

PAC-99X

- Max. 48 analogue / binary inputs
- Max. 24 TC- /12 RTD-inputs
- Max. 9 universal inputs (U, I, TC, RTD)
- Max. 12 counter (pulse, analogue)
- Max. 24 relay / 8 analogue outputs
- Graphic TFT 3,5", touchscreen
- Datalogging capabilities for max. 60 channels
- Interface RS-485, RS-232, Ethernet (incl. webserver)

Properties

The PAC-99X is a powerful and versatile compact-multichannel-controller with a capability to record data, if the recording function is requested and activated. Thanks to that it is one of the first industrial devices which integrates advanced control functions (PID, ON/OFF, time & profiles etc.) and logging of setpoints, excitations and current state of controlled objects. Based on Linux firmware, is stable and the touch screen makes configuration easy and comfortable and data presentation also readable and attractive. Although the PAC-99X is build in a quite small housing, it can integrate up to 48 inputs, and its construction allows user almost free configuration by choosing up to 3 from 22 available input/output modules. The device can simultaneously record all build-in logical channels (60), and is capable to record data with maximum speed 10Hz (ten samples per second, 200 samples/second max.). 1.5 GB of internal data memory is enough for continuous recording of all channels with a speed of 1 sample per second (each channel) for over 50 days (250 000 000 samples in total!).

An operator can download stored data using a USB flash disk or via Ethernet.



Technical data

Power supply voltage: 19...50V DC; 16...35V AC, or 85...260V AC/DC

Power consumption: 15 VA typical 20 VA max.

Display: 3.5" graphic TFT, 16-bit colour, 320 x 240 pixels, touchscreen

Measuring inputs (max.): 48x analogue, 48x binary, 24x thermocouple, 18x analogue (isolated), 12x RTD, 12x counter,

12x pulse (ratemeter, tachometer), 12x flowmeter, 9x universal

Digital input: 1x 24V DC

Sensor supply: 24 V DC ± 5%, 200 mA (not available with power supply voltage 19...50V DC; 16...35V AC in connection with UN3)

Outputs (max.): 8x analogue, 16x relay, 16x SSR

Communication interface (max.):

2 x RS-485 (Modbus RTU), 1 x RS-485/232, USB Host (front/rear), USB Device (service), 1 x Ethernet 10 Mbit/s (Modbus TPC, Java applets)

Protection:

standard: IP 65 (front foil); IP 20 (housing and connectors)

option 01: IP 65- with additional frame

option 0B: IP 40; IP 54 (with additional front door)

Data memory: internal 1,5 GB (max. 200mio samples)

Working temperature: 0...60°C

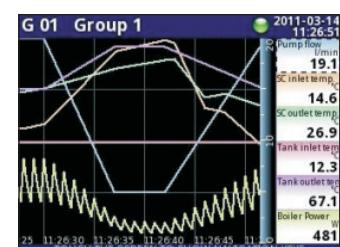
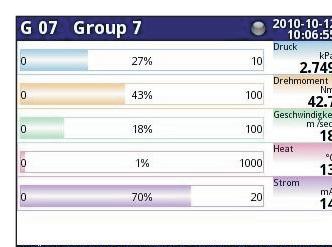
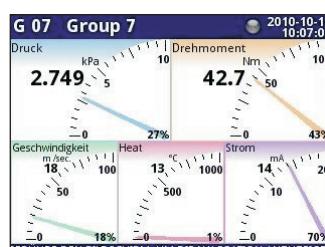
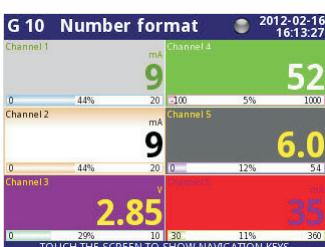
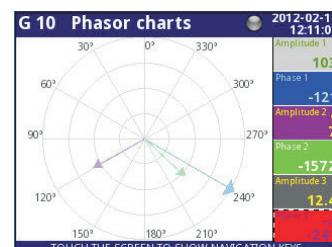
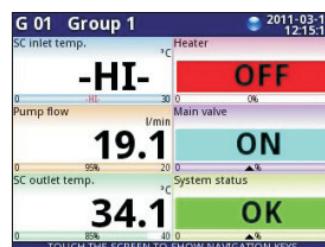
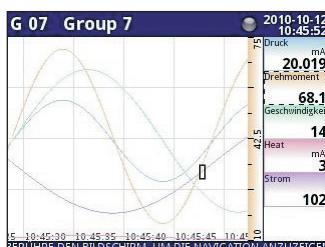
Storage temperature: -10...70°C

Case style: panel mounting

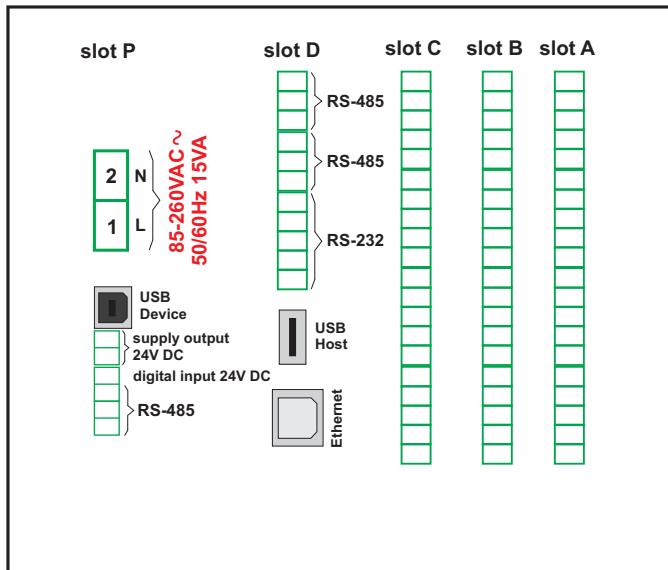
Case material: NORYL - GFN2S E1

Case dimensions: 96 x 96 x 100 mm

Panel cut-out dimensions: 90.5 x 90.5 mm (panel thickness: 5mm max.)



Exemplary pin assignment



Optional accessories



Ordering

PAC-99X-P/D/C/B/A-XX5-N1

Slot P: _____
PS3: 19...50V DC,
16...35V AC
PS42: 85...260V AC/DC

Slot D: _____
E (only for option 0B)
USB
ETU
ACM

Options:

- 00 : no options
- 01 : IP 65 - additional frame
- 0B : front USB host

| Slot C: | Slot B: | Slot A: |
|----------------|----------------|----------------|
| E | E | E |
| UN3 | UN3 | UN3 |
| UI4 | UI4 | UI4 |
| UI8 | UI8 | UI8 |
| U16 | U16 | U16 |
| I16 | I16 | I16 |
| IS6 | IS6 | IS6 |
| RT4 | RT4 | RT4 |
| TC4 | TC4 | TC4 |
| TC8 | TC8 | TC8 |
| D8 | D8 | D8 |
| D16 | D16 | D16 |
| CP4 | CP4 | CP4 |
| FI2 | FI2 | FI2 |
| FI4 | FI4 | FI4 |
| FT2 | FT2 | FT2 |
| FT4 | FT4 | FT4 |
| R81 | R81 | |
| IO2 | | |
| R45 | IO4 | |
| S8 | | |
| S16 | | |
| IO2 | | |
| IO4 | | |

- E** : empty
- UN3** : 3x universal inputs
- UI4*** : 4x voltage inputs + 4x current inputs
- UI8*** : 8x voltage inputs + 8x current inputs
- U16*** : 16x voltage inputs
- I16*** : 16x current inputs
- IS6** : 6x current inputs (isolated)
- RT4** : 4x RTD inputs
- TC4** : 4x TC inputs
- TC8** : 8x TC inputs
- D8*** : 8x binary inputs
- D16*** : 16x binary inputs
- CP4** : 4x pulse inputs (universal counters)
- FI2*** : 2x current inputs (flowmeter)+2x current inputs
- FI4*** : 4x current inputs (flowmeter)+4x current inputs
- FT2*** : 2x pulse inputs (flowmeter/ratemeter)+2x current inputs
- FT4*** : 4x pulse inputs (flowmeter/ratemeter)+4x current inputs
- R81** : 8x SPST relay 1A
- R45** : 4x SPDT relay 5A
- S8** : 8x SSR relay
- S16** : 16x SSR relay
- IO2** : 2x 4...20mA outputs
- IO4** : 4x 4...20mA outputs
- USB** : USB Host (rear)
- ETU** : USB Host (rear), Ethernet
- ACM** : USB Host (rear), Ethernet, RS-485, RS-485/232

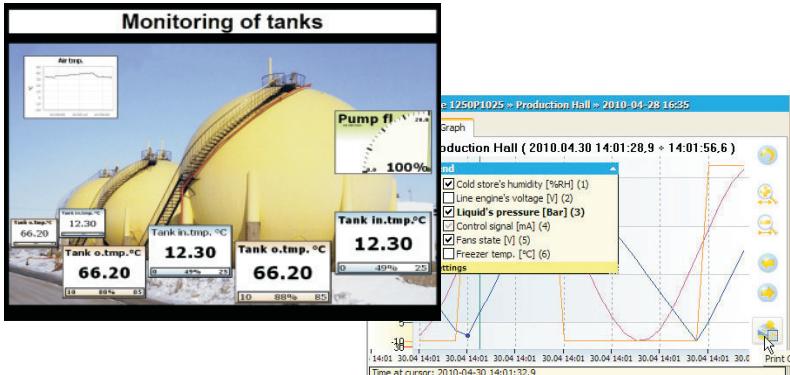
*input module with common ground

| UI4, UI8, U16, I16 | | |
|--|--|----------------------------------|
| Description | 4/8/16 current/voltage inputs with common ground | |
| Input range/Resolution | -2...13V / 1mV | -2...30mA / 1µA |
| Measurement ranges | 0...5V, 1...5V, 0...10V, 2...10V | 0...20mA, 4...20mA |
| Accuracy | 0,1% @25°C | 0,1% @25°C |
| Overload/Impedance | 20% / 100kΩ | 20%, 50mA-resettable fuse / 100Ω |
| IS6 | | |
| Description | 6 current inputs, isolated | |
| Input range/Resolution | 3...30mA / 1µA | |
| Measurement ranges | 4...20mA | |
| Accuracy | 0,25% @25°C | |
| Overload/Impedance | 50mA-resettable fuse / 1750Ω@4mA, 400Ω@20mA | |
| TC4, TC8* | | |
| Description | 4/8 thermocouple inputs | |
| Input range/Resolution | -30...30mV / 1µV | -120...120mV / 4µV |
| Overload/Impedance | 20% / 1MΩ | 20% / 1MΩ |
| Measurement ranges | Typ: K, S, J, T, N, R, B, E, L(GOST), -25...25mV, -100...100mV | |
| RT4* | | |
| Description | 4 RTD inputs (resistance thermometer) | |
| Input range/Resolution | 0...325Ω / 0,01Ω | 0...3250Ω / 0,1Ω |
| Measurement ranges | Pt100, Pt500, Pt1000, Pt'50, Pt'100, Pt'500, Cu50, Cu100, Cu'50, Cu'100, Ni100, Ni500, Ni1000, 0...300 Ω, 0...3kΩ, 2/3/4-wire | |
| UN3 | | |
| Description | 3 universal inputs with galvanically isolation for current, voltage, thermocouples and RTDs | |
| Current/voltage inputs | | |
| Input range/Resolution | -1...12V / 1mV | -2...30mA / 1µA |
| Measurement ranges | 0...5V, 1...5V, 0...10V, 2...10V | 0...20mA, 4...20mA |
| Accuracy | 0,1% @25°C | 0,1% @25°C |
| Overload/Impedance | 20% / >100kΩ | 20% / <65Ω |
| Thermocouple inputs* | | |
| Input range/Resolution | -10...30mV / 2µV | -10...120mV / 4µV |
| Measurement ranges | Typ: K, S, J, T, N, R, B, E, L(GOST), -25...25mV, -100...100mV | |
| Overload/Impedance | 20% / >1,5MΩ | 20% / >1,5MΩ |
| RTD inputs* | | |
| Input range/Resolution | 0...325Ω / 0,01Ω | 0...3250Ω / 0,1Ω |
| Measurement ranges | Pt100, Pt500, Pt1000, Pt'50, Pt'100, Pt'500, Cu50, Cu100, Cu'50, Cu'100, Ni100, Ni500, Ni1000, 0...300 Ω, 0...3kΩ, 2/3/4-wire | |
| D8, D16 | | |
| Description | 8/16 binary inputs, each 4 inputs with common ground | |
| Input range | 0...30V, Uin<1V = LOW, Uin>4V =HIGH | |
| Curr. consumption/Isolation | 15mA(24V), 5mA(10V), 2mA(5V) / 500V | |
| Processing | 8bit/2nibbles/1byte(D8), 16bit/4nibble/1integer(D16) | |
| F12, F14 | | |
| Description | 2/4 current inputs with balance counter(flowmeter) + 2/4 standard-current inputs with common ground | |
| Input range/Resolution | -2...30mA / 1µA | |
| Measurement ranges | 0...20mA, 4...20mA | |
| Accuracy | 0,1% @25°C | |
| Overload/Impedance | 20%, 50mA-resettable fuse / 100Ω | |
| Processing | Reset of counter: internal/external/autoreset | |
| FT2, FT4 | | |
| Description | 2/4 tachometer/flowmeter inputs(quadrature pulse inputs) or 2/4 tachometer/flowmeter inputs(each with one pulse input and one programmable function input) + 2/4 standard-current inputs with common ground | |
| Pulse inputs | | |
| Input range | 0...30V, Uin<1V = LOW, Uin>5V =HIGH, 0,1Hz... 50kHz | |
| Curr. consumption/Isolation | 12mA(24V) / 2kV | |
| Processing | Operation modes: tachometer + counter(up/down), reset of counter: internal/external/autoreset | |
| Current inputs | | |
| Input range/Resolution | -2...30mA / 1µA | |
| Accuracy | 0,1% @25°C | |
| Overload/Impedance | 20%, 50mA-resettable fuse / 100Ω | |
| CP4 - 4 Counting-Inputs with galvanically Isolation | | |
| Description | 4 counters each with two pulse inputs with galvanically isolation, one programmable input and one reset input | |
| Input range | 0...30V, Uin<1V = LOW, Uin>10V =HIGH, max. 5kHz | |
| Curr. consumption/Isolation | 14mA(24V), 6mA(10V), 50mA-resettable fuse / 2kV | |
| Processing | Operation modes: A+B/A-B/ counter(up/down)/quadrature counter, reset of counter: internal/external/autoreset | |
| S8, S16 | | |
| Description | 8/16 solid state relay outputs(SSR) with PWM-function, each 8 outputs(one group) with separate supply(internal/external) | |
| Max. current | Powered internally: 10mA, max. 50mA each group, powered externally: 100mA, max. 500mA each group | |
| Max. voltage | Powered internally: >8V, powered externally: >Uext.-0,5V | |
| External supply | 10...30V | |
| PWM-Period/-resolution | 0,1...1600s / 0,1s | |
| PWM-Frequenz/duty factor | 5kHz(internally), 20µs(output quantization) / 0...100%, resolution 15bit | |

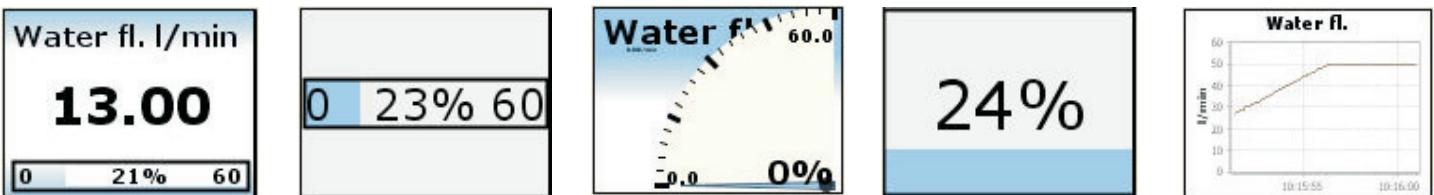
| R45, R81 | | |
|-----------------------------|---|---|
| Description | 4 SPDT-relay outputs(SinglePoleDoubleThrow) | 8 SPST- relay outputs (SinglePoleSingleThrow) |
| Max. current/voltage | 5A, cosφ =1 each output / 250VAC | 1A, cosφ =1 each output / 250VAC |
| Isolation strength | | |
| | >1kV for 60s | >1kV for 60s |
| IO2, IO4 | | |
| Description | 2/4 passive current outputs 4...20mA | |
| Output range/Resolution | 3...22mA, 50mA-resettable fuse / 12bit | |
| Accuracy | 0,1% @25°C | |
| Voltage dropout/ext. supply | Max. 9V / 9...30V | |

*Accuracy depends on selected measurement range, please check manual of device

Software DAQ Manager



The software allows visualization, archiving and printing of recorded measurements. The whole measurement data is stored in special database on hard drive. Graphical presentation simplifies further analysis of the data. Import of recorded measurements is done by USB flash drives or Ethernet. If ACM is installed user can view current data of all channels in table or graphics. Software can be downloaded from our website or ordered as a payable CD-ROM version.



Typical application

- central temperature measurement and control system, multi zone heater controller, intermediate pumping station control system, spraying and heating control system for glasshouse

