone numbers for SMS sending are recorded in above fields. A maximum of 6 numbers are available.

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

Rainbow Plus (Version 1.8)	
File Tools Help	
Scada Configuration Module Generator Mains Engine Analog Inputs Digital Inputs Digital Outputs Communication Basic IP Settings Email DIS GSM Ethernet R\$485 	Basic IP Settings Email DNS GSM Ethernet RS485 Dynamic DNS
Read From Device Read From File Write To Device Write To File	Write To Device button Progress bar
🕴 Data Ready 🌰 📔 Tx 🥥 🛛 Rx 🌰	⊷

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

Central Monitoring

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

Please read documents on **<u>RainbowScada installation</u>** and **<u>Rainbow Scada Usage</u>** 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.



The central monitoring is operational through GPRS with all data SIM cards, with real or local ip addresses.

SMS Commands

SMS messages are accepted only from phone numbers recorded in the **Communication> GSM>Message Numbers** tab. Answers to SMS messages will be sent to <u>all</u> phone numbers in the list.

SMS messages should be written exactly as below, without any preceeding blanks. Only <u>UPPERCASE</u> characters are permitted.





The display of the message may vary following mobile phone models.

COMMAND	DESCRIPTION	ANSWER
GET IP	If GPRS connection is active, the controller will reply by an SMS message indicating the IP address of the GSM modem.	IP: 188.41.10.244
GPRS 1	Activates the GPRS connection	GPRS enabled!
GPRS 0	Stops the GPRS connection	GPRS disabled!
RESET ALARMS	Clears alarms of the controller. The operating mode is not modified.	Alarms cleared!
REBOOT	Performs a hard reset on the controller	no answer
MODEM RESET	Performs a hard reset on the modem	no answer
GET INFO	Returns the alarm list and actual measured values	ALARMS (if exists) GEN: Vavg/IAVG/kWtot/pf/Freq MAINS: Vavg/IAVG/kWtot OIL_PR/TEMP/FUEL%
MODE STOP	Puts the controller into STOP mode. Alarms are also cleared.	Unit forced to STOP!
MODE AUTO	Puts the controller into AUTO mode. Alarms are also cleared.	Unit forced to AUTO!
MODE MANUAL	Puts the controller into MANUAL (RUN) mode. Alarms are also cleared.	Unit forced to RUN!
MODE TEST	Puts the controller into TEST mode. Alarms are also cleared.	Unit forced to TEST!
OUT1 ON	Sets remote controlled output #1 to active state	OUT 1 = ON
OUT1 OFF	Sets remote controlled output #1 to passive state	OUT 1 = OFF
OUTxx ON	Sets remote controlled output #xx to active state (xx denotes any number between 1 and 16).	OUT xx = ON
OUTxx OFF	Sets remote controlled output #xx to passive state (xx denotes any number between 1 and 16).	OUT xx = OFF

Information SMS Messages

The controller is able to send SMS messages under below non-fault circumstances.

IP Change Mains Change

These messages are individually enabled or disabled by below program parameters: Communication>GSM>SMS On IP Change Communication>GSM>SMS On Mains Change

SMS messages are sent to all telephone numbers programmed in below tab: *Communication>GSM>Message Numbers*

Alarm SMS Messages

The D-500/700 is able to send SMS messages under all fault conditions.

SMS messages are sent to all telephone numbers programmed in below tab: *Communication>GSM>Message Numbers*

A sample message is below:



Information E-mail Messages

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

This message is enabled or disabled by below program parameters: Communication>Options-2>E-mail>E-mail on IP Change

	ampie	5 11163	ougo io i														
C)	90	≜ ♥ ♥ ₹		Table	Tools				D50	0 Notify -	Message (HTML)					
9	Message	Insert	Options Forma	t Text Des	ign Layout												
Paste	∦ Cut È Copy ∛ Format P Clipboard	Painter	s Nei + 12 + A I U ^{ab} 2 + A Basic T	` A` (Addr Boo	ess Check k Names Names	Attach A File	Attach Busin Item Car Incl	ness Calend d +	ar Signature	Follow Up *	Permissi Permissi High Im Low Imp Options	on * A portance Sp ortance Pro	elling			
This n	iessage will be	e sent via data	kom@datakom.com.	tr.													
	• To.	<u>d500ma</u>	il@gmail.com;														
Sen	d Cc.																
Accou	nt 🔹 🛛 Bcc	c															
	Subje	ect: D500 N	otify														
WA GPI	al Numbe N Ip: NA 25 In: 188	er: 8 41 22 69		\leq	New IF	^p is i	ndic	ated	here	e							
GPI	al Numbe N Ip: NA S Ip: 188 ast 10	er: 8.41.22.69 0 Eve	ents		New If	^o is i	ndic	ated	here								
Seri WA GPI	al Numbe N Ip: NA RS Ip: 188 AST 1 Event	8.41.22.69 0 Eve Alarm	ents Date Time	Mode St	New If	P IS I Mains L2	ndic Mains L3	Ated	here Genset	Genset L2	Genset L3	Genset Tot Pf	Genset Tot Act. Pow.	Genset Frq.	Oil Prs.	Eng. Tmp.	Fuel Lvl.
Seri WA GPI L:	al Numbe N Ip: NA SS Ip: 188 ast 1 Event	er: 8.41.22.69 0 Eve Alarm 	Date Time 02-01-2000 04:12:28	Mode St OFF M Fa	New If tate Mains L1 ains ilure 201 V	P IS I Mains L2 0 V	ndic Mains L3 201 V	Mains Frq. 49.9 Hz	here Genset L1 202 V	Genset L2 201 V	Genset L3 201 V	Genset Tot Pf 0.64	Genset Tot Act. Pow. 42 kW	Genset Frq. 49.9 Hz	Oil Prs. 3.5Bar 50psi	Eng. Tmp. 50 °C 122 °F	Fuel Lvl. 60 %
Seri WA GPI ## 0	al Numbe N Ip: NA SS Ip: 188 ast 1 Event Per. Rec.	er:	Date Time 02-01-2000 04:12:28 02-01-2000 04:00:00	Mode So OFF M Fa OFF M Fa	Mew If tate Mains L1 ains ilure 201 V ains ilure 0 V	P IS I Mains L2 0 V 0 V	Mains L3 201 V 0 V	Mains Frq. 49.9 Hz 0 Hz	here Genset L1 202 V 0 V	Genset L2 201 V 0 V	Genset L3 201 V 0 V	Genset Tot Pf 0.64 0	Genset Tot Act. Pow. 42 kW 0 kW	Genset Frq. 49.9 Hz 0 Hz	Oil Prs. 3.5Bar 50psi 3.5Bar 50psi	Eng. Tmp. 50 °C 122 °F 50 °C 122 °F	Fuel Lvl. 60 %
wA GPP L: ## 0 1 2	al Numbe N Ip: NA SS Ip: 188 ast 1 Event Per. Rec. Per. Rec.	er: 8.41.22.69 0 Eve Alarm 	Date Time 02-01-2000 04:12:28 02-01-2000 04:00:00 02-01-2000 01:00:00	Mode S OFF M OFF M OFF M Fa OFF M Fa	Mew If tate Mains L1 ains ilure 201 V ains ilure 0 V ains ilure 0 V	P IS I Mains L2 0 V 0 V 0 V	Mains L3 201 V 0 V 0 V	Mains Frq. 49.9 Hz 0 Hz 0 Hz	here	Genset L2 201 V 0 V 0 V	Genset L3 201 V 0 V 0 V	Genset Tot Pf 0.64 0	Genset Tot Act. Pow. 42 kW 0 kW 0 kW	Genset Frq. 49.9 Hz 0 Hz 0 Hz	Oil Prs. 3.5Bar 50psi 3.5Bar 50psi 3.5Bar 50psi	Eng. Tmp. 50 °C 122 °F 50 °C 122 °F 50 °C 122 °F	Fuel Lvl. 60 % 60 % 60 %

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:

	J 9 0	▲ ♥) ₹								D500 I	Notify - M	essage (HT	ML)					
9	Message	Insert Opt	ions Format Te	đ														
Paste	or Cut	Times Ne	· 12 · A A			Address (theck A	U N	ch Busines	s Calendar	Signature	Follow	Permission High Impo	rtance Spell	S ing			
*	Format P Clipboard	Painter	Basic Text			Book N Name	lames s	File Iter	n Card * Include	e	• G	Up + O	Low Impor ptions	Find tance Froot	ing			
'his n	iessage will b	e sent via datakom	@datakom.com.tr.															
	• To,	d500mail@q	mail.com;															
<u>S</u> en	d <u>C</u> c.																	
ccou	nt ▼ <u>B</u> cc																	
	S <u>u</u> bje	ct: D500 Notify	1				\frown											
	LIDIO							lorn	a ia i	m ali a	<u>_+_ d</u>	60.00	•					
site	Id:ENGL	NE SHE ID-				_	J F	\lam	1151	naic	aled	nere	÷					
Seri	al Numbe	NE SITE ID- er: UTDOWN Fr	 mergency Stor					Alam	1151	naic	aleo	nere						
Seri EN(al Numbe GINE SHU	NE SITE ID- er: UTDOWN Ei	mergency Stop					Alam		naic	aleo	nere						
Seri EN L	al Numbe GINE SHI	ne site id- er: utdown er 0 Even	mergency Stop					Las	stev	ent le	og gi	ives	mea	sured	valu	ies		
Seri ENG	al Numbe GINE SHU	utdown ei	mergency Stop					Las	t ev	ent le	og gi	ives	mea	sured	valu	ies		
Seri ENG	al Numbe GINE SHU	o Even Alarm	mergency Stop ts Date Time	Mode	State	Mai		Las	Mains Frq.	ent le	Og gi	Ves Genset	Genset Tot Pf	Genset Tot Act. Pow.	Valu Genset Frq.	Oil Prs.	Eng. Tmp.	Fue
Seri EN L:	al Numbe GINE SHU AST 1 Event Shtdwn	NE SHE ID- er:	mergency Stop ts Date Time 02:00 04:58:58	Mode	State Mains Failure	Mai TT 0 V	L2 0 V	Las Las	Mains Frq.	ent lo Genset L1 0 V	OG G Genset L2 0 V	Ves Genset L3 0 V	Genset Tot Pf	Genset Tot Act. Pow. 0 kW	Valu Genset Frq. 0 Hz	Oil Prs. 3.5Bar 50psi	Eng. Tmp. 50 °C 122 °F	Fu Lv
Seri EN [] ## 0 1	la:ENGI al Numbe JINE SHU ast 10 Event Shtdwn	O Even Alarm Emergency Stop	mergency Stop ts Date Time 02.01.000 04:58:58 02-01-2000 04:12:28	Mode OFF OFF	State Mains Failure Mains Failure	Mai 571 0 V 201 V	L 2 0 V 0 V	Las Las 0 V 201 V	Mains Frq. 0 Hz 49.9 Hz	ent le Genset L1 0 V 202 V	OG Genset L2 0 V 201 V	Genset 0 V 201 V	Genset Tot Pf 0 0.64	Genset Tot Act. Pow. 0 kW 42 kW	Valu Genset Frq. 0 Hz 49.9 Hz	Oil Prs. 3.5Bar 50psi 3.5Bar 50psi	Eng. Tmp. 50 °C 122 °F 50 °C 122 °F	Fue Lv 60
EN(EN(1 2	al Numbe SINE SHU ast 10 Event Shtdwn Per. Rec.	Alarm Emergency Stop	mergency Stop ts Date Time 02-01-000 04:58:58 02-01-2000 04:12:28 02-01-2000 04:00:00	Mode OFF OFF	State Mains Failure Mains Failure Mains Failure	Mai 0 V 201 V 0 V	L2 0 V 0 V	Las Las 0 V 201 V 0 V	Mains Frq. 0 Hz 49.9 Hz 0 Hz	Genset 0 V 202 V 0 V	Genset L2 0 V 201 V 0 V	Genset L3 0 V 201 V 0 V	Genset Tot Pf 0 0.64 0	Genset Tot Act. Pow. 0 kW 42 kW 0 kW	Valu Genset Frq. 0 Hz 49.9 Hz 0 Hz	Oil Prs. 3.5Bar 50psi 3.5Bar 50psi 3.5Bar 50psi	Eng. Tmp. 50 °C 122 °F 50 °C 122 °F 50 °C 122 °F	Fu Lv 60 60

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

Troubleshooting

The GSM connection status is monitored at GSM screen pages.

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

Two more modem screens are available. They are accessed by pressing UP-Down Arrow buttons of the D-500/700 device.



Signal Strenght Indicator:

This field is updated every 120 sec. The signal strength is displayed on a scale of ../7 For a consistent GPRS communication, at least 2/7 level is required.

GSM Operator:

Received from the base station of the GSM operator.

IP Address:

This field is active only if GPRS is enabled through program parameter. Updated as soon as IP address is granted by the GSM system.

Data Receive and Transmit Indicators:

These indicators flash when data is received (or transmitted) through GPRS network. Note that data counters are available in the next modem page.

GPRS Status Indicator:

Active only if GPRS is enabled through program parameter. At startup, this indicator is flashing. When GPRS connection is established, this indicator turns on steadily.

Status line:

This field gives information about the status of GPRS connection and is updated following various data exchanges between the GSM system and the D-500/700 device.



If the Modem Screen does not open, modem selection is set to "*None*". Select correct modem using the RainbowPlus program, *Communication>Basic>Modem* tab. Additional modem screen:



Additional modem screen

	MODEM	SCREEN	-
-	eretwed !		
	Total data bytes received	947	Sublement of
	Sent By	te Count	
	Total data bytes transmitted	256	

Client IP address:

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

IMEI Number:

This is the modem's unique identificaiton number. Each GSM device has a different IMEI number.

Data Counters:

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

Normal Status Messages (alphabetical order)

MESSAGE	DESCRIPTION
GPRS Ready	Modem connected to GPRS network successfully.
GPRS Ready on Roaming	Modem connected to GPRS network successfully.
	Roaming service is active.
Modem Connected !	A modem is found at D-500/700 initialization phase.
Modem Ready	Modem installation complete. GPRS not active yet.
New SMS received	An SMS is received. The D-500/700 device will execute the command given by the SMS message.
Sending SMS	SMS message sending is in progress.
SMS preparing	SMS message is about to be sent.
SMS Sent	SMS message was sent successfully. The GSM system confirmed SMS reception.
	The delivery of the SMS message is duty of the GSM system.
	The controller has no control on message delivery to the target phone number.
Remote Server Update	The modem is updating the remote central monitoring (Rainbow Scada) server.

Abnormal Status Messages (alphabetical order)

MESSAGE	DESCRIPTION	REMEDY
Bad Agent/Not permitted	The dyndns service rejects IP update request.	Check end reenter correct parameters using the RainbowPlus program, Communication>GSM>Dynamic DNS tab area.
Bad APN info	APN parameters are not acceptable.	Check end reenter correct APN parameters using the RainbowPlus program, <i>Communication>GSM</i> tab.
Bad Service Ctr. Nr	The GSM system rejects the SMS service center number.	Either the service center number of the Sim card or service center program parameter is faulty. Enter the correct Service Center No parameter using the RainbowPlus program, Communication>GSM tab.
Bad Telephone Nr.	The SMS number is not acceptable for the D- 500/700 device. Or the GSM system rejects the SMS number.	Check end reenter correct <i>message number</i> parameters using the RainbowPlus program, <i>Communication>GSM</i> tab.
Command not supported.	An unrecognized SMS command is received.	Send correct SMS command as explained in the SMS COMMANDS section of this document.
Connection error	The dyndns service does not answer IP update request. The D-500/700 device will reattempt IP update.	If the message is not repeated then do not carry. Turn the DC power off, wait 10 seconds and turn the power on again.
Data sending error	Communication errors in IP network. May occur when the signal strength is low or GSM system is overloaded.	Relocate the antenna to a better reception place. Try other GSM operators. This error is not critical and may occur momentarily.
DynDNS Failed. Use IP	The central monitoring (Rainbow Scada) server is using the dyndns service and the dns address of the server cannot be resolved.	Check and correct Rainbow Server address parameters using the RainbowPlus program, Communication>IP Settings tab area.
Enter PIN Password	Sim card has PIN protection and correct pin is not programmed in the D-500/700 device.	Check end reenter correct GSM Sim Card PIN No parameter using the RainbowPlus program, Communication>GSM tab.

MESSAGE	DESCRIPTION	REMEDY
Enter PUK Password	Sim card PIN number is blocked because of repeated faulty PIN number setting.	Remove the Sim card from the D- 500/700 device. Place Sim card in your mobile phone and enter correct PUK number.
GPRS reconnection	GPRS connection is lost. The D-500/700 device is trying to reconnect. May occur when the signal strength is low or GSM system is overloaded.	If prepaid Sim card is used, credit may be insufficient. Relocate the antenna to a better reception place. Try other GSM operators. This error is not critical and may occur momentarily.
GPRS Stopped	GPRS connection is lost. The D-500/700 device will try to reconnect. May occur when the signal strength is low or GSM system is overloaded.	If prepaid Sim card is used, credit may be insufficient. Relocate the antenna to a better reception place. Try other GSM operators. This error is not critical and may occur momentarily.
GPRS unusable/Bad APN	GSM system rejects GPRS connection because of faulty APN parameters.	Check end reenter correct APN parameters using the RainbowPlus program, <i>Communication>GSM</i> tab.
Incorrect PIN	Sim card has PIN protection and correct pin is not programmed in the D-500/700 device.	Check end reenter correct GSM Sim Card PIN No parameter using the RainbowPlus program, Communication>GSM tab.
Insert SIM Card !	Sim card not found in dedicated slot.	Insert Sim card.
IP Error/No GPRS Serv.	The modem cannot be attached to the GPRS network. The GSM system does not grant IP address to the modem.	If prepaid Sim card is used, credit may be insufficient. Sim card is not data enabled. GPRS service is unavailable. Relocate the antenna to a better reception place. Try other GSM operators.
Low signal/No network	GSM network is not available. GSM operator indication disappears.	No GSM signal in current location. Check antenna and antenna connections. Relocate the antenna to a better reception place. Try other GSM operators. Place Sim card in your mobile phone and check signal level.

MESSAGE	DESCRIPTION	REMEDY
Modem error, resetting	The modem is not responding to commands sent from the D-500/700 device. The modem microprocessor is inactive. The D-500/700 device is resetting the modem.	Wait until the modem enters in service. If the modem does not enter in service, then turn the DC power off, wait 10 seconds and turn the power on again.
Modem searching	The D-500/700 is searching for a connected modem.	Select correct modem using the RainbowPlus program, Communication>Option1>Modem tab.
No Modem Response	The modem is not found, although defined by program parameter.	Select correct modem using the RainbowPlus program, Communication>Option1>Modem tab. If external modem is used, then check connections. If internal modem is used then turn the DC power off, wait 10 seconds and turn the power on again. If the same fault condition continues, then the modem is faulty.
Searching Network	GSM network is not available. GSM operator indication disappears.	No GSM signal in current location. Check antenna and antenna connections. Relocate the antenna to a better reception place. Try other GSM operators. Place Sim card in your mobile phone and check signal level.
Server Session Error	Modem is not responding IP commands sent by D- 500/700 device.	Incorrect modem software version. Please contact Datakom.
SMS error, trying	SMS message reception is not confirmed by the GSM system. The D-500/700 device will retry SMS sending 5 times.	The GSM system may be answering too late. This is not critical. If prepaid Sim card is used, credit may be insufficient.
SMS send/rcv error	SMS message reception is not confirmed by the GSM system after 5 SMS sending attempts.	The GSM system may be answering too late. This is not critical. If prepaid Sim card is used, credit may be insufficient.
SMS deleting error	SMS messages in the Sim card cannot be deleted.	Turn the DC power off, wait 10 seconds and turn the power on again. The D-500/700 device will erase all SMS messages in the Sim card at power-on.

MESSAGE	DESCRIPTION	REMEDY
Wrong Answer S:xx C:B	The modem returns a command. xx denotes command step and C describes return type.: C:B → Bad response C:E → Error	These messages are not critical and does not affect operation. They are for debugging purposes only. Please contact Datakom if an operational problem occurs.