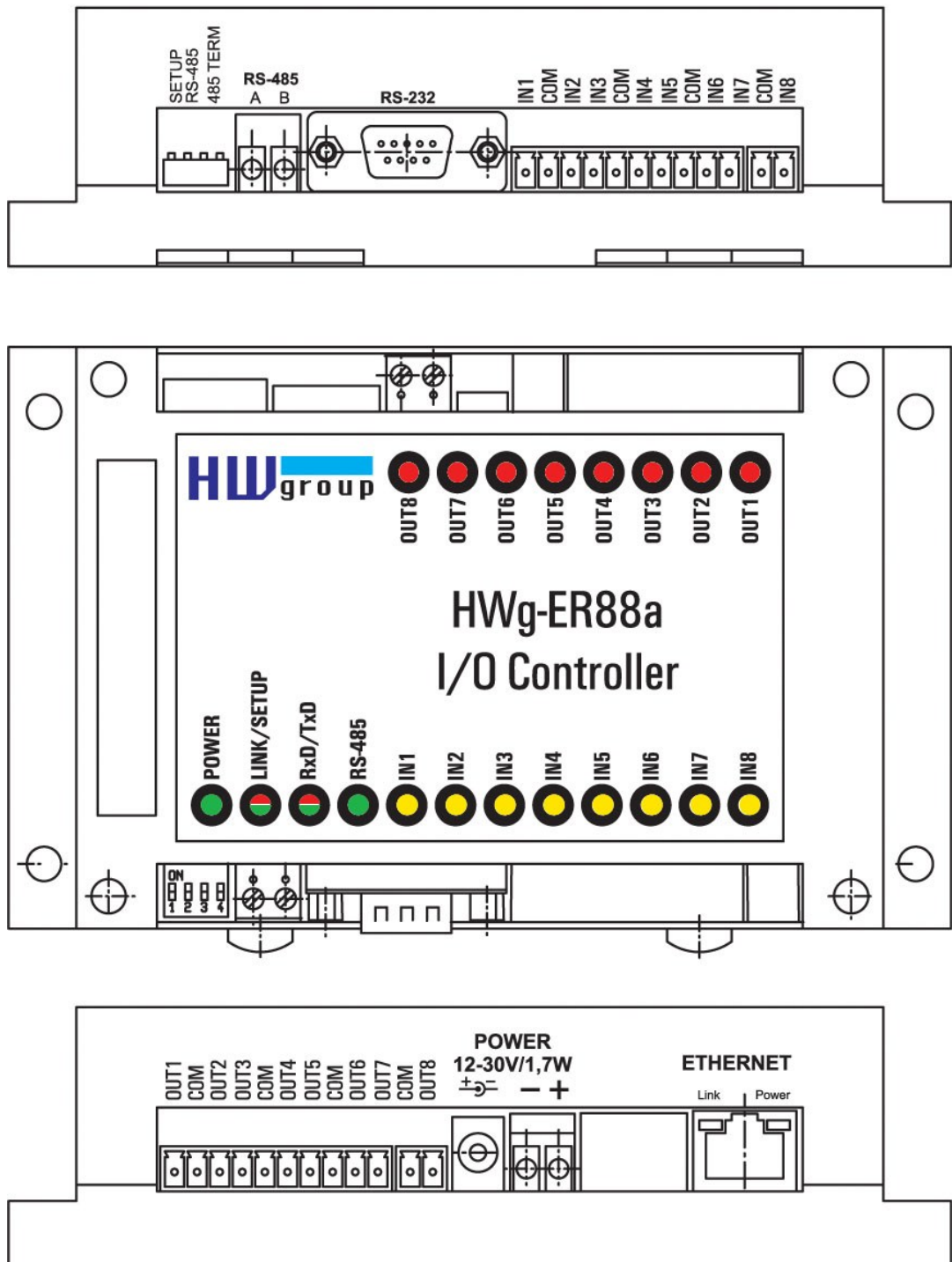


I/O Controller HWg-ER88a – Specifications



Connectors and LEDs

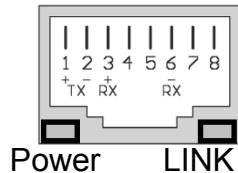
Power – green (RJ-45 connector)..... External power connected

LINK – **yellow** (RJ-45 connector)..... Ethernet interface activity

RxD – red..... Incoming RS-232 data

TxD – green..... Outgoing RS-232 data

Connector pinouts



I/O Controller port	
Pin	Signal
1	
2 <-	IN RxD
3 ->	OUT TxD
4	
5 --	GND
6	
7 ->	OUT RTS
8 <-	IN CTS
9	
D-sub 9 - Male	

Standard IBM PC RS-232 Port	
Pin	Signal
1 <-	CD
2 <-	RxD
3 ->	TxD
4 ->	DTR
5 --	GND
6 <-	DSR
7 ->	RTS
8 <-	CTS
9 <-	RI
D-sub 9 - Male	

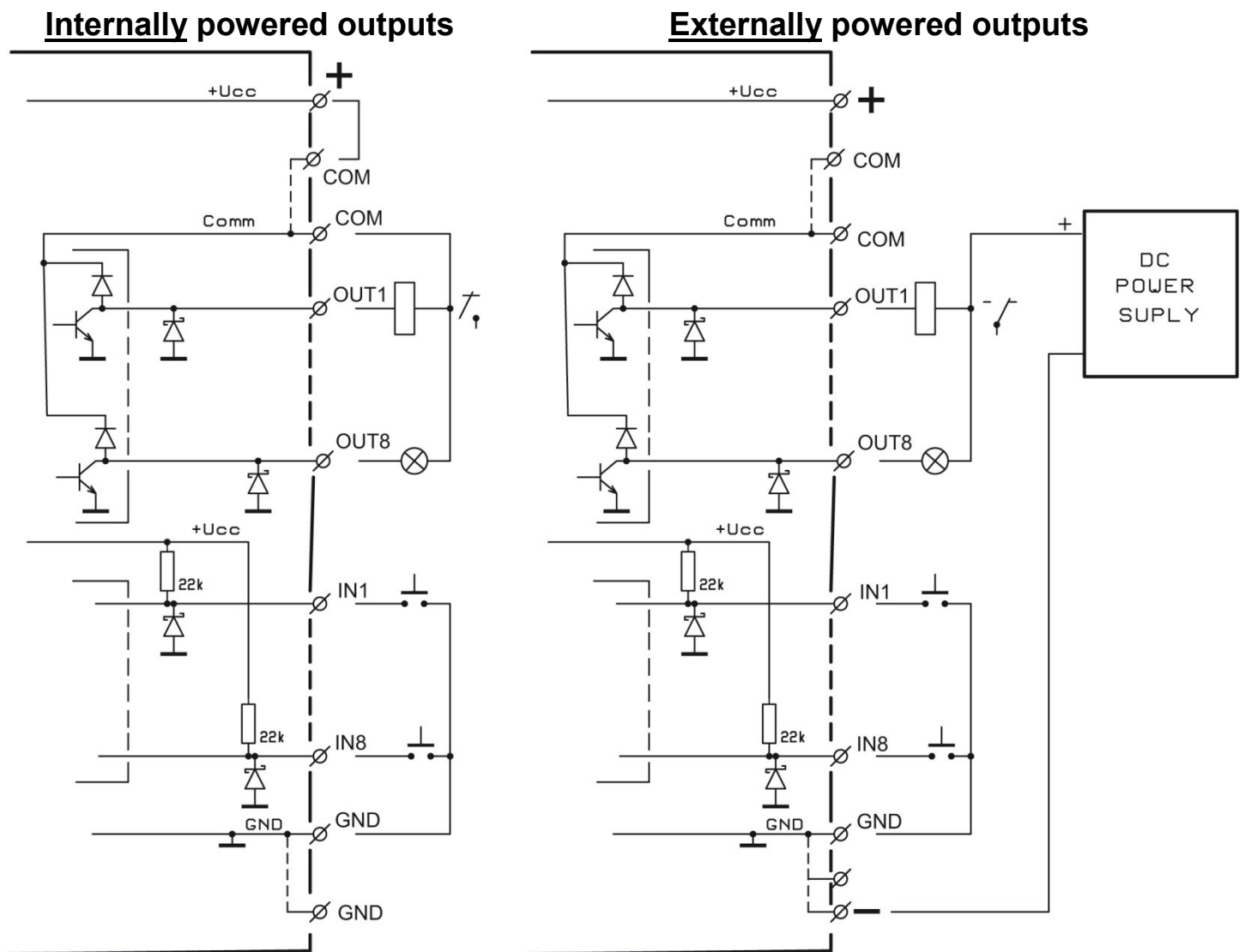
DIP 1	DIP 2	DIP 3	DIP 4	Function
ON	OFF	-	-	RS-232 Setup mode (9600 8N1) Ethernet interface is disabled
OFF	OFF	-	-	Serial port in RS-232 mode
OFF	ON	-	-	Serial port in RS-485 mode <i>check the &R and &H parameter settings (we recommend &R3 &H1)</i>
-	-	OFF	OFF	RS-485 serial port without termination
-	-	ON	ON	RS-485 serial port terminated with an internal resistor

Parameters

- Ethernet 10 Mbit/s - RJ 45 10BASE-T
- 1x **RS-232** or **RS-485** serial port accessible over the Ethernet
- **8x Digital Input**
- **8x Digital Output** (transistors – open collector)
- Remote port for Windows (**up to 64 serial ports**)
(free driver for Windows XP / Vista / Windows 7 / Server 2003 / Server 2008 / x64)
- Support for TCP/IP terminal, TELNET - NVT type (*Network Virtual Terminal*)
- Two devices can „tunnel“ the serial port, digital inputs and digital outputs over the Ethernet
- Support for 7th to 9th parity bit (9th parity bit transferred over the Ethernet)

RS-232 serial port	
+ Data bits	7 or 8 or 9
+ Stop bits, Parity	1 or 2, None / Odd / Even / Mark / Space parity
+ Baudrates	50..115.2 kBd – entire range, step = 50 Bd
+ Data flow control	XON/XOFF, CTS/RTS, None
+ Interface	1x DB9M (RxD,TxD,RTS,CTS,GND)
+ Used RS-232 signals	RxD,TxD,RTS,CTS, (DTR output – defined voltage level only)
+ Used RS-232 internal buffer memory	740 B for incoming data, 740 B for outgoing data
RS-485 Serial port	
+ Termination	DIP3 & 4 enable internal 120Ω termination
+ Isolation	RS-485 line not optocoupled to the device power supply - electrically isolated RS-232/485 to Ethernet (1.000 V)
Digital inputs (DI) & Digital outputs (DO)	
+ Input type	8x Dry contact input
+ Logic LOW voltage	0 .. 3V
+ Logic HIGH voltage treshold / “on” current	from <u>5V / 5mA</u> to <u>20V / 25mA</u>
+ Max. input voltage and current	up to 40V / 50mA / 1 second
+ Isolation Voltage	max. 50V to power supply
+ Sampling period	10ms
+ SW control	Inputs and Outputs controlled over M2M protocol, based on the NVT (extended) – short 7 bytes binary commands over TCP/IP
+ Output type	8x Digital Output (Open collector) Max 0.5A / 50V for 1 output (max. 1.5A for all 8 outputs)
Ethernet	
+ Interface	RJ45 (10BASE-T) – 10 Mbps or 10/100 Mbps networks only!
+ Compatibility	Ethernet: Version 2.0/IEEE 802.3
+ Supported protocols	IP: ARP, TCP + NVT (Network Virtual Terminal), RFC2217
+ TCP connection closing	Data - 50s timeout (with NVT - ACK/NOP support)
Physical parameters & Environment	
+ Temperature & humidity	Operating: 0 – 65°C (32 – 149°F) Storage: -10 to 85°C (14 to 185°F), humidity 5 to 95 %
+ Power supply requirements	8-24V / Max. device current consumption 200 mA DC
+ Dimensions / Mass	145 x 90 x 45 [mm] (H x W x D) / 241 g

Input and output wiring



- **IN1 to IN8 – 8x 5-24V input**
 - 0 = Input connected to COM (or less than 3V)
 - 1 = Input disconnected (or 5V to 24V)
- **COM** – Common ground for inputs (internally connected to GND)
- **OUT1 to OUT8 – 8x open-collector output**
 - Common diode-based overvoltage protection
The transistors have protection diodes connected to the Common (COM) pin that should be connected to the positive power supply terminal (powering, for instance, subsequent relays). In this way, the outputs are protected against voltage spikes from the relay coil.
- **COM** – Overvoltage protection output, connected to the positive supply voltage of the relay coil. Useful for controlling a relay using an output.
 - **Internal power:** When the relay is powered from the same source as the IO Controller, (COM) and (+) need to be externally connected with a jumper.

Mechanical dimensions

