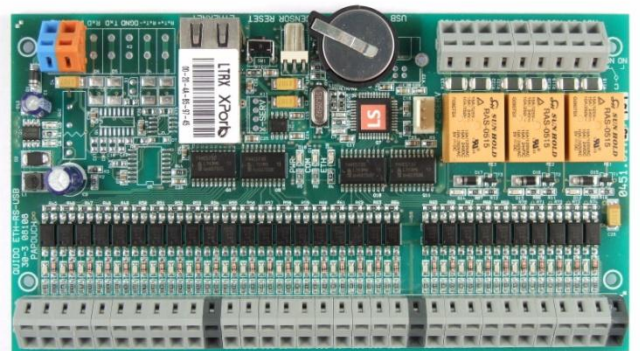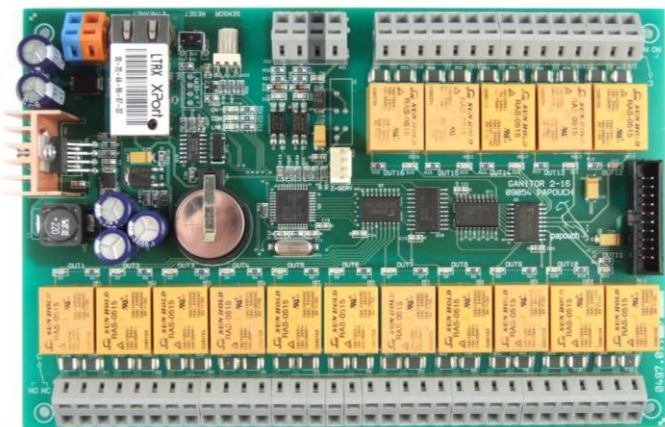# Ganitor

Monitoring and control I/O module

for C4 system

Ganitor

Datasheet

Created: 3.11.2008

Last update: 27.4 2011 15:04

Number of pages: 12

© 2011 Papouch s.r.o.

Papouch s.r.o.

Address:

Strašnická 3164/1a

102 00 Praha 10

Telephone:

+420 267 314 267-8

+420 602 379 954

Fax:

+420 267 314 269

Internet:

www.papouch.com

E-mail:

papouch@papouch.com

CONTENTS

Change log

version 1.2

- New hardware

- 30 Inputs / 3 Outputs version available (Ganitor 30/3), 2 Inputs / 16 Outputs version available (Ganitor 2/16).

- Outputs switching is now lockable in Settings menu.

version 1.1 – prototype

- Ganitor works as a TCP server (TCP client before) and awaits the connection request on IP address and local port. Settings menu was modified accordingly.

- Spinel protocol instructions added. These can control outputs, read inputs and outputs states and memory erase.

BASIC INFORMATION

Description

Ganitor is a custom made module based on Quido I/O modules.

The main function of this device is inputs monitoring. Current states are transmitted in Spinel protocol. It acts as TCP server – awaits connection on configured port (Local network).

Each message contains also time mark for future reference.

If the Ethernet connection is not available, all data is stored in the internal memory. Once the connection is available again, it is sent all in once.

Internal memory is arranged as a circle buffer for 2000 records. When it is full, the storing will not end, the oldest records will be overwritten instead.

Device can be controlled via Spinel protocol instructions. Those are described below.

The device is fully configurable via internal WEB interface. Default IP address is 192.168.1.254.

WEB Interface

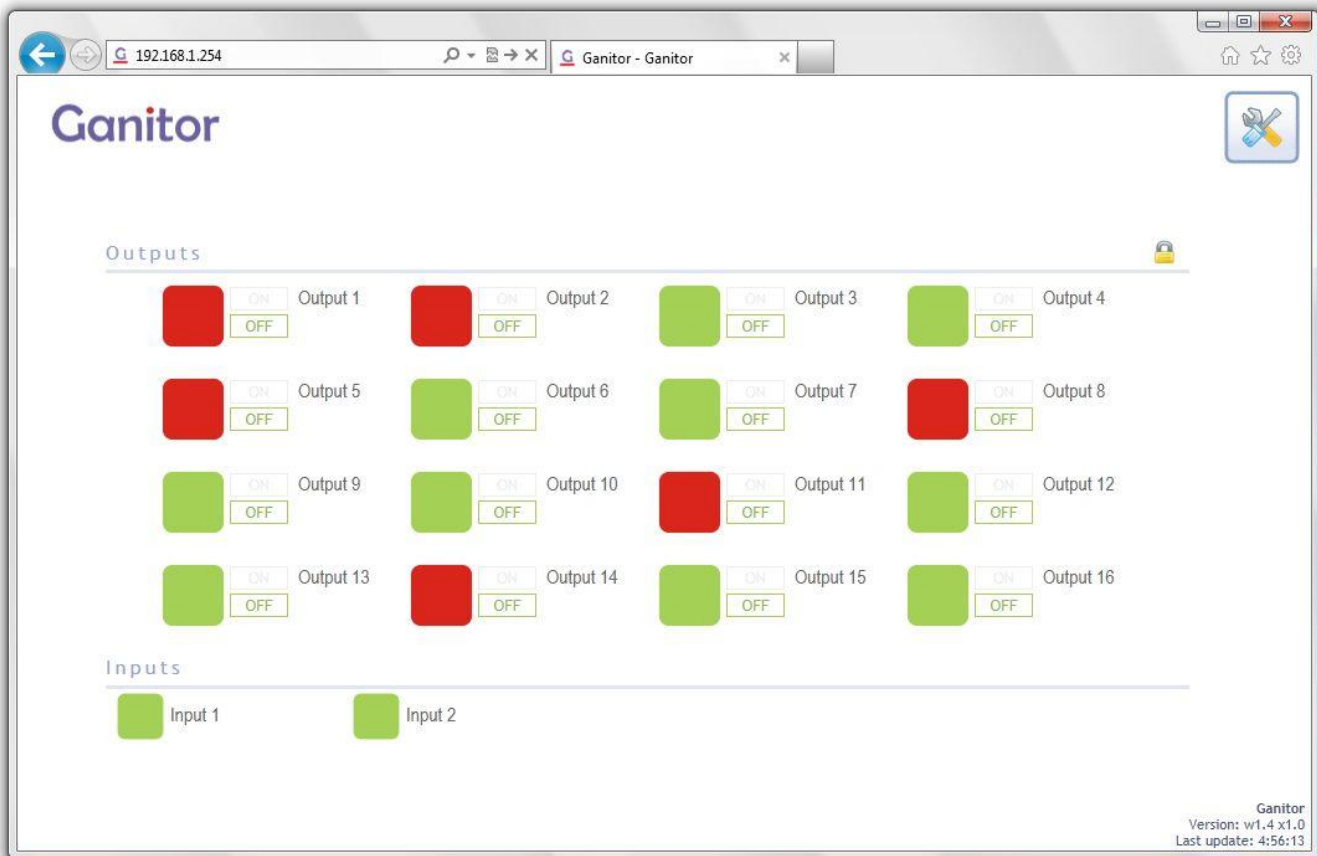You can see inputs and outputs states and configure the Ganitor via WEB interface.

Fig. 1 – main page with actual states (in Internet Explorer 9)

If output switching is locked, ON button change to gray-colored and lock icon appears next to the heading.

Fig. 2 – network settings

Fig. 3 – security settings

Fig. 4 – other settings

CONNECTION

In connections, Ganitor is identical to standard I/O modules Quido ETH 30/3 and Quido ETH 2/16.

Inputs

Inputs can be controlled by connecting voltage power source or by contact.

Each input is connected according to Fig. 5. IGND ground is isolated from GND.
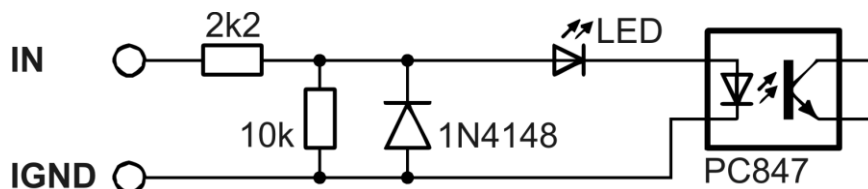
Fig. 5 – input connections

Contact Input

Contact is connected as on Fig. 6 – Power for the contact is obtained from an external power supply unit. *If isolation is not required, you can use the same power supply that powers Ganitor.*
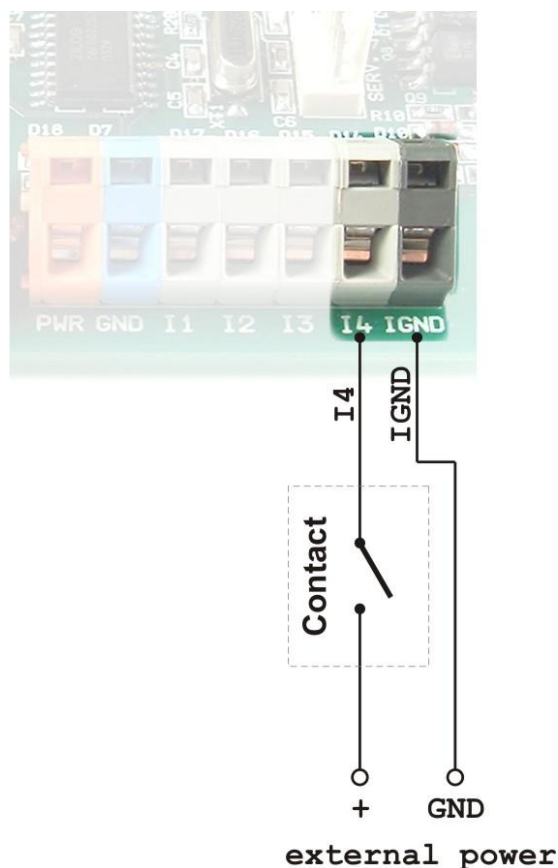
Fig. 6 – contact input

Voltage input

Connection is apparent from the schematic.
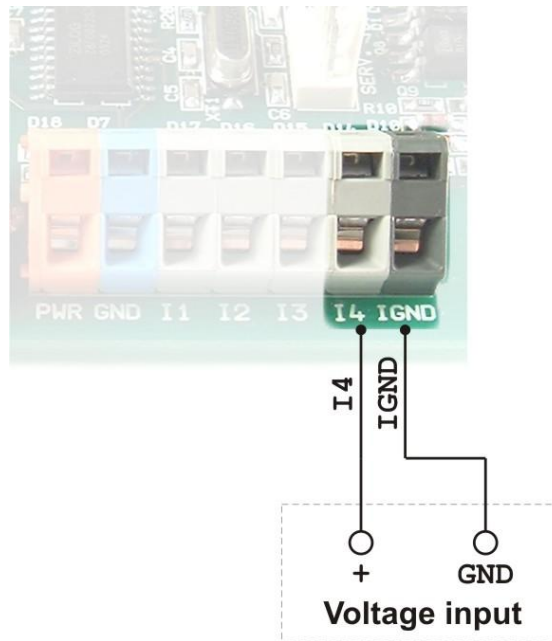
Fig. 7 – voltage input

Outputs

Each output is a relay with switching contact. NO contact turns on when the relay switches, NC contact turns off.

Fig. 8 – switching contacts – output relays

SPINEL COMMUNICATION PROTOCOL

Input state change

This instruction is automatically sent when input state changes.

Automatic message:

Instruction code: 0DH *(ACK as automatic message)*

Parameters: (id)(x)(e)(h)(m)(s)(d)(M)(r)

id	Event type	length: 1 byte

Identifies the event and meaning of the following bytes: *x* a *e*.

00H … Invalid ID

01H … Event type: power change
 $x = 0$....... This is always 0
 $e = 1$....... Power ON
 $e = 0$....... Power OFF

02H … Event type: Input state change
 $x =$.......... Input number
 $e = 1$....... Input activated
 $e = 0$....... Input deactivated

03H … Event type: Output state change
 $x =$.......... Output number
 $e = 1$....... Output activated
 $e = 0$....... Output deactivated

04H … Event type: Outputs switching lock
 $x = FFH$.. This is always FFH
 $e = 1$....... Output switching locked
 $e = 0$....... Output switching unlocked

05H … Event type: unauthorized output change attempt
 $x =$.......... Output number
 $e = 0$....... This is always 0

06H až FFH … Invalid ID

x		length: 1 byte

Meaning according to *id.* parameter value. See *id.* parameter description.

e		length: 1 byte

Meaning according to *id.* parameter value. See *id.* parameter description.

h	Hour	length: 1 byte

Input change event time mark. Hours only. Range 1 through 23.

m	Minutes	length: 1 byte

Input change event time mark. Minutes only. Range 1 through 59.

s	Second	length: 1 byte
Input change event time mark. Seconds only. Range 1 through 59.		

d	Day	length: 1 byte
Input change event time mark. Days only. Range 1 through 31.		

M	Month	length: 1 byte
Input change event time mark. Months only. Range 1 through 12.		

r	Year	length: 1 byte
Input change event time mark. Years only. Range 1 through 99.		

Example: *Automatic message, event: power-on on June 26th 2009 at 12:09:12:*

   2AH,61H,00H,0EH,31H,01H,0DH,01H,00H,01H,0CH,09H,0CH,1AH,06H,09H,DBH,0DH

Output settings

Description: Basic instruction to control outputs – immediately switching on or off.

[97]Request: 20H (OUTx)…(OUTy)

[97]Response: (ACK 00H)

[97]Legenda   (OUTx)   1 byte; bytes format: SOOOOOOO, where „S" is state to which you want the output set to (1 = on; 0 = off) and „O" is outputs number (binary expression of 1 through 127). Instruction can contain more of these bytes in no particular order.

   To lock output switching send (OUTx) FFH.

   To unlock output switching send (OUTx) 7FH.

[97]*Example:*   *Set output 2, address 01H, signature 02H*

   2AH,61H,00H,06H,01H,02H,20H,82H,C9H,0DH

   Response

   2AH,61H,00H,05H,01H,02H,00H,6CH,0DH

Outputs state read

Description: Instruction reads outputs states (relay).

[97]Request: 30H

[97]Response: (ACK 00H)(lock)(state OUT)

[97]Legend: (lock) 1 byte; 00H means outputs switching is unlocked; FFH is locked

   (state OUT)   1 byte; byte is in format: 87654321, where bits 1 through 8 are output number. Outputs that have bits in 1 are turned on. (Bits with outputs that are not used are always in 0.)

[97]*Example:*   *Relay state read, address 01H, signature 02H*

   2AH,61H,00H,05H,01H,02H,30H,3CH,0DH

   Response - relays 1 and 5 turned on, outputs switching unlocked

   2AH,61H,00H,07H,01H,02H,00H,00H,11H,59H,0DH

Inputs state read

Description: Instruction reads current inputs state.

[97]Request: 31H

[97]Response: (ACK 00H)(inputs state)

[97]Legend: (inputs state)   4 bytes; bytes in format: $[^{32}_{31}{}^{30}_{29}{}^{28}_{27}{}^{26}_{25}][^{24}_{23}{}^{22}_{21}{}^{20}_{19}{}^{18}_{17}][^{16}_{15}{}^{14}_{13}{}^{12}_{11}{}^{10}_{9}][^{8}_{7}{}^{6}_{5}{}^{4}_{3}{}^{2}_{1}]$, where bits 1 through 32 is input number. Value corresponds with log. values. (Bits with inputs that are not used are always in 0.)

[97]*Example:*   *Input state read, universal address FEH, signature 02H*

2AH,61H,00H,05H,FEH,02H,31H,3EH,0DH

Response

2AH,61H,00H,09H,31H,02H,00H,00H,00H,00H,00H,38H,0DH

Erasing memory

Description: Instruction erases the whole memory.

[97]Request: 8AH

[97]Response: (ACK 00H)

[97]*Example:*   *Request*

2AH,61H,00H,05H,FEH,02H,8AH,E5H,0DH

Response

2AH,61H,00H,05H,31H,02H,00H,3CH,0DH

TECHNICAL PARAMETERS

Inputs:

Type...voltage or contact version

Galvanic isolation ....optical

Input change reaction time ....10 to 20 ms (sampled to filter glimmer)

Counter limit ....65 535 (changes recorded in counter mode)

Input current ....4 mA

Voltage for logic „1" ....8 – 20 V

Voltage for logic „0" ....0 – 4 V

Maximum output voltage....................24 V

Outputs:

Type...relay contact (ON-ON)

Maximum switched voltage................AC: 120V, DC 60V

Maximum switched current...............5 A

Control Interface:

Type...10/100 Ethernet

Default IP address 192.168.1.254

Connector..RJ45

Communication protocol....................Spinel

Communication speed.......................115200 Bd (unchangeable)

Data bits 8

Parity ....none

Stop bits..1

Other parameters:

Power voltage....................................9 to 30 V, DC, reverse polarity protection

Input / Output connectors ....Wago 236 terminal, max. 2.5 mm wire

Operating temperature.......................−20 °C to +50 °C

Ganitor 2/16:

Consumption @ 12 V ....typ. 710 mA (all relays ON)

Dimensions..188 mm × 123 mm × 32 mm

Weight ....335 g

Ganitor 30/3

Consumption @ 12V ....max. 320 mA

Dimensions..176,5 mm × 96,5 mm × 20 mm

Weight ....165 g

P a p o u c h   s.r.o.

Data transmission in industry, line and protocol conversions, RS232/485/422/USB/Ethernet/GPRS/ WiFi, measurement modules, intelligent temperature sensors, I/O modules, and custom-made electronic applications.

Address:

Strašnická 3164/1a
102 00 Praha 10

Telephone:

+420 267 314 267-8
+420 602 379 954

Fax:

+420 267 314 269

Internet:

www.papouch.com

E-mail:

papouch@papouch.com