SAT-N

UNIVERSAL PSTN TO ETHERNET & GPRS COMMUNICATOR

INSTALLATION GUIDE

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INTRODUCTION

The SAT-N is a PSTN/GPRS/Ethernet communicator, which connects PIMA's Captain intruder alarm systems and non-PIMA systems to PIMA's NETsoft and NETsoft Pro AOIP (Alarm Over IP) softwares, via cellular or TCP/IP networks.

The SAT-N can transmit in 3 channels:

1. GPRS channel, via PIMA's GSM-200 cellular transmitter
2. Ethernet (TCP/IP), via PIMA's net4pro Ethernet interface card
3. PSTN line

The SAT-N is sold in one of the following assembly options:

- Inside a metal box[1] with P/S-2 power supplier a backup battery an optional tamper switch and with an integrated assembly option of net4pro and GSM-200[2].
- Mounted on a bracket[3] with only the P/S-2 power supplier.

It is programmed via PIMA's Comax upload/download software and it supports ContactID only (for the PSTN channel).

The SAT-N provides a solution for alarm systems with no PSTN output as well: the alarm system's LINE terminal can be connected to the SAT-N, which routes the reports via the GSM-200 or the net4pro.

Regarding the GSM-200:

1) The supported version is 6.14 and above

2) The SMS channel must be disabled!

3) The SIM card must not contain any information

Features

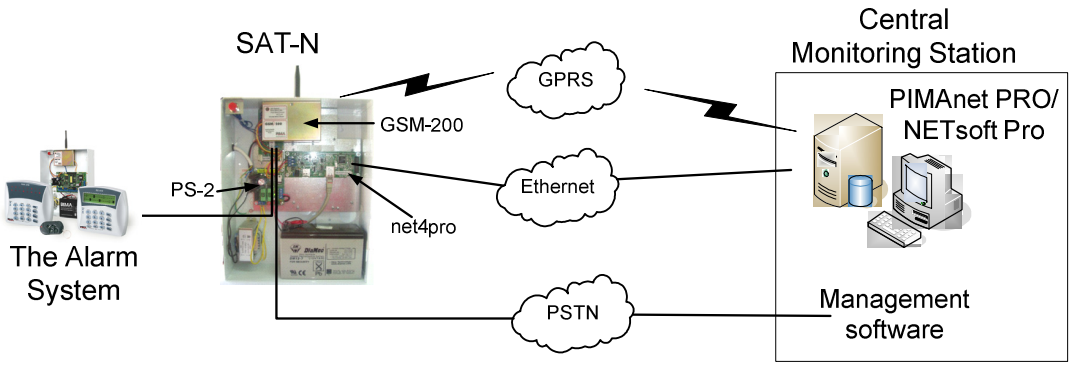
- Easy installation and field programming
- Continuous phone line testing (voltage)
- Support in separate supervision for the GSM-200 and the net4pro
- Temporary switching to GPRS/Ethernet by dialing CMS2 telephone number
- Manual anti-substitution counters sync with the Central Monitoring Station
- 3 open ACKs
- Tamper switch report code
- Lightning and ESD protection

[1] P/N 8392001

[2] Both are sold separately

[3] P/N 8392002

MODES OF OPERATION



1. Transmitting via the GPRS channel only.
2. Transmitting via the Ethernet only.
3. Transmitting via both channels, one of them is defined as primary.
4. Transmitting via both channels, none is defined as primary.

Switching the SAT-N

When the SAT-N is used as a backup for the PSTN line and the line is dead or tampered the SAT-N switches to one of the other channels automatically. The switching feature can also be initiated by the alarm system, for example, to transmit to Central Monitoring Station #2 via GPRS/Ethernet.

Switching can be done in 3 ways/situations:

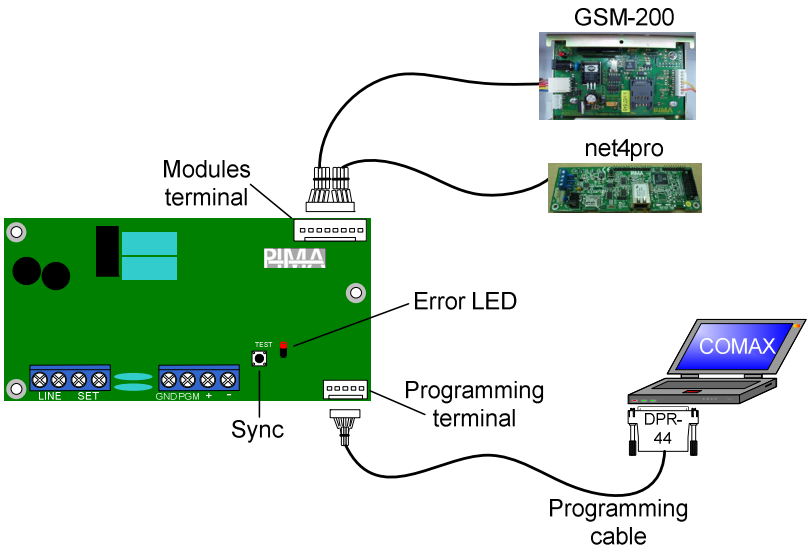
1. Automatically, when the PSTN line is cut off or the Monitoring Station does not answer the call.
2. By triggering the PGM input. The input can be triggered by any of the alarm system outputs that are switched in alarm.
3. By a number of up to 4 digits ("Switching number"), dialed by the alarm system. This number is set for CMS #2 and can therefor be used for double reporting.

In all 3 ways switching is temporary; once the transmission following the switching is completed the SAT-N is switched back. In case #1, if the PSTN line continues to be faulty, the SAT-N will keep switching every transmission.

Technical specifications

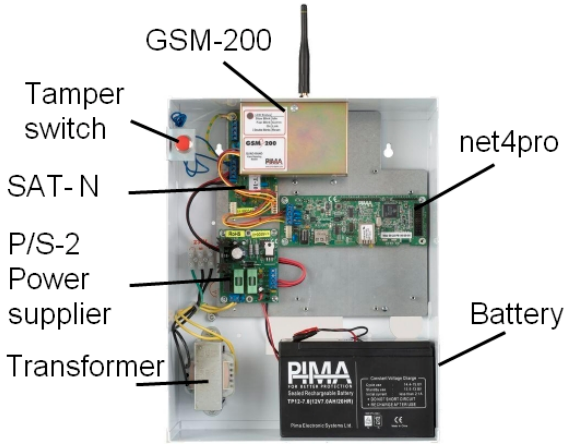
Temperature	Celsius -10 to +50
Humidity	75% non-condensed
Voltage	9 to 14 VDC (12VDC nominal)
Telephone output	12V

CONNECTING THE SAT-N



Terminal/ other	Description	Notes
LINE	PSTN line-in	-
SET	Bridges to the control panel's PSTN input	-
GND	-	-
PGM	PGM and tamper switch input	
-/+	Connects to DC power supplier or battery	-
TEST	Press this button to send a sync event (#791) to the Central Monitoring Station	Must be coordinated with the Central Monitoring Station
Programming terminal	A terminal for the Comax programming cable	Via DPR-44
Modules terminal	A terminal for the GSM-200 and the net4pro	8 wires braid: 4 with Molex connector for the GSM-200; 4 with no connector for the net4pro terminal block.
LED	Indicates communication error with the modules	-

INSTALLATION



The SAT-N is installed in a metal box (the bracket-only model is the same bracket as in the image). The GSM-200 and the net4pro can be assembled in the box, as well as the battery and the power supplier. It's a stand-alone device.

⚠ **Do not connect any power to the SAT-N until installation is completed!**

To connect the SAT-N, follow the next steps:

1. Connect the alarm system's PSTN terminal to the SAT-N's SET terminal.
2. When the SAT-N serves as PSTN backup, connect the PSTN line to the LINE terminal.
3. To use the PGM input, connect an output of the alarm system to it and connect the (-) wire to the alarm system's (-).

See examples on page 6.

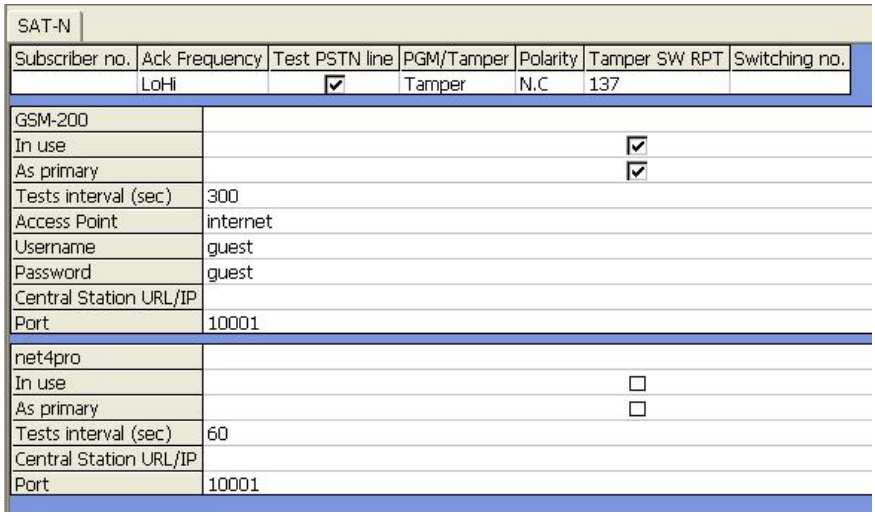
PROGRAMMING THE SAT-N

As mentioned previously, the SAT-N is programmed via PIMA's Comax upload/download application, which has a special menu for it.

Connecting the Comax

To program the SAT-N you will need:

1. A laptop or PC with parallel port (LPT)
2. PIMA's Comax application (starting version 3.07) installed in it[1]
3. DPR-44 connector
4. Programming cable (provided with the SAT-N)



[1] To download the application, go to our partners' section of PIMA's website (at http://www.pima-alarms.com/site/modules/login.asp) and fill in the contact form. If you don't have a username and a password contact our support team.

The SAT-N parameters in Comax[1]

Parameter	Description
Subscriber no.	The account no. of the end-user in the Central Monitoring Station
ACK Frequency	Choose between 1400, 2300 & LoHi
Test PSTN line	Check this option to test the PSTN line voltage (minimum 30 volts) continuously.
PGM/Tamper	Checked: PGM Unchecked: tamper switch
PGM/Tamper polarity	Set to N.C. or N.O.
Tamper switch event	Set an event code for the box tamper switch. The default code is 137.
Switching number	Enter an up to 4 digits no. (the same as in the alarm system. See page 3).
GSM-200 Connected	GSM-200 in use
GSM-200 Primary	Primary
GSM-200 Auto Test (sec)	Tests interval (sec)
Access point name	Access point
Access point Username	Username
Access point Password	Password
GSM-200 CMS URL/IP	Central Station URL/IP
GSM-200 CMS Port	Port
net4pro Connected	net4pro in use
net4pro Primary	Primary
net4pro Auto Test (sec)	Tests interval (sec)
net4pro CMS URL/IP	Central Station URL/IP
net4pro CMS Port	Port

REPORT CODES

Some events were set for the SAT-N reports at the Central Monitoring Station:

#790: supervision; it is set separately for the GSM-200 and the net4pro.

#791: registration and sync. When pressing the TEST button, this event is sent to the Central Monitoring Station, which must simultaneously sync the counters.

NETsoft Pro may display 2 other events, which also indicate about the SAT-N:

#792: counters mismatch, which may indicate criminal activity.

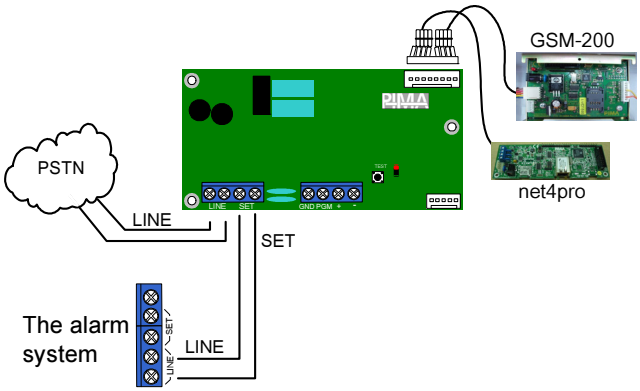
#793 and #793 reset: event #793 indicates that no #790 events have been received within their interval and therefor the SAT-N should be checked for tampering. When event #790 is received again, a reset report is sent.

EXAMPLES FOR THE USE OF THE SAT-N

1) As a backup to the PSTN line

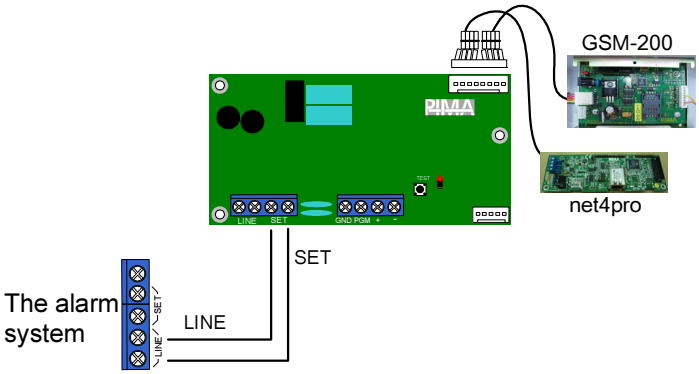
In this example (see next drawing), the PSTN line to the alarm system is connected through the SAT-N. In case of line fault or tampering the SAT-N will switch the communication to the GSM-200 and net4pro.

[1] Some parameters may differ according to the system version.



2) Using the GPRS & Ethernet channels only

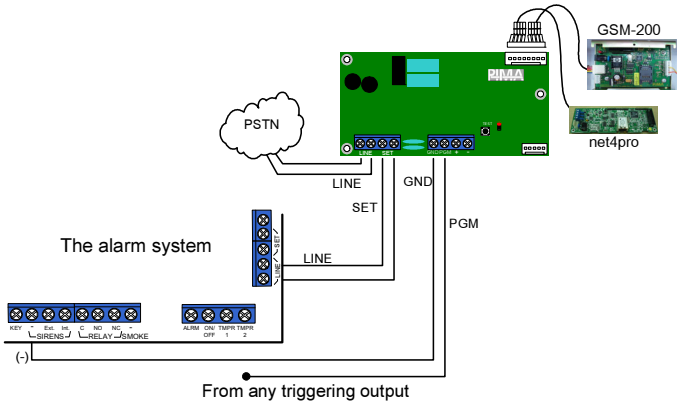
In this example, the alarm system sends reports through the LINE terminals to the SAT-N, which routes them to the GSM-200 or net4pro.



3) Switching for double reporting

In this example, when an alarm is set off, the PGM input is triggered by one of the alarm outputs and the SAT-N is switched to the GSM-200/net4pro channels. To use this option:

1. In the alarm system, set one of the outputs to be switched in response to alarm and set its polarity.
2. Connect that output to the PGM terminal.
3. In Comax, check "Test PSTN line" and "PGM/Tamper" and set its polarity.



4) Using one-time switching

In this example (the connection scheme is the same as in example #1), CMS2 telephone no. in the alarm system is set to an up to 4 digit no. When an alarm is set off and the system calls CMS2, the SAT-N is switched to the GSM-200/net4pro channels and send the report.

In this way the SAT-N is used for double reporting. To use this option:

1. In the alarm system, set CMS2 telephone no. to an up to 4 digit no.
2. In Comax, program the "Dial number" to the same no.
3. Check "Test PSTN line".

TECHNICAL ISSUES

1. Min. PSTN line voltage must be 30V
2. GPRS supervision interval should be at least 3 minutes.
3. The PSTN line is better not be used by other appliances (fax, answering machine, etc.)
4. The SAT-N event's buffer is naturally limited. Therefor, in case many zones report all together, a communication error can occur.

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