

DPS-Promatic Telecom Control Systems TCS 3.5 and TCS OS 5.0 Instructions List

Revision 1.0

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Disclaimer: read carefully!

- 1 This system is intended for trained people, not for consumers. If you feel you don't understand some technical aspects please refer to somebody that has a technical background.
- 2 In this manual we may use CAPITAL LETTERS or lower case letters. If we write 'E' we mean it. You can't use 'e' because it won't work.. The system IS CASE SENSITIVE.
- 3 Look carefully at the PIN issues before attempting to switch on the TCS with a SIM inside
- 4 The GATE function and the TCS Logger are provided free of charge in some version for test purposes only. Thank you for reporting any bugs you may find or any suggestion for improvements.
- 5 Some functions will be available only if you have purchased them.
- 6 We constantly improve the TCS hardware and software and so you could find that something is different from what you read here. In case of doubt contact us e-mailing at infotcs@dps-promatic.com
- 7 GSM telecommunications are generally reliable but you should never design something critical based on their reliability or based on our board performance since it depends on GSM communications. For greater safety you should use redundant solutions.
- 8 SMS messages usually work very well and have many advantages over normal calls, including the fact that they travel on the signalling layer and operate even in low signal condition. Anyway always keep in mind that an SMS could not arrive and you cannot complain with your operator for this. We have done intensive tests and it looks like 99% of the messages arrive within a few seconds but there are periods in which the messages will not work or will be delayed. Performance varies among operators.
- 9 Output 8 is connected to a on-board relay. This relay is a low power device and has limits on the voltage and current you can apply to its contacts: MAX 48VAC 1A.
- 10 Life support: this unit is not intended for any life support device, thus intending a device whose malfunction may result in damage to a life.
- 11-We have done our best to produce a bug free device and to explain features well into this document. We will not be liable for anything exceeding the simply repair or fixing of problems, if due to us, once they have been submitted to us.

DPS-Promatic Telecom Control Systems TCS 3.5 and TCS OS 5.0 Instructions List

1- Introduction

TCS 3.5 is a powerful device that will enable you to control many items through the GSM network.

Using it is straightforward and if you study these simple instructions you will be able to do many things and use the full power of the TCS Operating System.

In this manual we cover most of the options available in the TCS units even if it could be that in your specific version you don't have all these options.

In this brief instruction notes we assume that the reader has a basic knowledge of GSM systems and knows what we refer to when we speak of SIM card, SMS etc. In case you are not familiar please read a book about these topics or look for them in the internet.

1.0- Main differences with previous TCS 3.0 version

The TCS 3.5 units maintain most of the TCS 3.0 features with a few amendments:

- 1- TCS 3.5 uses a Siemens TC35 dual band modem
- 2- TCS 3.5 has a switchable serial interface so the modem can be *shared* with limitations between the TCS board and an external device, like a PLC.
- 3- TCS 3.5 has a command line operating system and (almost) all commands can be issued in the same way either via SMS, serial port or data connection.
- 4- TCS 3.5 has new commands that make it more suitable for control via service centres

1.1- What is the TCS

The TCS is a microcomputer that incorporates a Siemens TC35 GSM module, enabling VOICE, SMS and DATA communication.

It has 8 TTL inputs where you can connect opto-isolators, switches, relay contacts etc. and 8 Open collector outputs that you can use to drive logical devices or to drive relays. Output 8 is already connected to a low power on-board relay

It also has 2 Analog Inputs one used as temperature conditioner and one used as a 4-20ma or 1-5V industrial standard analog input.

1.2. Who is the ideal customer for a TCS

Our ideal customers are system integrators or anyway anybody who has the capability of connecting relays or interfacing the system to the external world without destroying it.

We are ready to co-operate for any interesting project developing special version of software on request, though with the existing one, many implementations can be done.

1.3. How to control and configure the system

The TCS can be used with SMS messages and most functions can be configured this way. Alternatively it is possible to control the board connecting it to a PC or through a data call.

If the DTMF and Voice options are installed, it is possible to check inputs and set outputs using any phone with DTMF tones.

1.4. How to connect to a PC

Buy or make a serial cable according to schematics at the end of this manual and connect the TCS to a COM port in the PC.

Use Hyperterminal or Xtalk at 9600 N 8 1, or use our TCS LOGGER software.

Switch on the TCS.

After it has registered to the network, press enter on the computer keyboard a few times, until it answers with 'HELLO', at this point type 'menu' on the keyboard, you will see the TCS OS menu asking for a PASSWORD. If you did not change the ADMIN password, the default one is 123456. If you changed it, use your one.

If you don't want to put a SIM, push the reset button and immediately after reading 'HELLO' enter 'menu' etc.

Once you have entered the menu you will see a command prompt '/'.

Type the commands as listed at the end of this manual. For updated commands always refer to our TCS 3.5 command list on line at <http://www.dpspro.com>

1.5-SIM and PIN issues

SIM card have their rules and it is important that you know them before going on.

PIN and PUK: SIM cards are usually sold so they will ask a PIN code before starting up. You can enter a wrong PIN a maximum of 3 times and then the card will Request a PUK. PUK stands for PIN Unblocking Key. It is used to unblock the SIM Card that has been blocked due to failed attempts at keying-in the PIN. You are allowed 10 attempts to unlock the SIM Card after which the SIM Card will be locked permanently and the card will be useless (contact your operator if this happens).

With TCS 3.5 you can program your PIN code into the TCS so it will communicate it to the SIM card upon request when the system switches on. This is convenient to avoid fauds, in case the unit is installed in a location where the SIM could be stolen.

Depending on what solution you prefer (PIN or NO PIN) you can do the following:

- 1- Put your SIM card in a Phone and program it so it won't ask for the PIN anytime it switches on and then put it into the TCS. This is the simplest way and always works. The only problem is that somebody could steal the SIM and use it.
- 2- Connect a PC to the TCS (without a SIM inside) and program the PIN code that your SIM will request, using the #PIN command.

Important: When doing this DON'T insert the SIM into the TCS or insert a SIM that does not ask for the PIN.

WARNING: If you put a SIM that asks for the PIN, without having programmed it into the TCS, and you switch the system on and off 3 times, your SIM will lock up and you will have to put it into a Phone and insert the PUK.

2.0 Starting UP

If you choose to program the TCS with a direct PC connection, you do not need SIM card with data number and you need only to connect a cable to the serial interface and then you can access the TCS using Hyperterminal or XTalk or any other terminal software.

You may also install our TCS Windows software package, that will allow easy connection to the TCS and complete SMS gateway features.

We recommend that you start without a SIM whenever you want to program a PIN code into the TCS for the first time.

If you have a SIM card with DATA capability you will always be able to reconfigure your TCS unit from a remote site.

Usually it is possible to call a GSM module, like the TCS, using a standard PC modem. It may happen anyway that, due to improper configuration done by the GSM operator, this option is not possible and when trying a call, a busy signal is detected.

If this happens to you, please contact your GSM operator and tell them the problem and hopefully they should be able to change the network configuration for that number.

If you buy an extra TCS 3.5 and keep it connected to the COM1 or COM2 of your PC you may use it to control remotely all your TCS boards.

Another way, even if not so user friendly is to use a GSM phone like the Nokia 9110 to call a TCS in data mode. An Ipaq with terminal software is also a convenient way to do it.

If you need clarification on this regard, please contact us at tcsinfo@dps-promatic.com.

Note: SIM cards can have 3 Numbers: VOICE, DATA and FAX. This means that if you have a SIM card whose voice number is 2345678, it should have a DATA number that is different.

People who sell SIM cards usually do not know the difference and so they will say that even a SIM with only a number can send data. This can be true, the problem is that it cannot be called with a data call.

You do not need a FAX number, but most of the time it is included.

Consult your operator(s) for more details and actually try to find which is the one with best performance and cost.

Sometimes a SIM with a DATA number may cost more. This means that the operator charges you more to be able to receive a data call. In fact most SIMs can always place a data call even if they can't receive it. IN this case we suggest that you use the #CLB (CallBack) function of the TCS 3.5 to ask the remote unit to place the DATA call.

2.1 - Switching on

Once you have inserted the SIM into its holder switch on the unit.

It will emit a long beep and it will beep again after a few seconds (up to 30/40), this means that it has recognized the SIM card and has registered to the network.

You are now ready to proceed.

IMPORTANT: Before connecting the TCS to any device, please refer to the I/O connections diagram at the end of this manual.

IMPORTANT: when switching on using the backup battery it is necessary to press the POWER ON Switch near the backup battery connector (see block diagram)

This feature is implemented to avoid destroying the battery once it has achieved a low voltage limit. The TCS 3.5 will always switch on by itself when AC/DC power comes, either from a solar panel or power supply. If there is not such power and the unit is in the OFF condition, even if you apply voltage from a battery the unit WILL NOT START unless you press the start button.

2.2 - Modem sharing feature

In some applications, like in industrial automation, a machine controller, i.e. a PLC has already a RS232 port to communicate with a modem., so it could already be remotely controlled simply using a GSM modem, without the need of a much more sophisticated TCS board.

Nevertheless most of the times these installations lack of local intelligence to receive and send data via SMS or perform additional controls, features available on a TCS board. At this point there is a typical question: Can I use the modem installed in the TCs board to communicate with my PLC?

With the TCs 3.0 the answer was NO.

With the TCS 3.5 the answer is YES, BUT...why?

The thing to consider is that you have 1 modem and you can't connect 2 things at the same time. If you decide to switch the modem to your external device you must be aware that it won't be possible to control the TCS because it has no access to the modem hence it can't send alarms or receive commands.

To try to with this problems we have implemented the following features.

Upon reception of a data call, TCS will switch the modem directly to the RS232 port, unless a #DDC command was received during the previous 5 minutes.

In this way you can access your external device with a data call but you have a mean of placing a data call that enters the TCS OS.

To allow a PC or an external device to have direct access to the modem we have implemented the #CTR command. Once issued, this command connects the RS232 port directly to the modem for an amount of seconds that has to be specified with the command. Once the amount of time is over, TCS will regain control of the modem.

Important: To be able to use this features properly you must be quite skilled because you must be able to control the modem properly and issue the commands in a way that doesn't prevent proper operation of the system. We don't provide low level assistance about doing it. This features are domain of experienced users.

3 - SMS commands

TCS boards can be controlled by means of Short Messages (SMS).

Note for TCS 3.0 experts:

-old TCS 3.0 command #GSM is now #TEL.

-old TCS 3.0 command #SMS is now #AMS.

Here is a list of the commands available on TCS 3.5 with software release 5.0

- **#ACF**: Reads/Writes matrix of association among TELEphone numbers and INputs (8 plus 3 extras)
- **#ACM**: Selects access mode for Voice call function
- **#ALR**: Enables (ON) or Disables (OFF) the generation of an alert SMS
- **#AMS**: Stores and reads text sent via SMS for Alarms 1 to 8
- **#CAP**: Sets ADMIN Password
- **#CCA**: Read/writes total counters for Inputs 1 to 6
- **#CLB**: Call Back the TEL data number indicated
- **#CLK**: Sets clock and date values
- **#CNP**: Read/writes sub counters for Inputs 1 to 6
- **#CNT**: Read/writes total counters for Inputs 1 to 6
- **#CTR**: Puts RS232 port in direct connection to the GSM modem for a xxxxx amount of seconds
- **#CUP**: Sets USER Password
- **#DBG**: Enables a copy of all incoming messages to TELEphone Nr.8
- **#DDC**: Next Data Call within 5 minutes will enter TCS command mode and will not be routed to the RS232 port
- **#END**: Exits TCS command mode
- **#GIO**: Reads current Input Output status
- **#IDT**: Indicates how long a input has to be active before generating an alarm
- **#INI**: Resets all parameters to the INIT default value
- **#IPM**: Sets the input mode for the individual inputs
- **#LLA**: Lists complete TCS programmable parameters status
- **#MHD**: Reads/Writes TCS ID and SMS serial number
- **#MTX**: Reads/Writes matrix of association among TELEphone numbers and INputs (8 plus 3 extras)
- **#NOA**: Inhibits SMS acknowledgment
- **#OUT**: Sets or resets the output pins
- **#PIN**: Sets PIN for the SIM card
- **#PWD**: Gives password to enable any following command by SMS
- **#PWR**: Reads/Writes power variables
- **#RES**: Software Resets the board
- **#SCA**: Reads/Writes Reads/Writes the Service Center Address
- **#SCT**: Sets internal clock with telecom operator clock and date
- **#SMC**: SMS counters: read/write SMS counters
- **#TEL**: Sets the GSM TELEphone numbers (up to 8) to which alarms will be sent
- **#TMP**: Read temperature, read/write alarm thresholds
- **#WHL**: Read/Write a telephone number to the white list.

Special Software versions

ChronoThermostat

#DAY: Writes temperature for selected days of week (includes STP command)

#SHD: Sets temperature hysteresis

#SHS: Sets time hysteresis

#SSE: Sets season (Winter/Summer)

#CTO: Sets output (01/08) used by ChronoThermostat software

Please see detailed command list and explanation on line on our web site

<http://www.dpspro.com/tcs.html>

3- SMS Command structure

Any command sent by SMS must be preceded by # and MUST be in CAPITAL letters.
First command must be PWD that means Password.
There is an Administrator Password and a USER Password, with different level of control and access.
Both passwords are set at 123456 by default. They can be changed as you like.

In order to be able to send SMS the TCS must know a valid SCA (Service Centre Address) Number. This is the SMS service Centre number, that your provider will give you.
The TCS will send the SMSes to this number and the network will route them to the recipient(s).

TCS ships already initialized, but in case you want to be sure just send the following SMS to initialise it :
#PWD123456#INI#SCA+399795000500#SCT
note: issuing a #INI command will initialize all parameters so don't do it if you have already programmed them.

The number +399795000500 that we indicate for SCA is NOT a real number, put your operator service number (SMS centre number) in place of it.
The command #SCT sets the internal clock to the same time of your GSM operator.

After a few seconds you should receive a message that confirms every part of your command and signals any error. If you do not want to receive these messages you should always add #NOA (No Acknowledge) at the end of the command string.

Once the system has been set up properly, all functions can be performed via SMS. Please see the complete command list in Appendix 1.

NOTE: When you send a command, you will receive the answer even if your GSM number is not in the internal GSM list. This happens because the TCS recognises the caller ID and answers to it.

NOTE WELL: in some countries, unfortunately, operators do not allow cross operator SMS. Be sure that if this happens in your country you have SIM cards from the same operator in your phone and in the TCS.

4- Input, messages and GSM TEL numbers

One of the most important functions of the TCS is to receive alarms. We call this ALERT function. In order to do this properly, you must tell the TCS which are the recipient numbers and who should receive a message for any particular input.

4.1 - INPUT MESSAGES

First of all you should know that for any INPUT there is a message, that can be programmed by you and that can be up to 40 characters long.

You should also know that for simplicity, input 1 to 8 are real inputs and according to the versions you may have the following other input alarms (that are not digital inputs):

IN[9] Temperature
IN[10] Power down
IN[11] 4-20mA input

You can only program messages for input 1 to 8, other alarms have their specific messages, that are:

Temperature1: "Low Temp Alarm!" followed by temperature in degrees celsius

Temperature2: "High Temp Alarm!" followed by temperature in degrees celsius

Power1: "Warning! AC Power OFF" when AC power is off

Power2: "AC power ON" when power comes back or after a reset

Power3: "SHUTTING DOWN! Low batt VBAT = xxxx mV"

4-20-1: "Warning! 4-20mA sensor error" when no sensor is connected

4-20-2: "Warning! 4-20mA xx% " when an alarm threshold is crossed

You can program the text of the message, either with a data call, using the TCS menu, or with an SMS, i.e.:

#PWD123456#AMS01this is a test for input 1 message

#PWD123456#AMS05this is a test for input 5 message

Please note that you can group commands up to 160 characters.

4.2 - TEL numbers

An SMS message can be sent only to GSM phones, so you must input the GSM phones to which you want to send the messages. There are 8 numbers that can be stored into the system. For every input you can send the message assigned to that input to any of the 8 numbers, or even to all of them.

To enter the numbers of all the people to whom you want to send alarms, you can use a data call, or better you can do it with SMS messages:

```
#PWD123456#TEL01+39858111456
#PWD123456#TEL02+39858222646
#PWD123456#TEL03+39858333898
```

etc. up to GSM 8.

Of course most of the time you will not need to use all the numbers. You can change them whenever you want.

4.3 - INPUT to GSM matrix

This is something that may sound complicated but actually it is the simplest way that we have found to do a very flexible thing: every input can be assigned to 8 telephone numbers, that you can choose from the ones you have put in your list .

Lets see how the matrix appears and so you will immediately understand:

```
INPUT1      = 1,0,0,0,0,0,0,0
INPUT2      = 1,2,0,0,0,0,0,0
INPUT3      = 1,1,2,2,0,0,0,0
INPUT4      = 2,3,4,5,0,0,0,0
INPUT5      = 7,0,0,0,0,0,0,0
INPUT6      = 4,0,0,0,0,0,0,0
INPUT7      = 1,2,3,4,5,6,7,8
INPUT8      = 0,0,0,0,0,0,0,0
INPUT9      = 1,0,0,0,0,0,0,0
INPUT10     = 1,0,0,0,0,0,0,0
INPUT11     = 0,0,0,0,0,0,0,0
```

We assumed that you have input all 8 numbers, but you need not to do it.

Any alarm coming from Input 1 will generate 1 SMS to GSM 1

Any alarm coming from Input 2 will generate 1 SMS to GSM 1 and 2

Any alarm coming from Input 3 will generate 2 SMS to GSM 1 and 2

Any alarm coming from Input 4 will generate an SMS to GSM 2,3,4,5

Any alarm coming from Input 5 will generate an SMS to GSM 7

Any alarm coming from Input 6 will generate an SMS to GSM 4

Any alarm coming from Input 7 will generate an SMS to all 8 numbers

Any alarm coming from Input 8 will generate no SMS at all

Any alarm coming from Input 9 (temperature) will generate 1 SMS to GSM1

Any alarm coming from Input 9 (AC power) will generate 1 SMS to GSM1

Default is 1,0,0,0,0,0,0,0 for all inputs.

TEL/Input Matrix can be read or written via SMS or commands via RS232 or data call. This is a new feature that was not available in the TCS 3.0.

5 - INPUT counters and sub-counters

All inputs can be active low or active high. They generate an alarm whenever they have been pulled active for more than the programmed length of time (from 2 to 32000 seconds).

You can read anytime INPUTs status with the #GIO command.

Input 1 to 6 can be individually programmed to behave differently and count the input active low pulses, up to 14 ms fast.

This means that you can connect them to a mechanical counter or to a coin acceptor and count the pulses.

Every pulse will increment the Counter related to that input (i.e. COUNTER 1 for Input 1) and also the SUB counter related to it.

The sub-counter will increment until it reaches a value equal to the comparison value, as stored into the COMPARATOR VALUE available for each of the 1..6 INPUTS.

When that value is reached, the SUB-COUNTER returns to 0 and an ALARM is sent with the text for that INPUT to the GSM number(s) indicated in the matrix, for that INPUT.

All COUNTERS, SUB-COUNTERS, COMPARATORS values can be programmed using commands #CNT, #CNP, #CCA.

Input mode can be set using the #IDT command.

NOTE: When used as counters input work only in ACTIVE LOW mode. They count ONLY Low Going Pulses.

6- Temperature

TCS allows for easy measurement of temperature from -25° to +100°.

In order to do this you need to purchase the temperature management option when you buy the board together with a temperature probe. We have 2 models available, one is for use in air and one is for use in liquids. Accuracy is 1° Celsius.

Once the probe is connected you can inquire for Temperature sending the following SMS command:

#PWD123456#TMP?

You will receive an SMS with temperature value and other related alarm settings.

6.1 - Setting temperature Alarms:

You can set lower and upper temperature limit so the TCS will send the ALARM message and the temperature value to the GSM number(s) indicated in the matrix for INPUT 9 (temperature).

The Alarm will be sent when temperature is below lower limit or above upper limit.

You can set lower and upper limit also by SMS with the following command:

#PWD123456#TMPON,0,50

The above command sets lower limit at 0° and upper limit at +50°.

Temperature alarm can be enabled/disabled with the command #TMPON or #TMPOFF
Default values are -25°/+100°, temperature alarm disabled.

6.2 – Chrono-thermostat

This is a special feature that can be purchased as an option that allows automatic control of a temperature in a room with daily steps, for 1 week, that can be updated via SMS. It works in the range 5-30 degrees Celsius.

With this software option you can send an SMS that sets the temperature for 4 intervals each day, 7 days a week, individually programmed.

Using the command:

#DAY[1234567]#STP HH:MM gc HH:MM gc HH:MM gc HH:MM gc

You can set the temperature for one or more days (1=monday) for (up to) 4 time periods.

Example:

#DAY1345#STP=08:00 22.4,16:15 18

Sets temperature periods for Monday,Wednesday,Thursday and Friday.

In the above days temperature is set at 22.4 degrees C. at 08:00 and at 18 degrees at 16:15

TCS Chrono-thermostat has a Winter/Summer software switch and controls the temperature via output-7. It will send alarms if temperature goes below or above 2 programmed thresholds.

It is possible to program an hysteresis based on temperature or on delay.

With Chrono-Thermostat option temperature range is limited to +5/+30° C with a division of 0,2°C.

NOTE: You can use the #CTO command to set another output pin, other than output 7.

It can be convenient to use output 8 because it has already a relay that can stand up to 48VAC.

Of course if you use Output 8 you can't use the gate opener function or a conflict would occur.

7- AC Power and backup battery

TCS with the battery option, comes with the connection for a backup battery and has a built-in battery charger for LEAD batteries.

If you connect a battery use 12 V models (nominal 13.2) with capacity: minimum 1.1 Ah / Maximum 7 Ah (maximum value is an indication only. it is possible to install bigger batteries but the charging circuit will charge them with a maximum current of less than 1A).

The TCS can be powered directly with 12 to 24 VAC or 12 to 35VDC
A minimum of 15 VDC is required if TCS has to keep the battery fully charged.
A 18V Solar Panel can be directly connected as DC power source.

If the external power source fails, TCS will run on battery and, if enabled, will send an Alarm to the GSM Number(s) associated to INPUT 10 (AC power).

You can send SMS commands to ask battery level and type of power (AC/DC or Batt): **#PWD123456#PWR?**

When the battery voltage will be below 10.5V and no AC power is supplied, the TCS will shutdown to prevent a deep discharge that would destroy the battery.

Before doing it, a WARNING SMS will be sent to all the telephones listed as GSM(1 to 8).

In order to perform battery management and alarms the #PWRON command must have been sent to the TCS to enable power down alarm.

NOTE 1: when switching on using the backup battery it is necessary to press the POWER ON Switch near the backup battery connector (see block diagram).

NOTE 2: If the TCS Shuts down because of low battery, it will resume normal operation if main AC/DC power returns.

8 – OUTPUTS

To set any output as you like you need to send an SMS message (remember that you can group more commands in one) specifying output Number and if you want, the number of seconds the output should stay on. If you do not specify this parameter, it will stay on indefinitely, until a further command sets it to 0.

Example: **#PWD123456#OUT1ON,10#OUT2ON,20#OUT3ON,30#OUT4ON**
the above example sets the input 1 on for 10 seconds, the input 2 for 20 seconds, the input 3 for 30 seconds and the input 4 ON until a off command will arrive.

You can read Output (and also input) Status with the command #GIO
e.g. **:#PWD123456#GIO?**

It is also possible to set, reset and check outputs in Voice and DTMF modes if you have purchased Voice Options options.

NOTE: Output 8 is connected to a on-board relay. This relay is a low power device and has limits on the voltage and current you can apply to its contacts: MAX 48VAC 1A.

9- TCS Voice Options (Gate,DTMF,IVR)

Note: We refer to Voice Options as any function that is obtained placing a voice call to the Voice number of the SIM.

The GATE opener option is available as a standard feature in all TCS boards. Other features are available if purchased and installed.

If you purchased the TCS Voice and DTMF options you will have the possibility of controlling inputs and outputs using a normal phone (any phone: GSM, home phone, phone booth from anywhere) with DTMF tones.

These are some basic concepts:

White list: is a list of numbers (64) that will trigger an event when calling in voice mode. If a number in the white list calls, and White List access mode has been chosen, the function associated chosen as Voice Option will be automatically performed

TCS will compare the incoming Caller ID with all the numbers in the list and activate the function if a number is found.

Comparison will start from the rightmost character up to a maximum of 10 characters.

If you wish to match any character for certain positions, use ? (interrogation mark wildchar) in place of the character you don't mind to compare.

You need only input the rightmost characters that are relevant to you. Bear in mind that your operator could send the country code or not, so most of the time it is better not to put it.

For a Finnish number +358400999888 it is better to put 400999888 then 8400999888 because the 8 (part of the country code +358) could appear only sometimes.

How to input white list numbers

You input white list unmbers using the #WHL command either via SMS or command line mode.

You may query existing number issuing the #WHL? command string if you are connected in data mode or cable.

If you want to o it via SMS you must always specify the position you want to know: #WHL01 returns telephone in position 01.

Let's try to give access to the following numbers and we have space in position 9,10 and 11:

3489977662, 3351234567, 337123456

You can issue the command (always preceded by the Password command) #WHL093489977662#WHL103351234567#WHL11337123456

For the following numbers we want to keep customer privacy (e.g. if a TCS is used to open a gate in a Hotel): 3752255???

In this way any number from 3752255000 to 3752255999 will have access.

In other cases we can do: 37522??365

In this way any number from 3752200365 to 3752299365 will have access.

May be you want to grant access only to a customers who use a particular operator whose prefix is 345 and has all the numbers with 7 digits. You would do 345???????

If the operator can have numbers of 7 and 6 digits you would input as another number 345??????.

Finally, if you want to grant access to all numbers ending in 321 you would simply enter 321, because TCS will compare from the rightmost digit and compare only the number of digits you have input up to a maximum of 10.

1-Gate function: closes for 0.5 seconds output 8 relay when the access mode parameter is met. We call it gate function because it is very useful to open electric gates. GATE function is installed as a standard feature.

2-DTMF Password: it is the same as USER password. In order to use it as a DTMF password the User password must be NUMERIC. DTMF option must be installed.

3-DTMF control & Relay: switches on Out 8 relay as long as the call is active (useful to switch on a lamp or activate something) and allows direct control of the outputs active-as-long-as-tones. Keeping down key 1 will activate output 1, etc. key 7 or key 8 will both activate output 7 (because 8 is always on). Key (tone) 9 will switch on all the outputs as long as it is pressed.

4-IVR control : IVR means *Interactive Voice Responder* and is a powerful way to check and control the TCS from any phone just placing a phone call. Once passed the access filter (if FREE ACCESS is chosen, there is no access filter), it will be possible to listen to a voice speaking the available functions:

to read inputs press 1
to read outputs press 2
to set outputs press 3
to reset outputs press 4
to read current time press 5
to read temperature press 6
to read analog input press 7
to exit press 0

If you choose any of the above, a voice submenu will follow performing the appropriate task.

If you would like to have special customised versions of IVR functions please e-mail your request to tcsinfo@dps-promatic.com and we will follow up with an offer.

APPENDIX 1 : TCS 3.5 – OS 5.0 SMS Command List

Note: All commands must be preceded by # and must be in CAPITAL letters. The first command must always be #PWD and a valid Administrator or User password. The fields between square brackets are parameters, do NOT enter the square brackets. Default Password is 123456. Remember to change it afterwards.

IMPORTANT: remember to send the #SCA command with your operator SMS Service center number, or the TCS will not be able to send any SMS.

First command MUST BE #PWD123456#INI#SCA[SCA number]

Here is a list of the commands available on TCS 3.5 with software release 5.0

- **#ACF:** Reads/Writes matrix of association among TELEphone numbers and INputs (8 plus 3 extras)
- **#ACM:** Selects access mode for Voice call function
- **#ALR:** Enables (ON) or Disables (OFF) the generation of an alert SMS
- **#AMS:** Stores and reads text sent via SMS for Alarms 1 to 8
- **#CAP:** Sets ADMIN Password
- **#CCA:** Read/writes total counters for Inputs 1 to 6
- **#CLB:** Call Back the TEL data number indicated
- **#CLK:** Sets clock and date values
- **#CNP:** Read/writes sub counters for Inputs 1 to 6
- **#CNT:** Read/writes total counters for Inputs 1 to 6
- **#CTR:** Puts RS232 port in direct connection to the GSM modem for a xxxxx amount of seconds
- **#CUP:** Sets USER Password
- **#DBG:** Enables a copy of all incoming messages to TELEphone Nr.8
- **#DDC:** Next Data Call within 5 minutes will enter TCS command mode and will not be routed to the RS232 port
- **#END:** Exits TCS command mode
- **#GIO:** Reads current Input Output status
- **#IDT:** Indicates how long a input has to be active before generating an alarm
- **#INI:** Resets all parameters to the INIT default value
- **#IPM:** Sets the input mode for the individual inputs
- **#LLA:** Lists complete TCS programmable parameters status
- **#MHD:** Reads/Writes TCS ID and SMS serial number
- **#MTX:** Reads/Writes matrix of association among TELEphone numbers and INputs (8 plus 3 extras)
- **#NOA:** Inhibits SMS acknowledgment
- **#OUT:** Sets or resets the output pins
- **#PIN:** Sets PIN for the SIM card
- **#PWD:** Gives password to enable any following command by SMS
- **#PWR:** Reads/Writes power variables
- **#RES:** Software Resets the board
- **#SCA:** Reads/Writes Reads/Writes the Service Center Address
- **#SCT:** Sets internal clock with telecom operator clock and date
- **#SMC:** SMS counters: read/write SMS counters
- **#TEL:** Sets the GSM TELEphone numbers (up to 8) to which alarms will be sent
- **#TMP:** Read temperature, read/write alarm thresholds
- **#WHL:** Read/Write a telephone number to the white list.

Special Software versions**ChronoThermostat**

#DAY: Writes temperature for selected days of week (includes STP command)

#SHD: Sets temperature hysteresis

#SHS: Sets time hysteresis

#SSE: Sets season (Winter/Summer)

#CTO: Sets output (01/08) used by ChronoThermostat software

Please see detailed command list and explanation on line on our web site

<http://www.dpspro.com/tcs.html>

Examples:

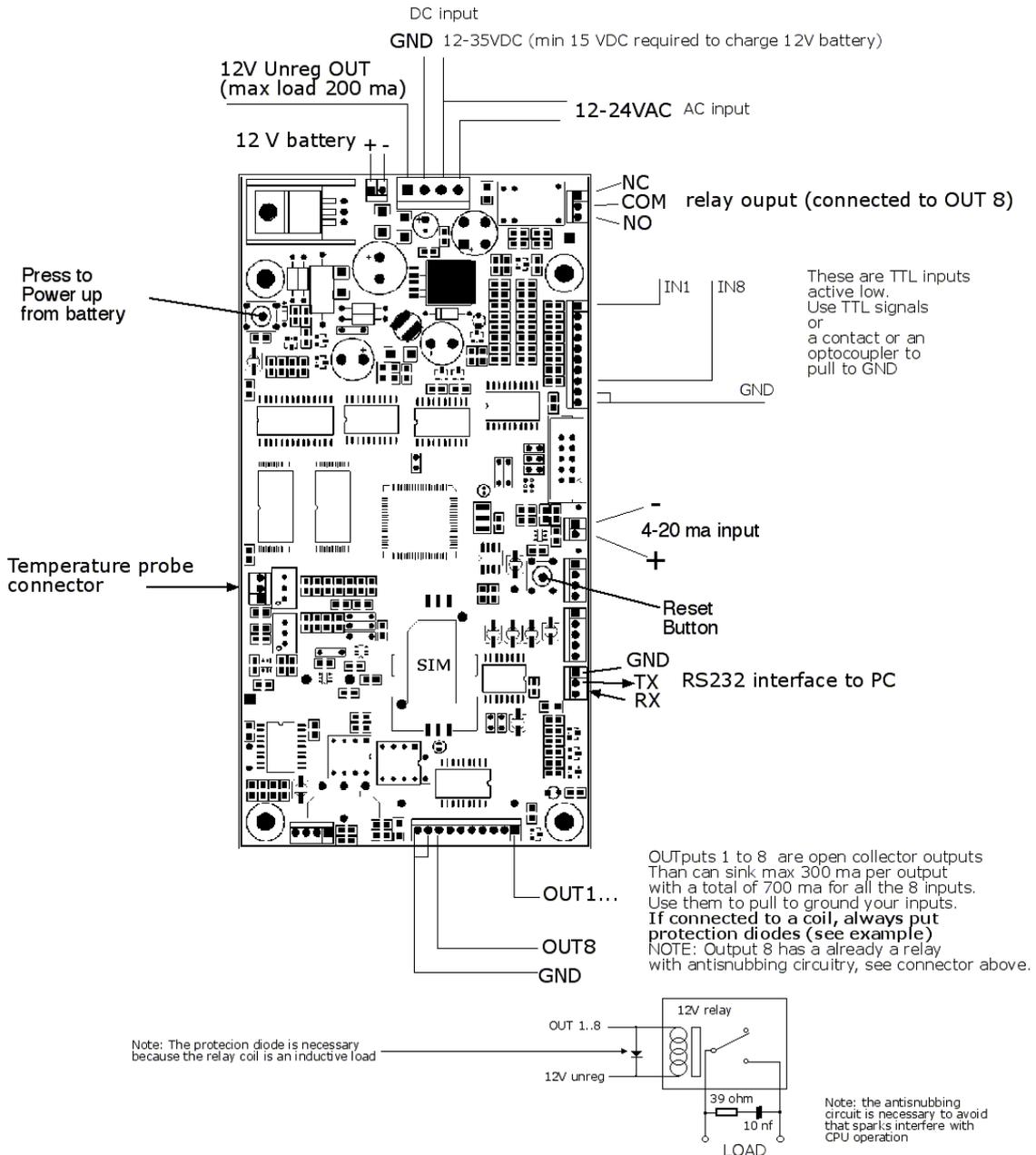
#PWD123456#INI#SCA+393492000200#SCT

The above SMS should be sent only in the beginning because every time you send a INI command you reset the device to the factory settings.

Example 2: #PWD123456#OUT01ON,5#OUT02ON,10#OUT07ON,600#NOA

Appendix 3: TCS 3.0 connections

DPS-Promatic Telecom Control Systems: TCS 3.5 connections



Appendix 4

TCS Logger Software package and demo functions

The TCS Logger is a Visual Basic package that allows easy and powerful handling of a TCS board connected to a PC.

We are currently releasing version 1.X Beta, distributed free with our TCS board, and we welcome any comment at this stage.

NOTE: Only TCS boards with TCS-OS version 3.0 or later can connect to the TCS logger program.

The CD contains all the software you need to install. Doing it is straightforward for anybody who has a basic knowledge of Windows. Just run SETUP and follow instructions. In older versions of Windows you may need to perform a few things manually, nevertheless, there should be no problem.

Before installing the Software, you need to connect a TCS to the COM1 or COM2 of your PC. Make sure that no other application is using the same port or a conflict will occur.

To connect the TCS you may make a simple 3 wire cable by yourself, following the indications of the pinout that you can find in APPENDIX 3. Otherwise you may order a cable from us.

Once you have installed and started the software, switch on the TCS and you will see a HELLO message on the screen.

If this doesn't appear, press the RESET button on the TCS or restart the TCS LOGGER software on the PC.

Once you have established connection, please follow the basic instructions below to use your TCS LOGGER. Please look at the LOGGER commands on next pages.

1-Creating a new log file

Any command or SMS or action performed by the TCS will be recorded in the LOG file. When you create a new log file, the old one will be saved.

First of all create a new log file. We advise that you make a new one at least once a week.

2-Programming TCS functions with TCS Logger

Unlock the console, type ENTER a few times until you see HELLO on the screen, at this point type *menu* (must be lower case) and wait for the TCS startup message, input your password (default is 123456) and then follow instructions as indicated in APPENDIX 2. Remember to exit from TCS menus with 'E'.

3-Entering phone numbers in the Phone Book

Just click the Phone Book icon (or menu) and click ADD, enter name and GSM Number. We advise that you always enter the country code with a + in front of it.

4-Sending SMS

Enter the SEND SMS menu and choose a telephone number and type a TEXT to send. If you are programming another remote TCS, you may take advantage of the commands shortcuts provided.

5-Receiving SMS

The TCS board has 32 kbytes of static ram that will receive SMS (as long as it is switched on) and store all other relevant actions, like gate openings, and pass these data to the PC whenever it is switched on.

This is very convenient to monitor TCS equipped machines. You don't need to leave a PC constantly open, you just need to leave a TCS constantly on, in the morning, when PC is switched on, data will be transmitted from the TCS to the PC.

TCS LOGGER v1.0 Beta ©2001 DPS-Promatic srl
Main features

TOOLS
Options -> COM
Phone Book
Unlock console
Lock console

SMS messages (up to 160 char)
can be typed directly.
TCS commands can be input through shortcuts

Messages can be sent
to all numbers listed
in the Phone Book

Lock/Unlock
Console

FILE
New
Exit

SMS
Read
Send

TCS Logger

File Tools SMS Help

Status
Log File: M:\SFTW\VB\WIN98\VB6.0\SMS\20010726114752.txt

SMS

+393444999777,Marco Antonio GSM telephone number

This is a test message (Maximum 160 char)

Char 35

Shortcuts:

#ALR	#COM	#GPW	#OUTx	#STH
#CAP	#CUP	#GSMx	#PWD	#STL
#CLK	#EPW	#GTP	#SCA	
#CNP	#ETA	#INI	#SCT	ON
#CNT	#GIO	#NOA	#SMSx	OFF

OK Cancel

Through these buttons
it is possible to
send instructions to the
TCS easily

Hello
SMS OUT ->
Date: 15:20.59 26
Dst: +39348547322
Msg: #PWD123456#C
OK

\$RSM
Hello
-> SMS IN
Date: 15:21.14 26
From: +3934854732
Msg: How are you?

Date: 14:43.20 23/07/2001 [3469999753] ACTION: GATE OPENING

Hello
DPS-Promatic Telecom Control Systems
Insert ADMIN password :*****
TCS-OS V3.01
Setup menu
1) Clock
2) SMS

Status 27-07-01 15.07

Example of Direct Programming of the TCS connected to the COM port.
Before doing it, it is necessary to unlock the console,
type ENTER a few times until HELLO appears, type MENU and then follow the requests.

If the GATE function is enabled, this is what the log would be, with date,
time and number that activated the function.

The TCS stores in memory up to 100 messages if the computer is switched off.
It is possible to check all of them with the Read SMS function.

It is possible to send SMS to any number in the Phone Book list,
with the comfort of a computer keyboard!

TCS 3.5 instruction manual V.1.0

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