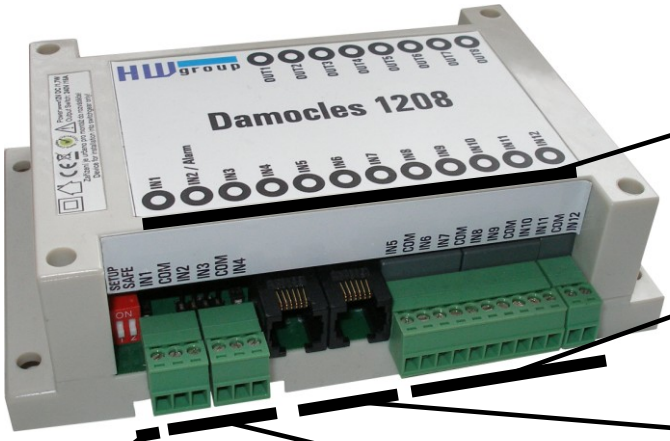
Damocles 1208 – MANUAL



Input status LED indicators

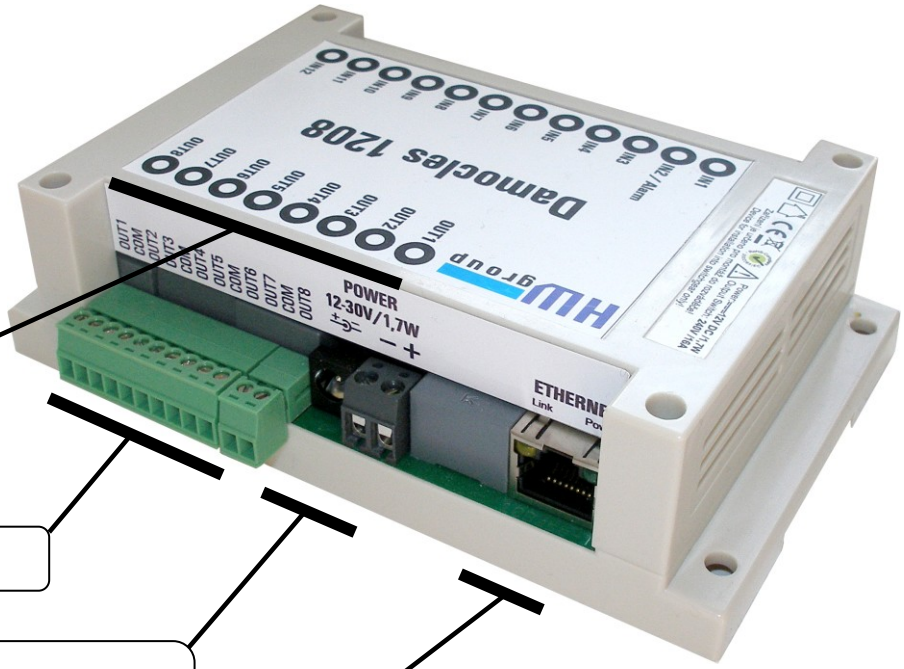
Inputs 5–12

Not connected

Inputs 1–4

DIP settings

Default:
DIP1:SETUP = Off
DIP2:SAFE = Off



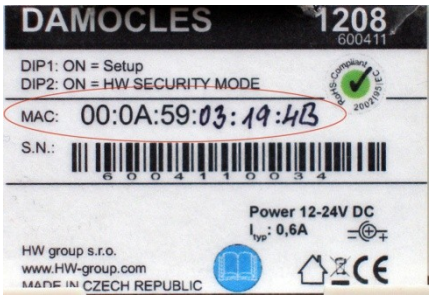
Output activation
LED indicators

Outputs 1–8 (open collectors)

POWER
12–30VDC / 1.7W
jack and terminals connected in parallel

ETHERNET
Link & Activity

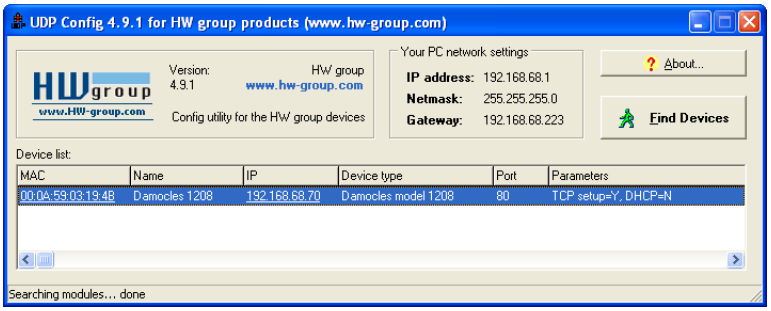
1) Connecting the cables



- Turn the unit upside down and write down its MAC address that is printed on the label.
- Set the switches: **DIP1: SETUP=Off**, **DIP2:SAFE=Off**
- Connect the unit to the Ethernet (with a patch cable to a switch, cross-over cable to a PC) via the RJ-45 port.
- Plug the power adapter into an electricity outlet and connect it to the Damocles power connector.
- The green **POWER** LED lights up.
- If the Ethernet connection works properly, the **LINK** (yellow) LED lights up after a short while, and then flashes whenever data transfer takes place (activity indication).

2) Configuring the IP address – UDP Config

UDP Config utility – root directory of the supplied CD (Windows and Linux versions). Available for download at www.HW-group.com Software > UDP Config.



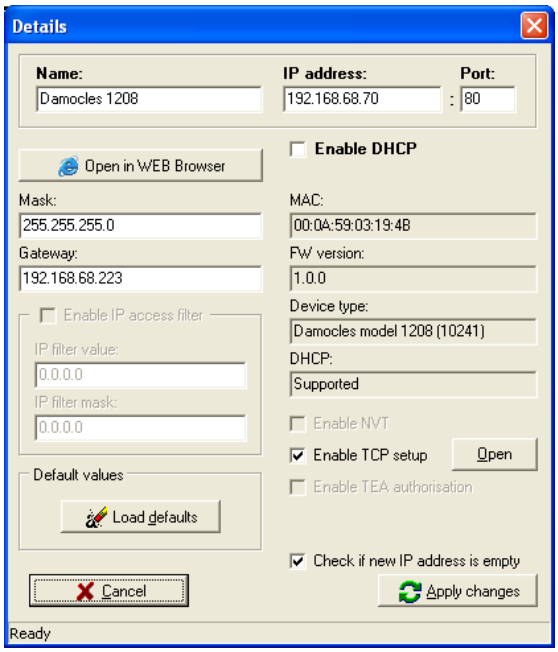
- Click the icon to launch **UDP Config**. The program automatically looks for connected devices.
- To search for devices, click the **Find Devices** icon.

The program searches for devices in your local network. To identify a particular Damocles unit, look at the MAC address on the label at the bottom of the unit. Double-click a MAC address to open a basic device configuration dialog.

Configure network parameters

- IP address / HTTP port (80 by default)
- Network mask
- Gateway IP address for your network
- Device name (optional)

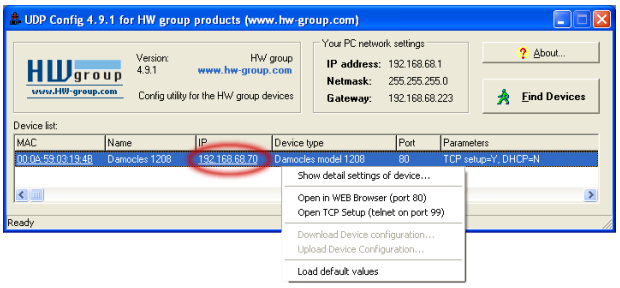
Click the **Apply Changes** button to save the settings.



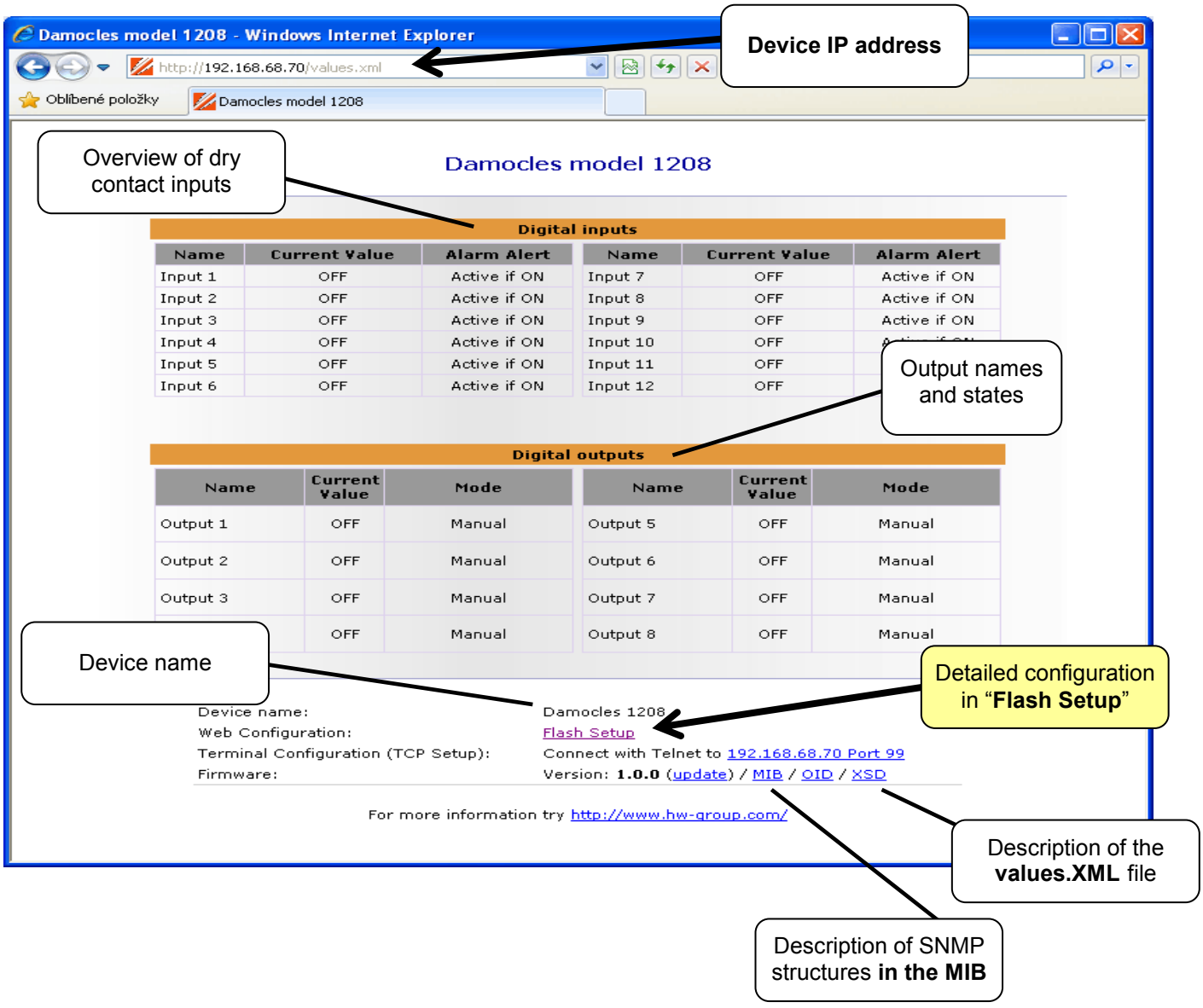
Notes:

- *To reset the device to factory defaults, toggle DIP1 several times within 5 seconds after power-up.*
- *No configuration changes can be stored while DIP2=On. To change the IP address, set DIP2=Off.*

3) WWW interface of the device

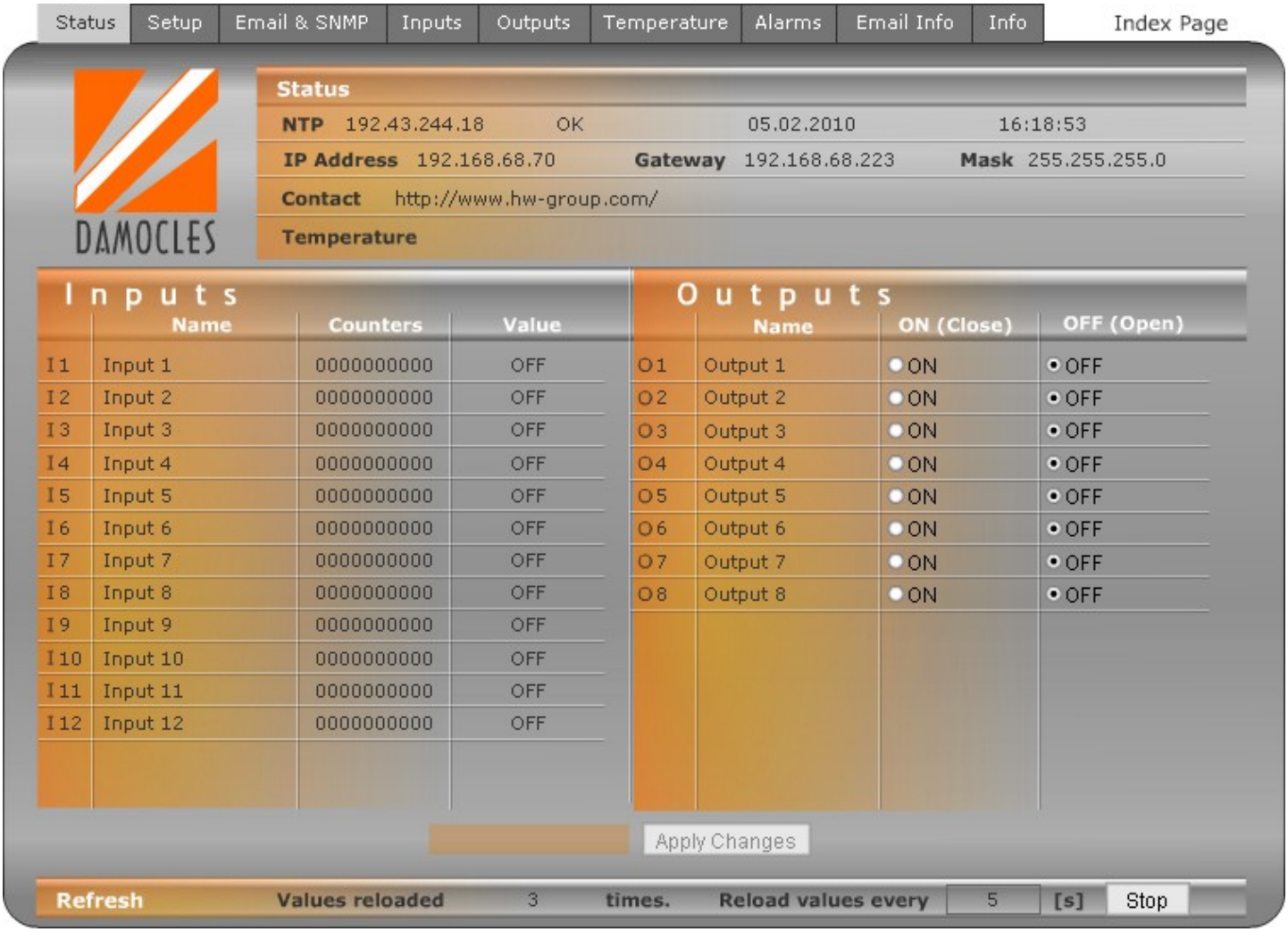


- **To open the WWW interface of the device**:
  - Enter the IP address into a web browser
  - Click the underlined IP address in UDP Config
  - Use the right-click menu in UDP Config
- The WWW page displays current states of inputs and outputs.
- Click the “Flash Setup” link to open the graphical configuration interface (Flash Setup).



4) Flash SETUP

To open the FLASH interface, FLASH support needs to be installed on your PC. If the computer is connected to the Internet, the needed plug-in is downloaded automatically.



Flash Setup allows you to:

- Control outputs
- Display states of counters at individual inputs
- Assign names to inputs and outputs and their states
- Watch current sensor values (refreshed automatically at predefined intervals)
- Set SNMP parameters (Community names & rights), define target IPs for SNMP traps that are sent upon alarm
- Set device name, password, and secure IP address range

TIP

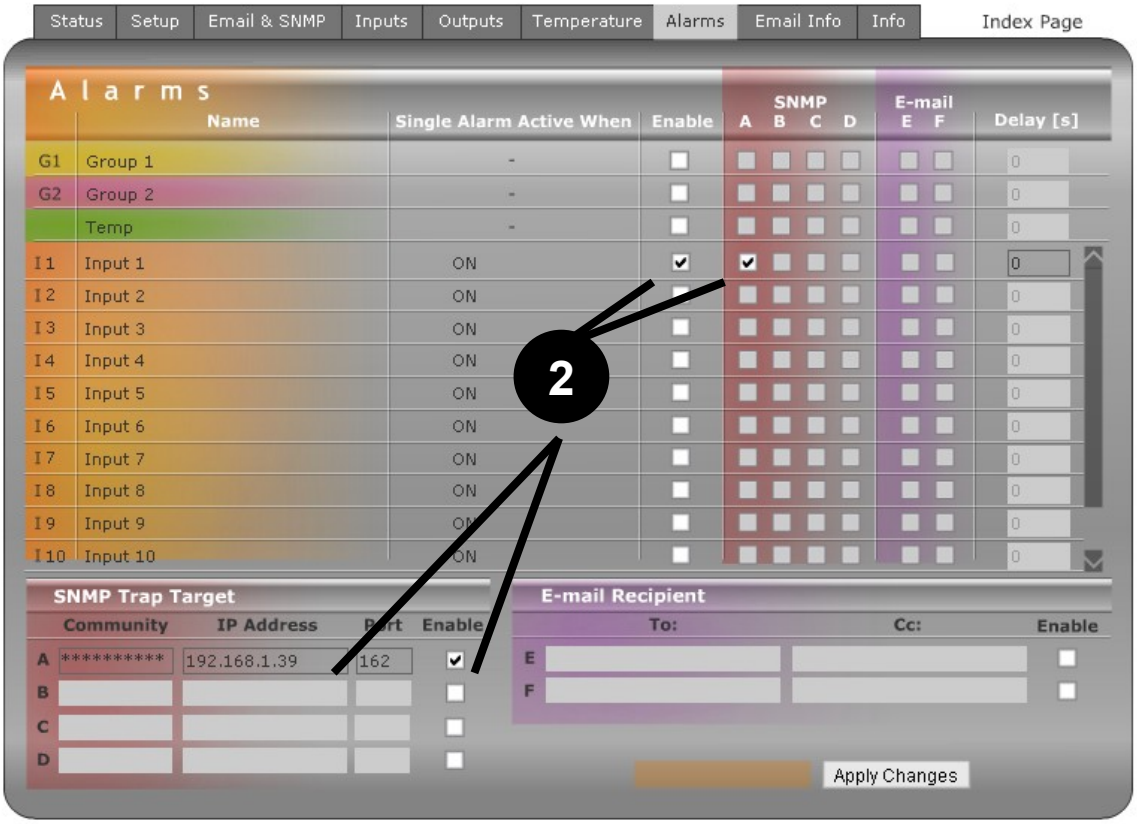
- For a detailed description of the **Flash Setup** interface and more information in general, see the **detailed Damocles family manual**.

5) Sending e-mail

Alarms and e-mail alerting

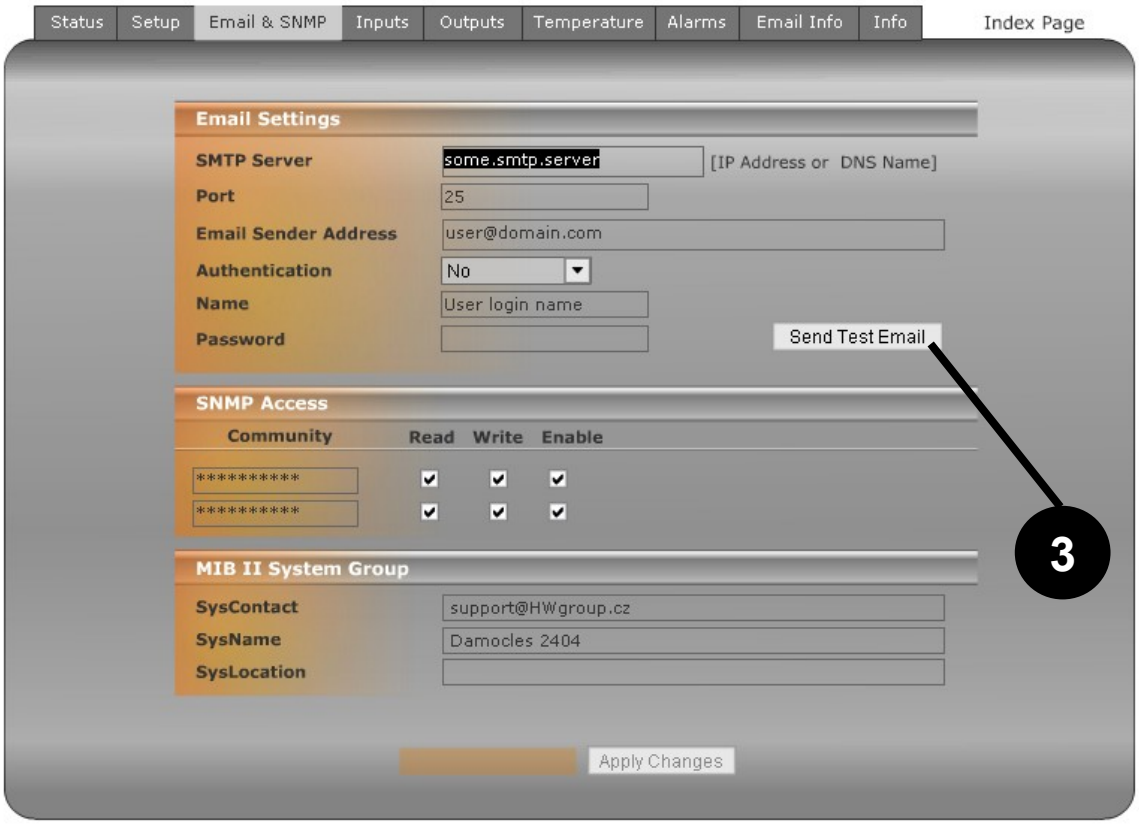
Damocles supports alerts to changes at a particular input – "**Single Alarm**", as well as alerts to a certain input combination – "**Group Alarm**".

- Alarm state (On or Off) to be signaled by sending an e-mail or SNMP Trap can be configured for each individual input. >> **Inputs** tab, green **Single Alarm** column.



- Each individual Alarm needs to be activated >> **Inputs** tab, **Enable** column.
- For each Alarm, a target destination needs to be set. Four SNMP Trap targets (named A, B, C, D) and two e-mail targets (named E, F) are available >> **Alarms** tab, **SNMP Trap Target** or **E-mail Recipient** column.
- Configuration of destinations A through D (for SNMP) and E, F (for e-mail) needs to be confirmed by clicking **Apply Changes**.

Testing the e-mail



To send an e-mail directly from the device, check the following settings.

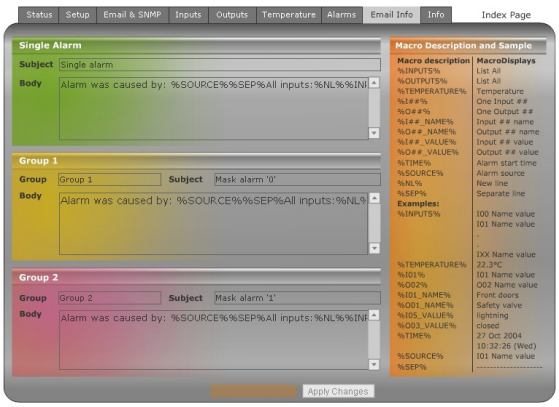
Parameter	Location
Gateway	Setup > Network Setting > Gateway
DNS	Setup > Network Setting > DNS Primary/Secondary
SMTP server	Email & SNMP > Email Settings > SMTP server

*To verify the settings, send a test e-mail by clicking the **Send Test Email** button located at the **Email & SNMP Setup** tab.*

Custom e-mail text

The e-mail text can be customized using macros. The macro length is limited to127 characters.

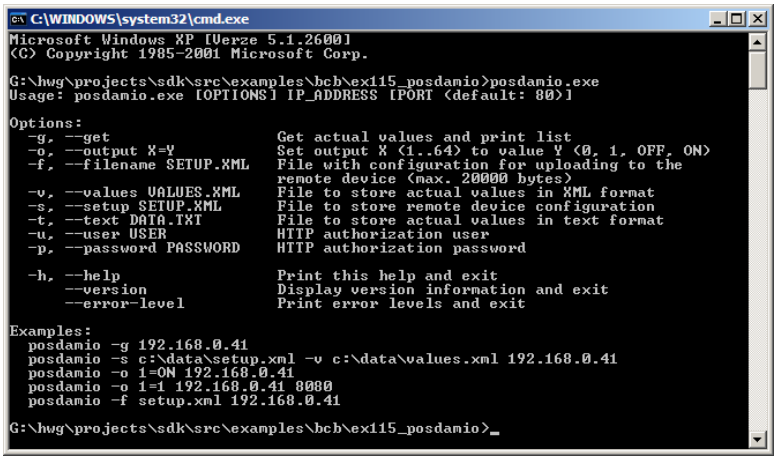
Macros are available at the **Email Info** tab.



6) Controlling inputs / outputs with custom SW

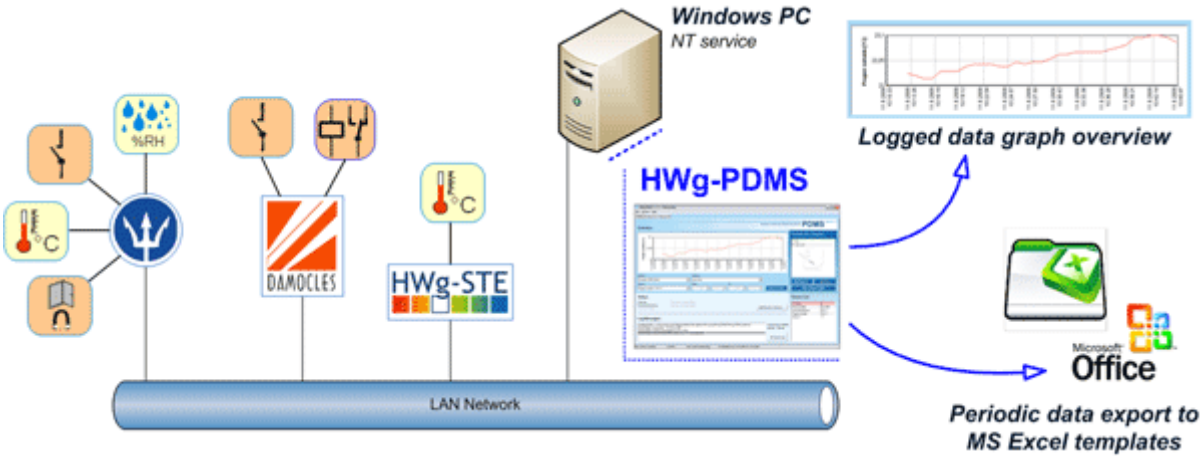
- **M2M protocols**
  Your custom software can use SNMP, XML or Modbus/TCP protocols to control outputs.

- **PosDamIO**
  For simple output control using the command line, the HWg PosDamIO utility can be used.
  PosDamIO uploads a XML file with the requested output states to the specified IP address.
  The utility is available for Windows and Linux, including source code, as a part of our **HWg-SDK** (available for download at our website).



- **HWg-PDMS** (Poseidon & Damocles monitoring software)
  Windows application for logging data from sensors and inputs over a LAN (Poseidon, Damocles, HWg-STE).

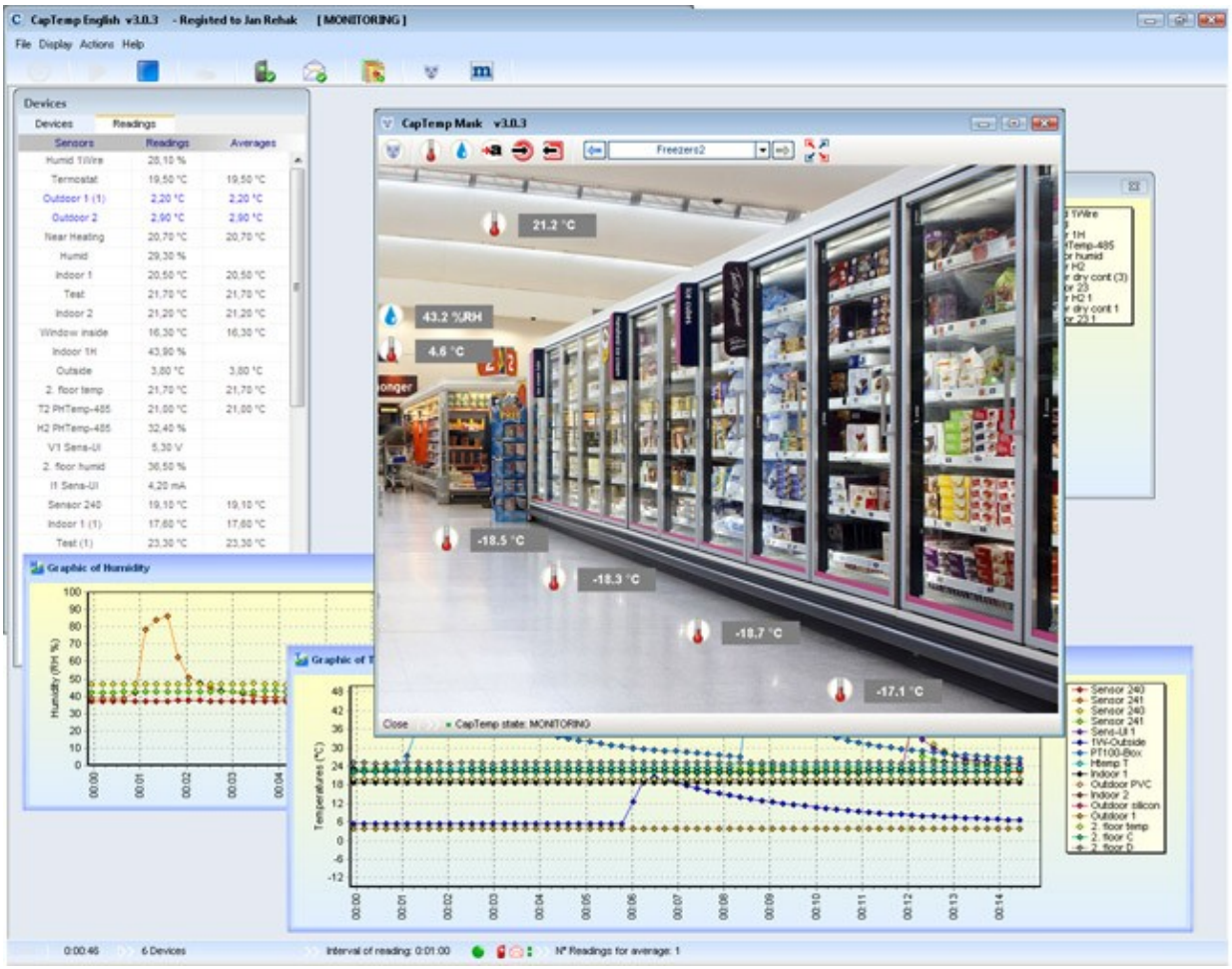
  The application periodically reads the values of inputs and sensors from units connected to a LAN. Stored data are periodically saved as MS Excel reports.



Note: *PDMS supports converting pulses coming from energy meters to kWh or liters.*

Typical applications: IT department, auditing, outsourcing, operations logs

- **CapTemp**
  Software for collecting and analyzing sensed data in food processing and other industries.



CapTemp and MonTemp is a pair of utilities to monitor production processes. The programs can supervise all sensors by HW group (temperature and humidity sensors, contacts, etc) as well as sensors by other manufacturers.

CapTemp logs the values into an internal database, displays several most recent ones, and processes conditions and alarms. Alerts to values within an alarm range are sent by e-mail, or by SMS via a GSM modem connected to the PC.

MonTemp subsequently processes stored data and generates graphic reports, histograms, as well as ISO or HACCP protocols.

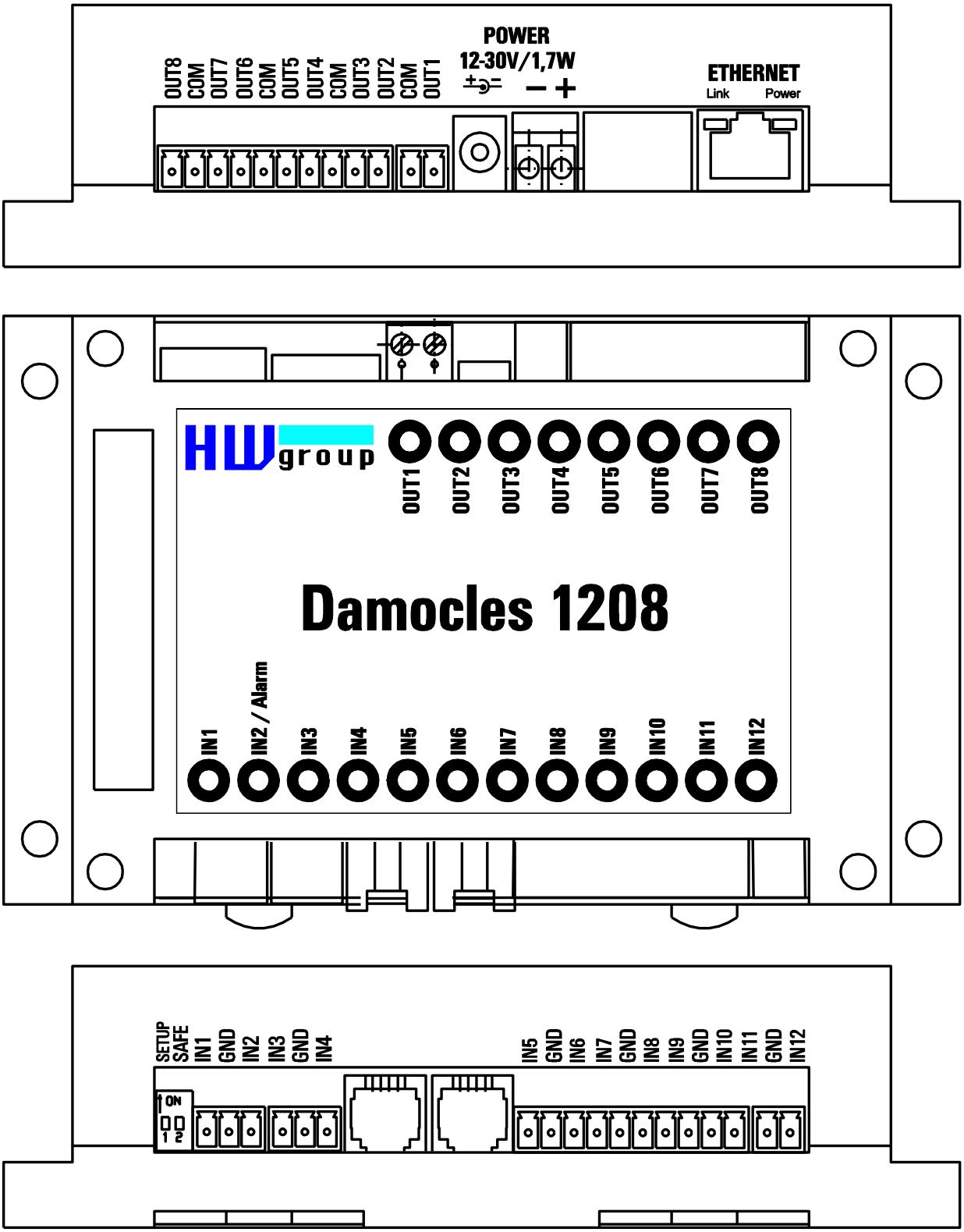
- CapTemp supports Poseidon, Damocles and I/O Controller products
- Alarm alerts are sent by e-mail or SMS (GSM modem)
- Concise graphical environment
- Supports conditions and rules for simple control tasks
- Evaluation version functions for 21 days without restrictions

Technical specifications

- **Ethernet**: RJ45 – 10BASE-T/10 Mbit/s
- **12 digital inputs:** Shared GND terminal for every two inputs
- **8 digital outputs:** Open collector
- **Configuration DIP switches**
  - **DIP1: SETUP**
    Restores factory defaults if 5x toggled within 5 seconds after power-up
  - **DIP2: SAFE**
    When set to On, prevents changes in the configuration.
    Useful e.g. for connecting the Damocles to the public Internet. No settings can be changed.

- **Device features**
  - **Email & SNMP Trap Alarm** upon detecting a specified value at an input, or a combination of values at inputs
  - **Remote monitoring** of the states of inputs and outputs
  - **Pulse counter** for every input
  - Remote **output control**
  - **Local output control** with Alarm conditions (Group 1 and Group 2)

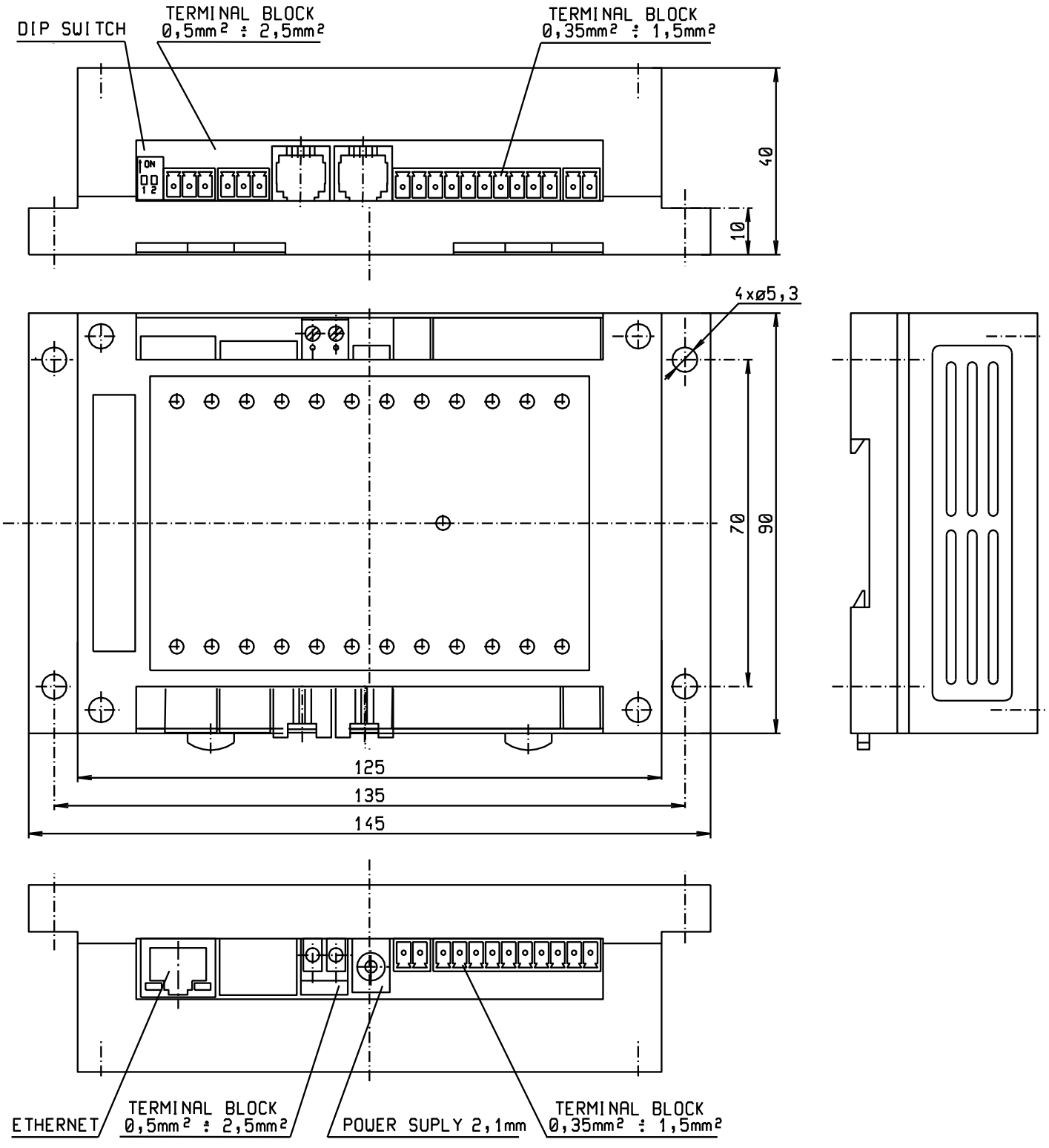
- **Supply voltage:** 12–30VDC / 1.7W
- **Dimensions:** 145 x 90 x 40 [mm]
- **LED indicators:** Power, LINK, STATUS, ALARM



- **OUT**n – Digital outputs – open collector, every pair of outputs shares a common (COM) terminal
- **COM** – Common terminal for a pair of outputs
- **+U** – Power supply, +12 to +30 VDC / 1.7W
- **-U** – Power supply ground, connected to common grounds (COM)
- **IN**n – Digital inputs, to be connected against common GND's
- **GND** – Common ground, one terminal for one pair of inputs

Ethernet port	
+ Interface	RJ45 (10BASE-T) – 10 Mbps or 10/100 Mbps network compatible
+ Supported protocols	IP: ARP, TCP/IP (HTTP, Modbus over TCP), UDP/IP (SNMP)
+ SNMP compatibility	Ver:1.00 compatible, partial ver. 2.0 implementation
12 Digital Inputs	
+ Input type	12 Dry Contact Input (Dry contact or Wet contact)
+ Isolation	Optoisolated (1kV) to Ethernet
+ Wet contact	Logic 0: 0-3V / Logic 1: 5-30V
+ Input current	Min current 4mA, max current 50 mA
+ Pulse counter	32 bits for each Digital Input, min pulse width 100 ms
+ Max. distance	Up to 100m
4 Digital Outputs	
+ Output type	Open collector
+ Max. load	50 V max. 500 mA / 1 output and max. 1500 mA / all 8 outputs
LED status indicators	
+ POWER	Green - power OK
+ LINK & Activity	Yellow - Ethernet connectivity
+ INPUT/OUTPUT Status	Green for each INPUT/OUTPUT
+ Alarm	Red - blinking
DIP SWITCH configuration	
+ DIP1	OFF = Run mode **Load defaults:** Toggle 3 times during first 5 seconds after device power-up to load default settings.
+ DIP2 - Security	ON = Security mode - remote configuration disabled OFF = Non-Security mode - remote configuration enabled
Physical parameters	
+ Supply voltage	12-30 V/ 1,7W DC
+ Power connection	- coaxial power connector (barrel, inner 2.5 mm outer 6.3 mm) - connect power directly to the terminal board
+ Dimensions / Weight	145 x 90 x 40 [mm] / 500 g
+ Temperature range	Operating: -10 to 65 °C / Storage: -25 to 85 °C

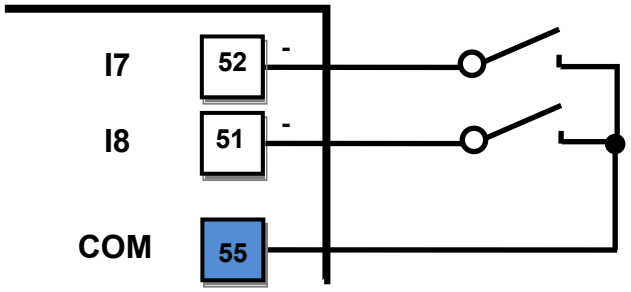
Mechanical dimensions



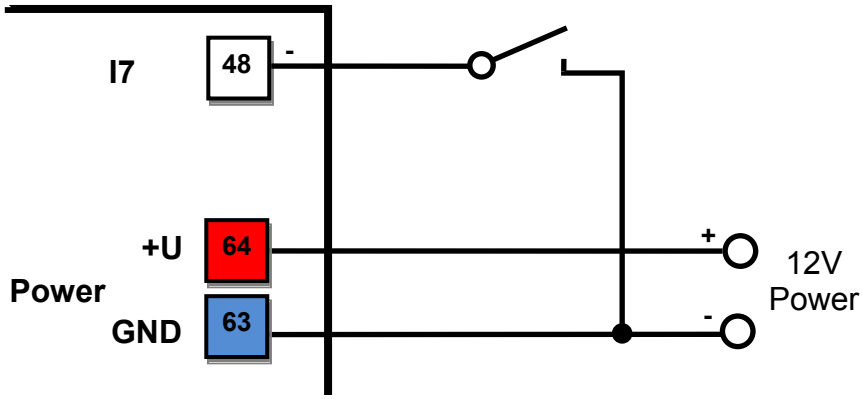
Digital Inputs (DI)

Digital input terminals can be connected to dry contacts or to external voltage.
Inputs are optocoupled.

Dry contact



Driving an input against the supply voltage



- Unconnected inputs read as "**0 (Off)**"
  - **Disconnected sensor detection:** None, disconnected sensor reads as "**O (Off)**".
- Activated inputs read as "**1 (On)**", ohmic resistance depends on the supply voltage.
  - For a 12V supply, the resistance must be less than 3kΩ.
  - For a 24V supply, the resistance must be less than 7kΩ.
- **Pulse counter**: Yes, 32-bit
  - **Memory:** Damocles 1208 **resets** counter values when powered off.
- **Maximum wiring length:** 100 m
- **Supported sensors:** Any contact without external voltage (dry contact)
- **Polling period:** 800 ms
- **Range of input IDs:** Inputs use IDs from 1 to 12
- **Input names:** Each input can be named using up to 12 characters
  - **State names:** Input state (On and Off) can be named with up to 6 characters (e.g. "Fuel Tank 14" "Full" / "Empty")

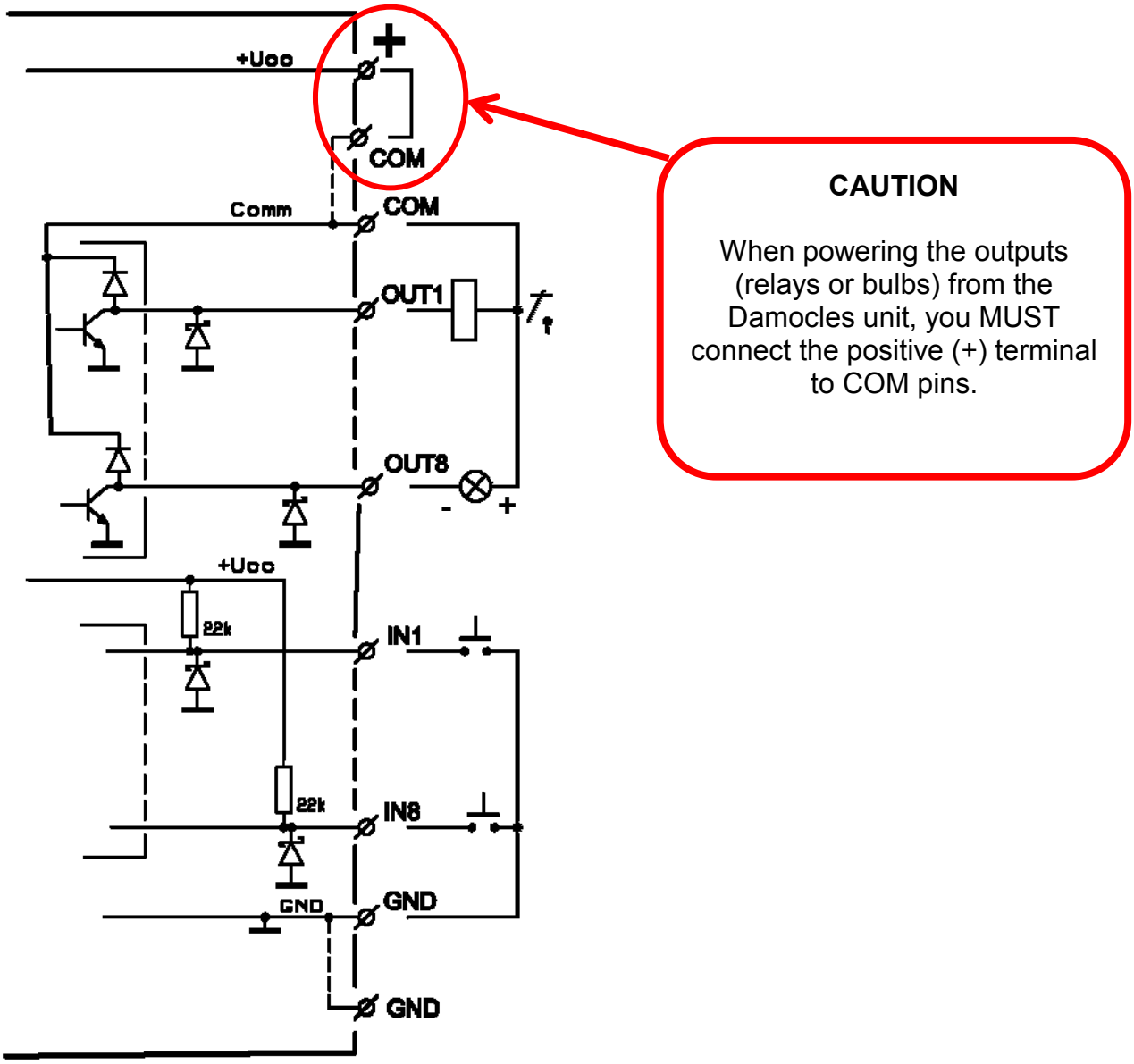
Digital Outputs (DO)

Open collector outputs with common overvoltage diode protection.
Outputs are protected with internal diodes against voltage spikes (e.g. from a relay coil).

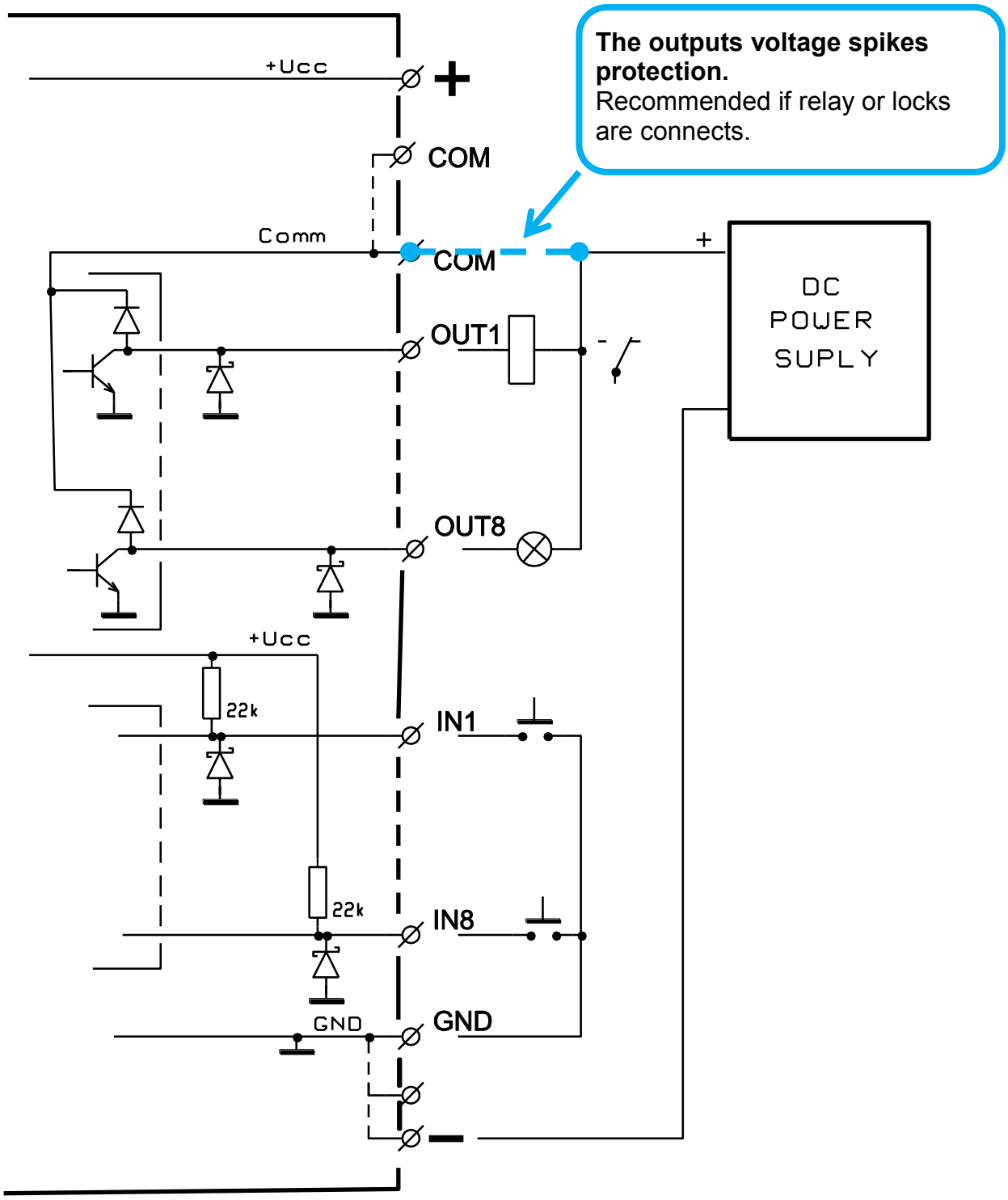
- **Maximum load:** 50V, 500 mA per output, max. total 1500 mA over all outputs
- **Output names:** Each output can be named using up to 12 characters
    - **State names:** Output state (On and Off) can be named with up to 6 characters (e.g. “Fuel Tank 14” “Full” / “Empty”)

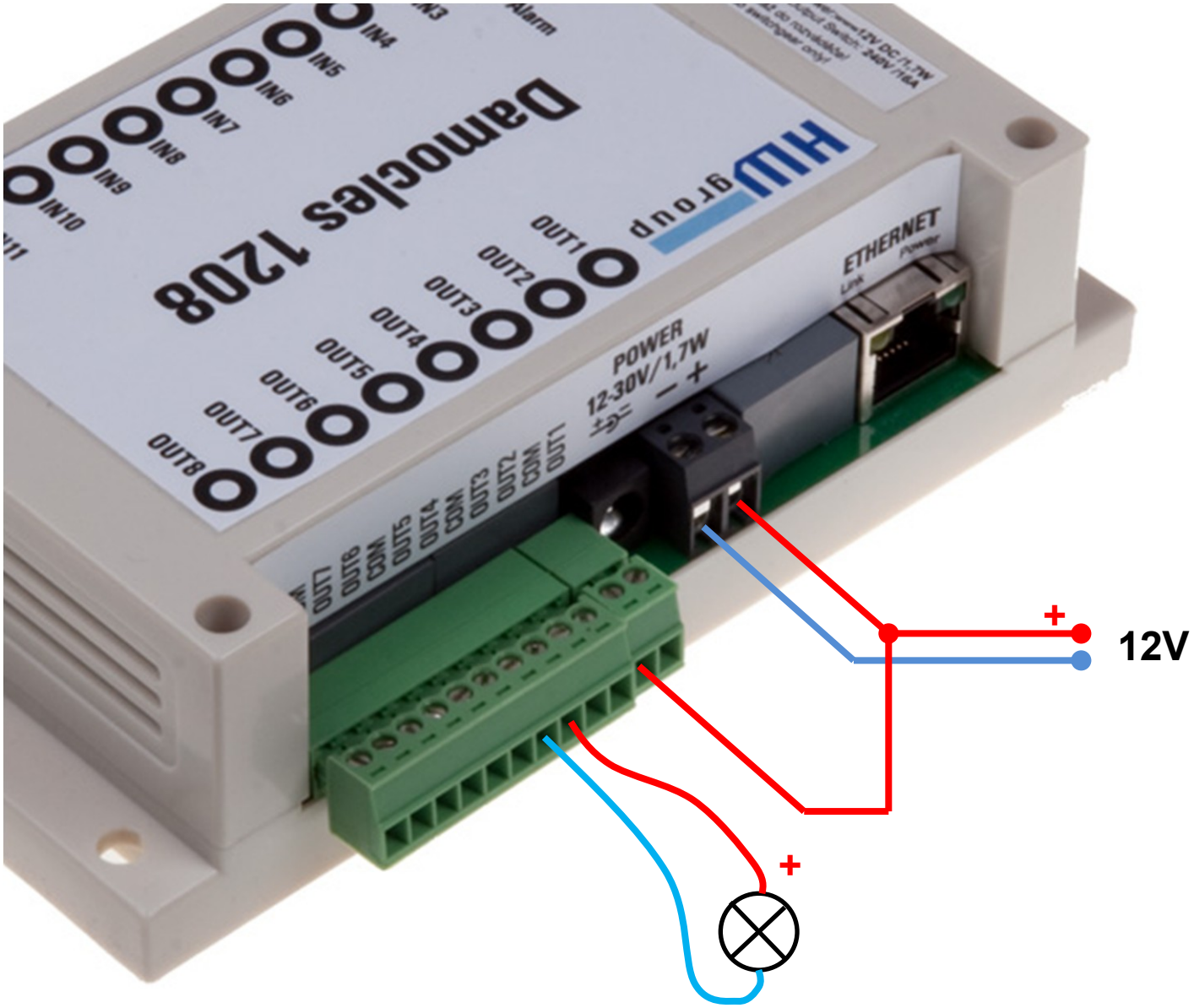
Output devices can be powered from the same power supply as Damocles, or from another source.
It is necessary to connect the power for external devices accordingly:

A) Connecting the outputs – internal power supply



B) Connection of outputs – Internal power supply




Damocles 1208
HW group
ETHERNET
POWER
12-30V/1,7W
12V
+
+