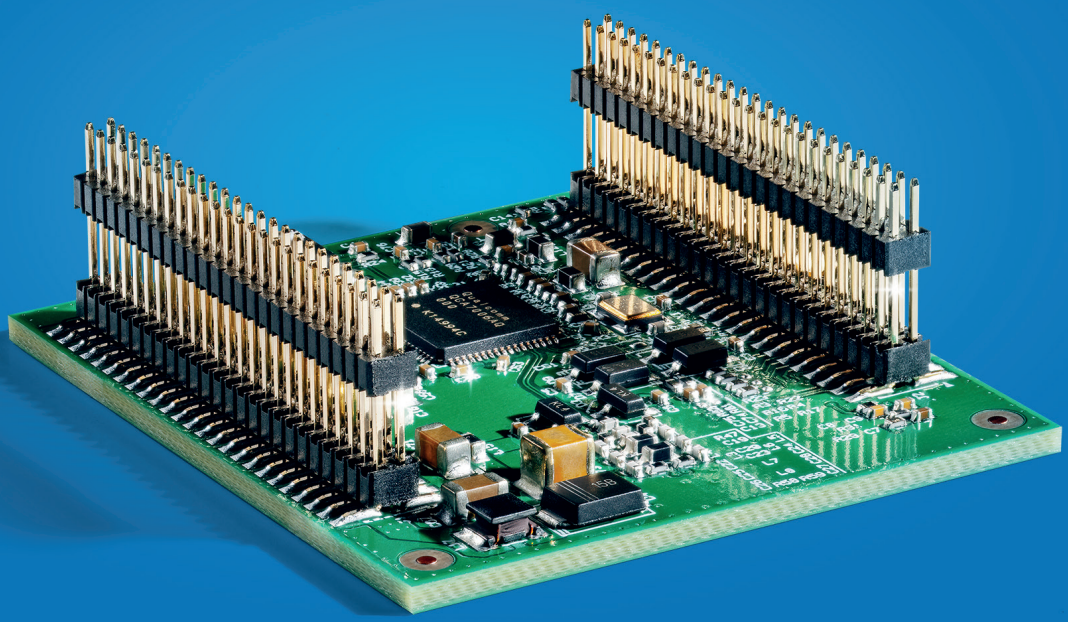
devolo

Technical Datasheet

Green PHY module V2



Contents

1 Safety

It is essential to have read and understood all safety and operating instructions before the device is used for the first time; keep this technical data sheet as well as the flyer “Safety & service“ safe for future reference.

1.1 About the flyer “Safety & service“

The flyer “Safety & service“ provides cross-product and conformity-relevant safety information e. g. general safety notes as well as disposal information.

A printout of the flyer is included with this product; this technical data sheet is provided digitally. Furthermore, these and other relevant product descriptions are available to you in the download area of the respective product page on the Internet at www.devolo.global.

1.2 Description of the icons

This section contains a brief description of the icons used in this document.

Icon	Description
	Very important safety symbol that warns you of hazardous electrical voltage which if not avoided can result in serious injury or death.
	An important note that should be observed which can potentially lead to material damages.
CE	The manufacturer/distributing company uses the CE marking to declare that the product meets all applicable European regulations and has been subjected to the prescribed conformity assessment procedures.
	Additional information, background material and configuration tips for your device.

Table 1: Symbol description

1.3 Intended use

Use the devolo device as described to prevent damage and injury.

The device is an integrated Green PHY power line networking controller with integrated SPI and Ethernet interface for transmitting and receiving data over the power line. The device communicates over Ethernet or SPI interface.

The device is designed for installation in electrical appliances from the IoT environment. The device is intended for operation in the EU and EFTA.

1.4 CE conformity

CE devolo hereby declares that all devolo devices comply with the specifications of directives 2014/53/EU, 2014/30/EU, 2014/35/EU, 2011/65/EU and 2009/125/EC according to the device type. A printout of the simplified CE declaration of this product is separately included. The complete CE declaration can be found under www.devolo.global/support/ce.

The CE conformity only applies to the original combination of software/firmware and hardware that has been put on the market and supported by devolo GmbH. If deviating configurations are used, CE conformity is no longer guaranteed.

The CE conformity of the devolo Green PHY module V2 was verified on a devolo evaluation board. Powerline is used as the communication interface. Using the module on other carriers or for other functionalities, the regulatory properties or regulatory requirements can change.

2 devolo Green PHY module V2

The devolo Green PHY module V2 offers a preconfigured module based on the QCA7006 chipset. The built-in Ethernet and SPI port as well as the software development kit mean that the devolo solution can be integrated into a wide variety of software environments with minimal development effort.

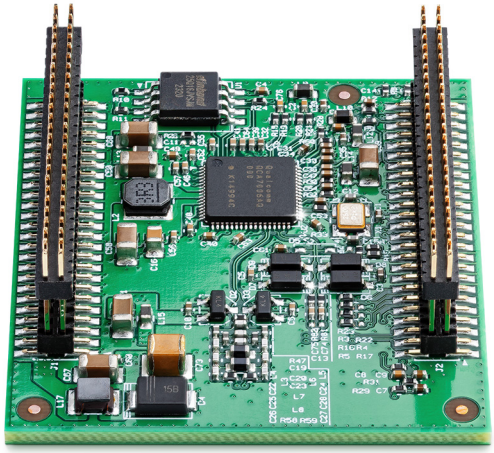


Fig. 1: devolo Green PHY module V2

The devolo Green PHY module V2 is fully compatible with HomePlug Green PHY and HomePlug AV standards and supports Ethernet to PLC bridging functionality. You can realize point-to-point and point-to-multipoint connections depending on your application. The module will automatically join a standard powerline network with default network password "HomePlugAV". The network password may be changed by user interaction.

Open API for status information: Customers are enabled to add or adapt functionality to their special needs by modifying the configuration of QCA7006.

All relevant documentation and tools for modification, can be found under https://github.com/devolo/dlan-greenphy-sdk/tree/master.

Parameter	Value
Power supply	3.3 V single source operation voltage
Power consumption*	< 1.0 W in typical scenario (1 kByte/s)
Data rate	Up to 10 Mbps data rate on the power line
Range	600 m range via coaxial cable 400 m range via telephone line 300 m range via power cable
Encryption	128 bit AES network encryption
Interfaces	PLC, Fast Ethernet, SPI
Environment	-40°C up to + 90°C
Dimension	39.4 mm x 43.2 mm x 10.24 mm (mated height) or 13.24 mm (total height)

Table 2: General technical data

*The power consumption depends on additional implemented functionality; a maximum power consumption of 1.5 W may be assumed.

2.1 Module overview

The follwing block diagram shows the components and connections of the devolo Green PHY module V2.

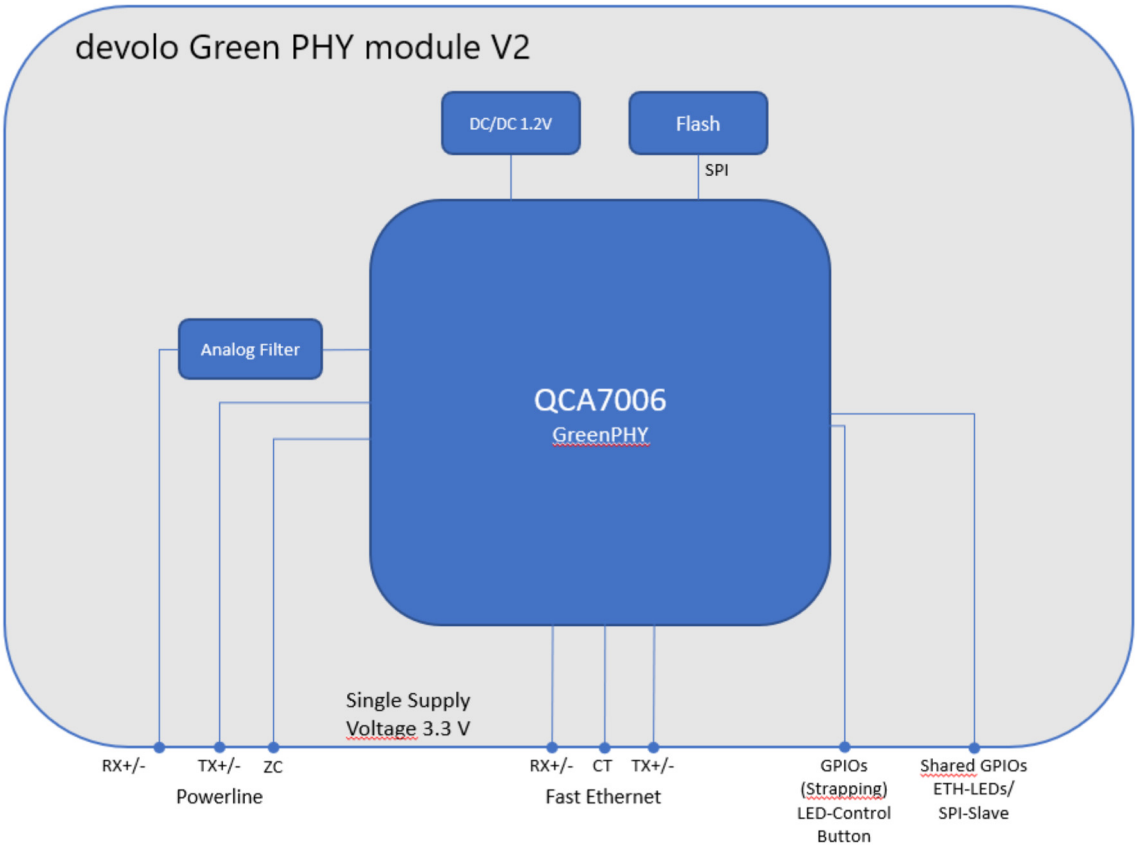


Fig. 2: devolo Green PHY module V2 with Powerline interface

2.2 Technical characteristics

2.2.1 Power supply requirements

The devolo Green PHY module V2 needs a 3.3V single source for operation:

Symbol	Parameter	Min.	Typ.*	Max.
V_{DD}	Power supply voltage	3.15 V	3.3 V	3.45 V
P	3.45 V	--	1.0 W	1.5 W

Table 3: Power supply requirements

* Values as delivered; individual user adjustments can affect the performance values

2.2.2 Reset signal requirements

The reset signal has to be driven low for at least 100 ms after all supply voltages are stable.

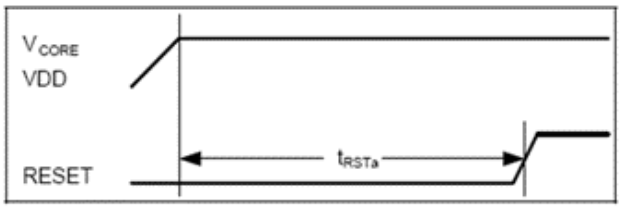


Fig. 3: Schematics of reset signal requirements

2.2.3 Absolute maximum ratings

Operation above the absolute maximum ratings may cause permanent damage to the device. Exposure to these conditions for extended periods of time may affect long-term device reliability. Correct functional behaviour is not implied or guaranteed when operating above the absolute maximum ratings.

Symbol	Parameter	Min.	Typ.	Max.	Units
VDD	Digital supply voltage	-0.3		3.6	V
$V_{Digital}$	Digital lines	VSS - 0.3		VDD + 0.3	V
V_{Analog}	Analog lines	VSS - 0.3		VDD + 0.3	V
T_{STORE}	Storage temperature	-40		150	°C
V_{ESD}	Electrostatic Discharge			2000	V

Table 4: Maximum ratings

2.2.4 DC characteristics

Parameter	Test conditions	Min.	Max.
Low-level input voltage			0.8 V
High-level input voltage		2.0V	
Low-level output voltage	I_{OL}=4mA, 12mA[1]		0.4V
High-level output voltage	I_{OH}=-4mA, -12mA[2]	2.4V	
Low-level input current	V_I=GND	-1µA	
High-level input current	V_I=VDD		-1µA
High-impedance output current	GND ≤ V_I ≤ VDD	-1µA	-1µA

Table 5: DC characteristics

1) I_{OL} = 12mA for GPIOs 0..3
I_{OL} = 4mA for all other interfaces (e. g. GPIOs 4..7)

2) I_{OH}= -12mA for GPIOs 0..3
I_{OH}= -4mA for all other interfaces (e. g. GPIOs 4..7)

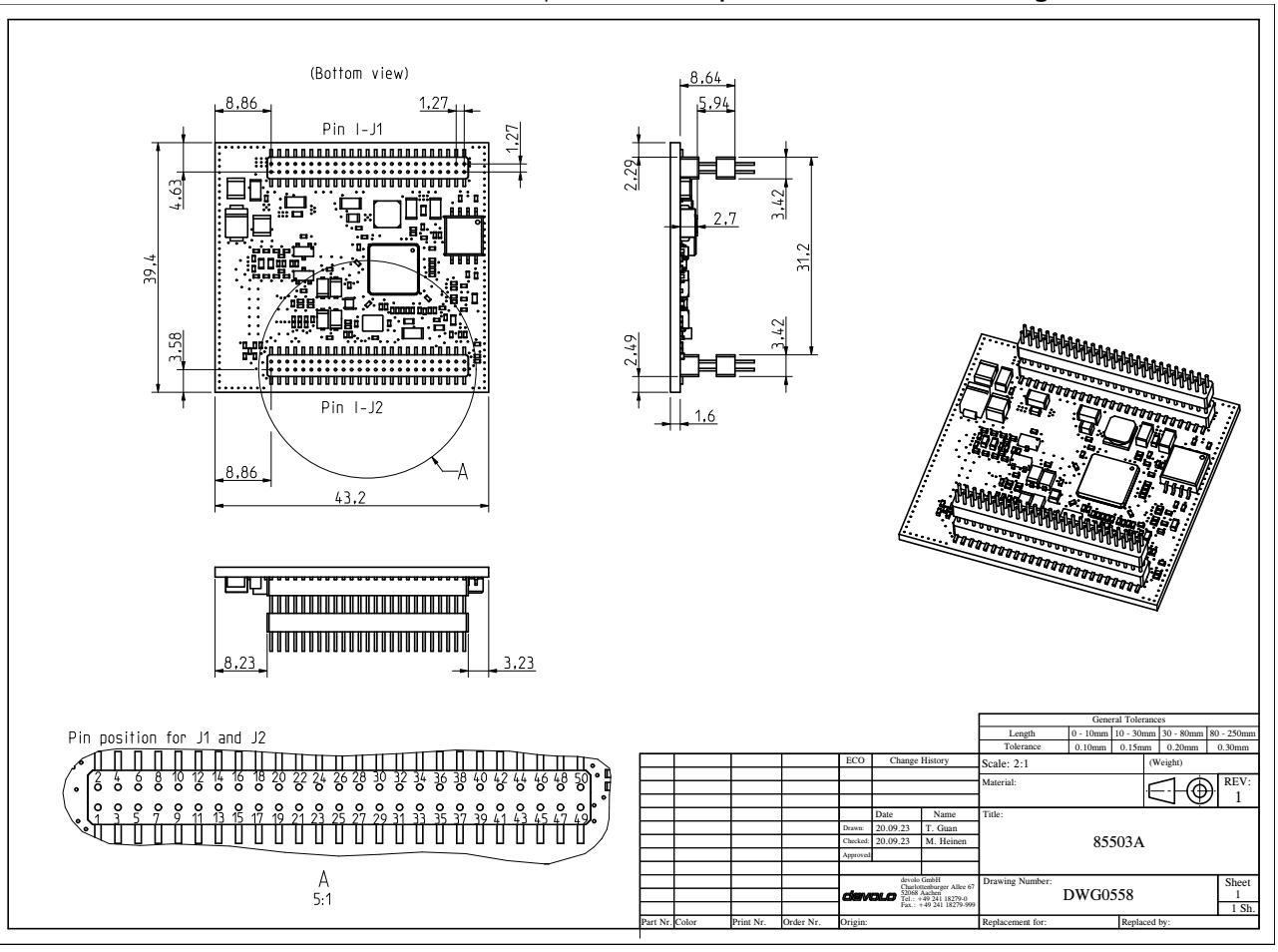
2.2.5 Operating conditions

Symbol	Parameter	Min.	Typ.	Max.	Units
VDD	Digital supply voltage	3.13	3.3	3.46	V
f_{AC}	Mains frequency tolerance (50Hz)		50		Hz
	Mains frequency tolerance (60Hz)		60		Hz
T_A	Ambient temperature	- 40		+90	°C
$P_{Consumption}$	Power consumption	0.3			W
	10Mb- link			0.8	W
	100Mb- link			1.0	W

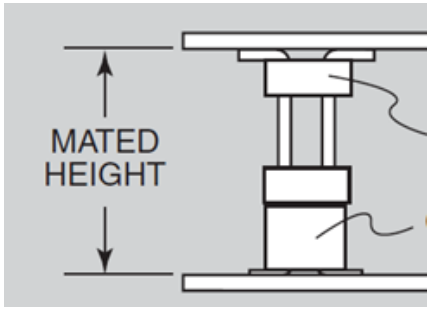
Table 6: Operating conditions

2.2.6 Dimensions

- Connector type J1 and J2 (Header male 2x25 1.27mm SMD):
  Successful, PCM220-50G002-T (or similar) -> please see **Chapter 3.8 Technical drawings** to find the file
- Recommended counterpart connector (Header female 2x25 1.27mm SMD):
  Successful, FCM244-50G05-P1 (or similar) -> please see **Chapter 3.8 Technical drawings** to find the file



Mated height when using the recommended connectors: → **13.2mm**



Male connector on module

Female connector on carrier board

Fig. 4: Mechanical specifications

2.3 devolo Green PHY module V2 – J1 pinout

Pin no.	PIN name	Type	Function
1	GND	P	**Ground**: 0 V reference
2	VDD	P	**3.3 V** supply voltage
3	RSVD		Reserved, do not connect.
4	RSVD		Reserved, do not connect.
5	RSVD		Reserved, do not connect.
6	RSVD		Reserved, do not connect.
7	RSVD		Reserved, do not connect.
8	RSVD		Reserved, do not connect.
9	RSVD		Reserved, do not connect.
10	RSVD		Reserved, do not connect.
11	RSVD		Reserved, do not connect.
12	RSVD		Reserved, do not connect.
13	GND	P	**Ground**: 0 V reference
14	VDD	P	**3.3 V** supply voltage
15	GND	P	**Ground**: 0 V reference
16	RSVD		Reserved, do not connect.
17	RSVD		Reserved, do not connect.
18	RSVD		Reserved, do not connect.
19	RSVD		Reserved, do not connect.
20	RSVD		Reserved, do not connect.
21	RSVD		Reserved, do not connect.
22	RSVD		Reserved, do not connect.
23	GND	P	**Ground**: 0 V reference
24	VDD	P	**3.3 V** supply voltage
25	RSVD		Reserved, do not connect.
26	RSVD		Reserved, do not connect.
27	RSVD		Reserved, do not connect.
28	RSVD		Reserved, do not connect.
29	RSVD		Reserved, do not connect.
30	RSVD		Reserved, do not connect.
31	RSVD		Reserved, do not connect.

Table 7: J1 pinout

32	RSVD		Reserved, do not connect.
33	RSVD		Reserved, do not connect.
34	RSVD		Reserved, do not connect.
35	RSVD		Reserved, do not connect.
36	RSVD		Reserved, do not connect.
37	GND	P	**Ground**: 0 V reference
38	VDD	P	**3.3 V** supply voltage
39	RSVD		Reserved, do not connect.
40	RSVD		Reserved, do not connect.
41	GND	P	**Ground**: 0 V reference
42	RSVD		Reserved, do not connect.
43	RSVD		Reserved, do not connect.
44	VDD	P	**3.3 V** supply voltage
45	RSVD		Reserved, do not connect.
46	RSVD		Reserved, do not connect.
47	RSVD		Reserved, do not connect.
48	RSVD		Reserved, do not connect.
49	GND	P	**Ground**: 0 V reference
50	VDD	P	**3.3 V** supply voltage

Table 7: J1 pinout

2.4 devolo Green PHY module V2 – J2 pinout

Pin no.	PIN name	Type	Function
1	GND	P	**Ground**: 0 V reference
2	GND	P	**Ground**: 0 V reference
3	G-PHY_ RXP	I	**RXP** – PLC Positive differential input.
4	G-PHY_ TXP	O	**TXP** – PLC Positive differential output.
5	G-PHY_ RXN	I	**RXN** — PLC Negative differential input.
6	G-PHY_ TXN	O	**TXN** — PLC Negative differential output.
7	GND	P	**Ground**: 0 V reference
8	GND	P	**Ground**: 0 V reference
9	G-PHY_PLC_ZC	I	**ZC_IN** — Zero Cross Input
10	G-PHY ZC GND	I	**ZC_GND** — Zero Cross Ground
11	G-PHY_GPIO[0]	I/O	**GPIO 0** — sets mode at power on, then becomes I/O.
12	G-PHY_GPIO[1]	I/O	**GPIO 1** — sets mode at power on, then becomes I/O.
13	G-PHY_GPIO[2]	I/O	**GPIO 2** — sets mode at power on, then becomes I/O.
14	G-PHY_GPIO[3]	I/O	**GPIO 3** – sets mode at power on, then becomes I/O.
15	RSVD		Reserved, do not connect.
16	RSVD		Reserved, do not connect.
17	RSVD		Reserved, do not connect.
18	RSVD		Reserved, do not connect.
19	VDD	P	**3.3 V** supply voltage
20	G-PHY_GPIO[4]	I/O	**GPIO 4** — General purpose digital input/output pin. SSP_intr — Interrupt output in SPI slave mode (active high)
21	VDD	P	**3.3 V** supply voltage
22	GND	P	**Ground**: 0 V reference
23	ETH_TX+	O	Ethernet positive differential output
24	ETH_RX+	I	Ethernet positive differential input
25	ETH_TX-	O	Ethernet negative differential output
26	ETH_RX-	I	Ethernet negative differential input
27	ETH_VDDCTx	O	VDDCTX – Ethernet XFMR CTx (Common Tap) Power supply.
28	ETH_VDDCTx	O	VDDCTX – Ethernet XFMR CTx (Common Tap) Power supply.
29	VDD	P	**3.3 V** supply voltage
30	GND	P	**Ground**: 0 V reference

Table 8: J2 pinout

31	ETH_LED1	O	**Ethernet LED1** – Ethernet Link Activity LED indication (active High). A 1000 Ohms serial resistor is already placed. Please connect to GND in SPI slave mode.
32	ETH_LED2	O	**Ethernet LED2** – Ethernet Link Speed LED indication (active Low). 100 = on, 10 = off. A 1000 Ohms serial resistor is already placed. Please connect to GND in SPI slave mode.
33	RSVD		Reserved, do not connect.
34	RSVD		Reserved, do not connect.
35	RSVD		Reserved, do not connect.
36	RSVD		Reserved, do not connect.
37	G-PHY_GPIO[7]	I/O O	**GPIO 7** — General purpose digital input/output pin. SSP_MISO — Master in slave out in SPI slave mode
38	G-PHY_GPIO[8]	I/O I	**GPIO 8** — General purpose digital input/output pin. SSP_MOSI — Master out slave In in SPI slave mode.
39	G-PHY_GPIO[6]	I/O I	**GPIO 6** — General purpose digital input/output pin. SSP_SSEL — Slave select (chip select) input in SPI slave mode.
40	G-PHY_GPIO[5]	I/O I	**GPIO 5** — General purpose digital input/output pin. SSP_SCK — Serial clock input in SPI slave mode
41	RSVD		Reserved, do not connect.
42	RSVD		Reserved, do not connect.
43	RSVD		Reserved, do not connect.
44	RSVD	P	**3.3 V** supply voltage
45	RSVD		Reserved, do not connect.
46	RSVD		Reserved, do not connect.
47	RSVD		Reserved, do not connect.
48	nReset	I	**nRESET** – External reset input: A LOW on this pin resets the device, causing I/O ports and peripherals to take on their default states, and processor execution to begin at address 0.
49	VDD	P	**3.3 V** supply voltage
50	GND	P	**Ground**: 0 V reference

Table 8: J2 pinout

3 Integration into existing products

3.1 PIN multiplexing

All interfaces share a common set of pins to the mainboard. The individual functions are programmable depending on customer's needs. Multiplexed processor pins are routed 1:1 to module interface. Not all interface functions are available simultaneously. The module uses a suggested default functionality in delivery status which will be sufficient in most applications.

3.2 Configuration of the devolo Green PHY module V2

The modification of the functionality can be done via boot strapping of 3 GPIOs or parameter information block ("PIB"); all relevant documentation and tools for modification can be found under https://github.com/devolo/dlan-greenphy-sdk/tree/master.

3.2.1 GPIOs 0..2 – configuration via boot strapping

Every GPIO serves two purposes:

- Configuration via boot strapping (GPIOs 0..2 will be latched during the positive edge of the reset signal.)
- Functionality during runtime; e. g.
  - LED driver functionality (output; the maximum LED current should be limited to 12 mA (GPIOs 0..3) or 4 mA (GPIO 4..7), respectively.)
  - or pushbutton detection (input)

All GPIOs are already pulled up on the module itself and thus strapped by default to the logic level "high".

The devolo Green PHY module V2 is delivered with the suggested default functions described below.

Deviations from this default function can be made by modifying the bootstrapping of the GPIOs and/or the software configuration (PIB) at the user's own risk.

GPIO	Pull up function	Pull down function	Default runtime function
0	Boot from module flash (default)	Boot from host via SPI slave	LED for established PLC link; for LED status description, please see **Table 3: Power supply requirements**
1	Bridge from PLC to Ethernet (default)	Bridge from PLC to SPI (slave)	-
2	SPI sub mode 2 (burst command/ data) (irrelevant in case of PLC-to-Eth bridging) (default)	SPI sub mode 1 (legacy command/ data) (irrelevant in case of PLC-to-Eth bridging)	-
3	None – 10k pull-up resistor is placed.		Pairing function via push button*

Table 9: Boot strap options

*With firmware version V3.2.0, the pushbutton pairing was removed by the chip manufacturer. It is expected that future firmware versions will support this function again.

Default runtime function – GPIO-0

During normal usage the module boots from its own onboard flash. Nonetheless, a user could decide to boot from a host CPU (via SPI slave interface). Only in that case, this GPIO should be strapped to low during boot time. For that purpose, a 2.7k-Ohms pull-down resistor must be placed at pin 11 of connector J2. In addition to that, a 2.7k-Ohms pull-down resistor must be placed at pin 12 of connector J2 to enable SPI-slave functionality (please see **Chapter Default runtime function – GPIO-1**).

After booting is completed, this GPIO is used as an LED driver with states as described below and shall be connected as seen in this **Chapter** in **Figure 6**.

Function / GPIO-O	Behaviour / GPIO-O
Traffic via powerline	LED blinking on/off (0.06 sec <-> 0.06 sec)
Device in PLC pairing mode (searching for partner)	LED blinking on/off (0.5 sec <-> 0.5 sec
Device is sole member in PLC network	LED blinking on/off (2 sec <-> 2 sec)
Device paired but without traffic (idle)	LED on

Table 10: GPIO-0 settings

Default runtime function – GPIO-1

GPIO-1: During normal usage the module serves as a bridge between PLC and Ethernet. If a user wants to change this default functionality to bridging between PLC and SPI (slave), this GPIO should be strapped to low during boot time. For that purpose, it is mandatory to place a 2.7k-Ohms pull-down resistor at pin 12 of connector J2. During runtime this GPIO is not used per default and can be left unconnected.

Default runtime function – GPIO-2

The strapping of this GPIO is only used when bridging between PLC and SPI is enabled (please see **Chapter Default runtime function – GPIO-1**). Otherwise (bridging between PLC and Ethernet) the strapping is irrelevant.

If a user wants to change this default functionality to bridging between PLC and SPI (slave), this GPIO switches between legacy and burst mode. During runtime this GPIO is not used per default and can remain unconnected.

Default runtime function – GPIO-3

With firmware version V3.2.0, the pushbutton pairing was removed by the chip manufacturer. It is expected that future firmware versions will support this function again.

GPIO-3: During runtime this GPIO is used per default to interpret the states of a pushbutton. The security pushbutton provides an easy method for pairing two or more GreenPHY-devices. By pressing the pushbutton for a short period of time the pairing is initiated (please see **Table 11: GPIO-3 settings**). When the pushbutton is pressed the pushbutton pin is pulled to ground (logical '0') and shall be connected as seen in **this Chapter** in **Figure 7** (Push button wiring)**.**

Cases / GPIO-3	Press button / GPIO-3
Start pairing sequence	0.5 sec < Tp < 3 sec
In case of already started pairing sequence: Terminate pairing sequence	0.5 sec < Tp < 3 sec
Device is configured with random new network password	5 sec < Tp < 8 sec
Factory reset	10 sec < Tp < 15 sec

Table 11: GPIO-3 settings

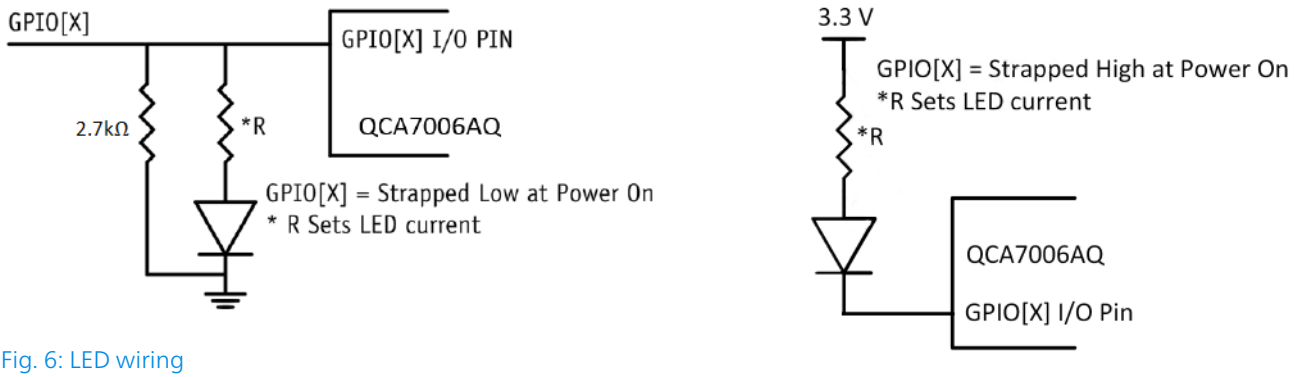


Fig. 6: LED wiring

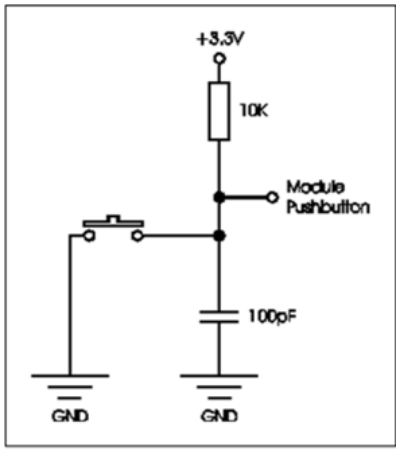


Fig 7: Push button wiring

3.2.2 Zero Cross

In the case of coupling to the AC line, the devolo Green PHY module V2 has an integrated analog Zero crossing detector that detects when the 50 Hz or 60 Hz AC powerline voltage crosses through zero volts.

In the case of not coupling to the AC line leave the ZC pin (please see **Table 8: J2 pinout** (**pin 9**)) open (floating) and connect the ZC-GND-Pin (please see **Table 8: J2 pinout** (**pin 10**)) to GND.

In case of coupling to the AC line, please see **Figure 11 and 12** in **Chapter 3.6 APPLICATION 3 — coupling PLC signals and Zero cross to the module for Communication over Pilot (CP)** (coupling PLC signals and Zero cross to the module for Communication over Pilot (CP)/symmetrical DC decoupling).

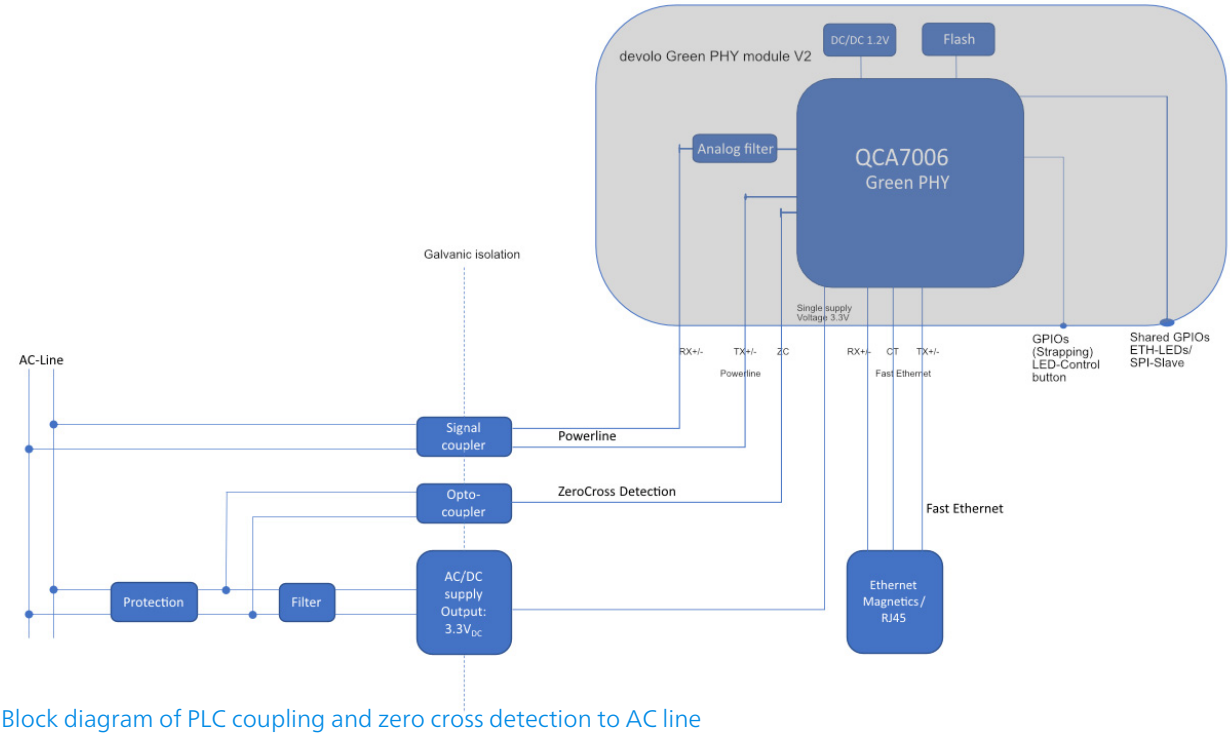


Fig 8: Block diagram of PLC coupling and zero cross detection to AC line

3.3 Serial signals

The signals SERIAL_0 to SERIAL_4 represent the SPI signals. The following table contains the SPI function for each signal.

Signal name	SPI function
Serial_0 (G-PHY_GPIO[4], see **Table 8: J2 pinout**)	Interrupt
Serial_1 (G-PHY_GPIO[5], see **Table 8: J2 pinout**)	CLK
Serial_2 (G-PHY_GPIO[6], see **Table 8: J2 pinout**)	CS
Serial_3 (G-PHY_GPIO[7], **Table 8: J2 pinout**)	MISO
Serial_4 (G-PHY_GPIO[8], see **Table 8: J2 pinout**)	MOSI

Table 12: SPI signals

The devolo Green PHY module V2 uses Motorola SPI mode 3: CPOL=1, CPHA=1. SPI should be used in burst mode, meaning that the chip-select signal is kept low during a complete SPI message. The SPI CLK period should not be less than 83.3 ns resulting in a maximum clock frequency of 12 MHz.

3.4 APPLICATION 1 – Coupling MDI signals to the module

The used 10/100Mbps fast Ethernet transceiver on the devolo Green PHY module V2 supports full- or half-duplex, Auto MDI/MDIX function, IEEE 802.3u auto-negotiation and is fully compliant with IEEE 802.3/802.3u/802.3az.

A 10/100 Base-TX magnetics and RJ45 connector is connected to the MDI interface of the devolo Green PHY module V2. It is also possible to use a RJ45 connector with integrated 10/100 Base-TX magnetics.

The application is completed with a reset controller, status LEDs, pushbutton and decoupling circuit. The power supply must provide a DC voltage of 3.3V. Therefore, in this application no hazardous voltages need to be handled.

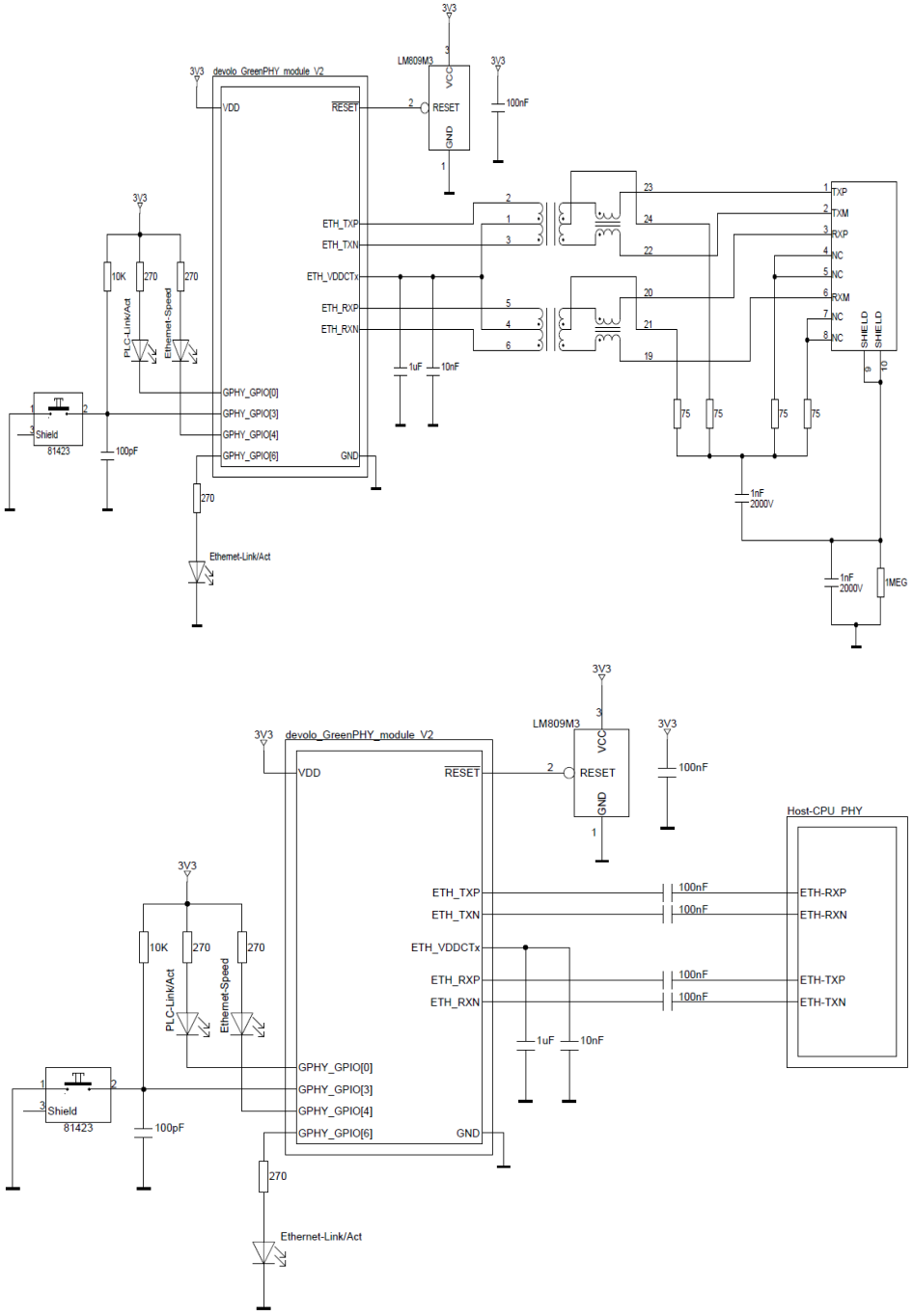


Fig. 9: Schematics of application 1: MDI signal coupling

3.4.1 Functionality of Ethernet LED

ETH_LED 1 (pin31 on connector J2)	
Static: Logic high (TTL)	No Ethernet link detected
Static: Logic low (TTL)	Ethernet link detected; no traffic
Logic high and Logic low alternating (600ms/600ms)	Ethernet link detected AND traffic active

Table 13: Ethernet_LED 1

ETH_LED 2 (pin32 on connector J2)	
Static: Logic high (TTL)	10Base-T detected
Static: Logic low (TTL)	100Base-T link detected

Table 14: Ethernet_LED 2

To achieve optimum performance and low EMI following guidelines should be considered:

- Place decoupling capacitors as close as possible to the devolo Green PHY module V2
- Use at least a 4-layer stack board and assign signal traces on component and bottom side, power plane on third layer and ground plane on second layer.
- Keep ground region as one continuous and unbroken plane.
- Avoid signals path parallel to clock signals. If possible, use guard traces to protect clock traces.
- Keep high speed MDI signal traces as short as possible.
- Route the devolo Green PHY module V2RXP/RXN TXP/TXN signal traces as 100 Ohms differential pairs.
- Route the MDI TXP/TXN, RXP/RXN signal traces as 100 Ohms differential pairs.

3.5 APPLICATION 2 – Coupling PLC signals and Zero cross to the module

This application example shows the required signal coupling circuitry and zero cross detection for communication over the power line. MOV and GDT in series is the first transient protection stage and limits large voltage spikes. For 230V AC networks at least a 300V AC MOV should be used.

The AC zero cross detector is based on an opto-isolator to provide the required safety isolation between the power line and the low voltage secondary circuitry. The LED of the opto-isolator is connected to the power line in series with a high value resistor and capacitor.

The emitter of the phototransistor connects to low voltage ground and the collector to ZC-IN pin. In this application, leave ZC_GND_pin unconnected.

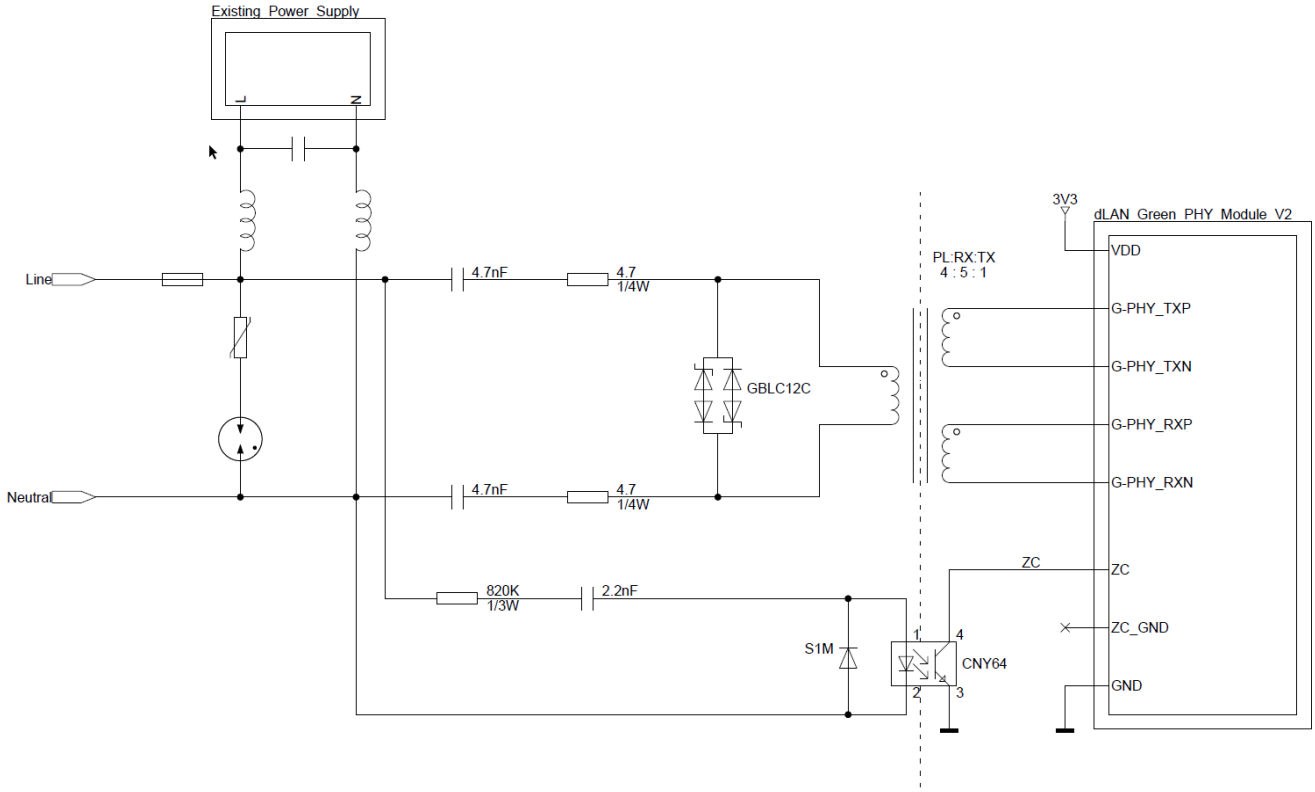


Fig. 10: Schematics of application 2 – PLC coupling and Zero cross detection

3.6 APPLICATION 3 — coupling PLC signals and Zero cross to the module for Communication over Pilot (CP)

This application example shows the required signal coupling circuitry and zero cross detection for communication over Pilot (CP). For pilot lines with 100Ohms line impedance, two resistors of 24.9 Ohms must be equipped on the TX path. The value depends on the specific application scenario. Furthermore, to prevent diode clipping the GBLC clamping voltage needs to be adjusted to fit the output power level.

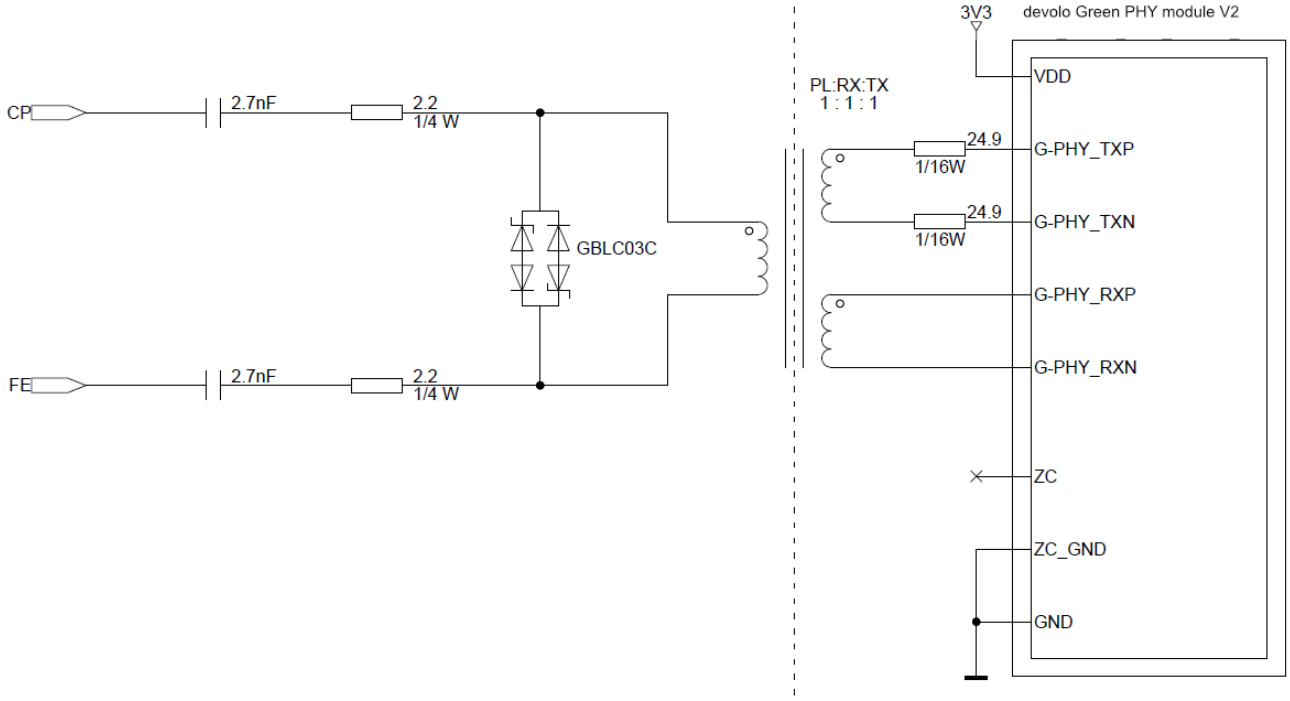


Fig. 11: Schematics of application 3—coupling PLC signals and Zero cross to the module for Communication over Pilot (CP)

If functional Earth (FE) is connected to protected Earth (PE), the CP DC decoupling may be done asymmetrically. The requirements on PE/FE e. g. for safety distances and ampacity must correspond to the applicable safety standard.

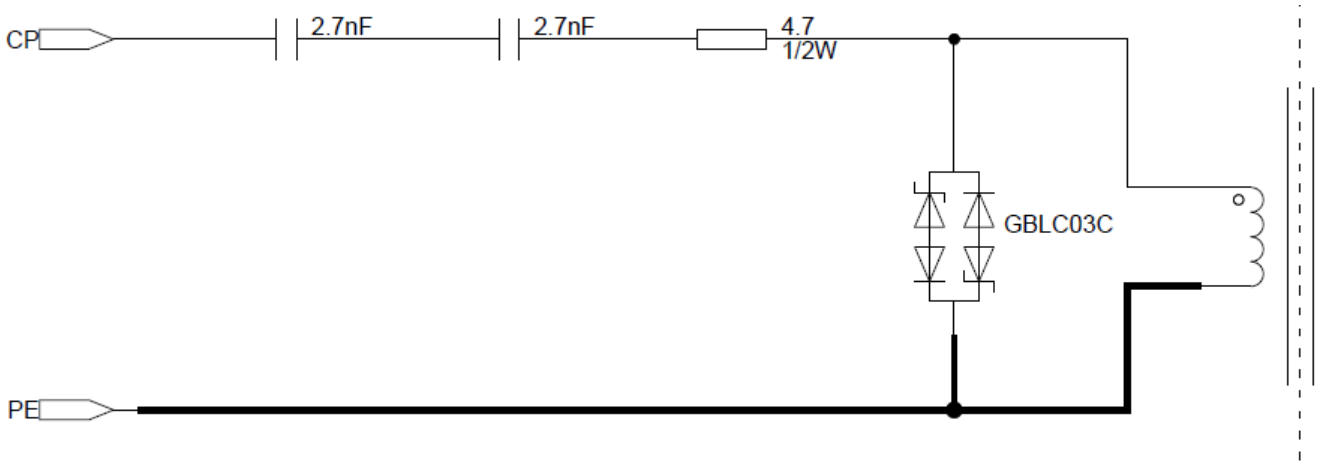


Fig. 12: Asymmerical DC decoupling for application3

Suitable Signal Transformers

For choice of a suitable signal transformer, please contact your module supplier. Numerous transformers are available differing in size, overvoltage category, winding ratio etc.

3.7 Firmware and MAC addresses

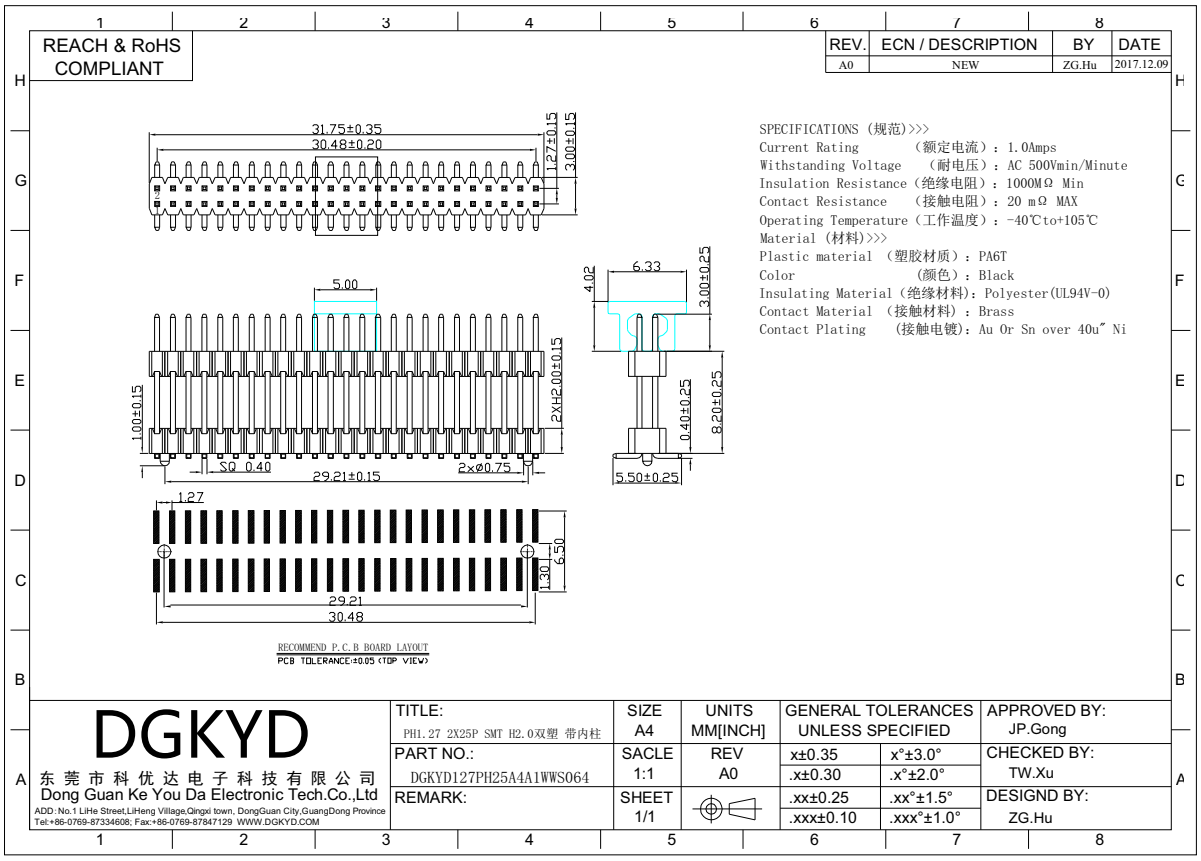
The modules are originally pre-programmed with firmware and parameter information block (PIB). The PIB contains – amongst others – the MAC address of the module, prescaler values defining the output power as well as settings for automotive use of the QCA7006 (SLAC).

The following PIB variants are available:

- Variant 1: Data transfer over mains; CE-conformity (50561 on; SLAC off) / **delivery status**
- Variant 2: General IOT scenario; optimised for performance (50561 off; SLAC off)
- Variant 3: For use in e-mobility scenario as charging station (50561 off; SLAC on; EVSE mode)
- Variant 4: For use in e-mobility scenario as vehicle (50561 off; SLAC on; PEV mode)

The CE conformity only applies to the original combination of software/firmware and hardware that has been put on the market and supported by devolo GmbH. If deviating configurations are used, CE conformity is no longer guaranteed.

3.8 Technical drawings



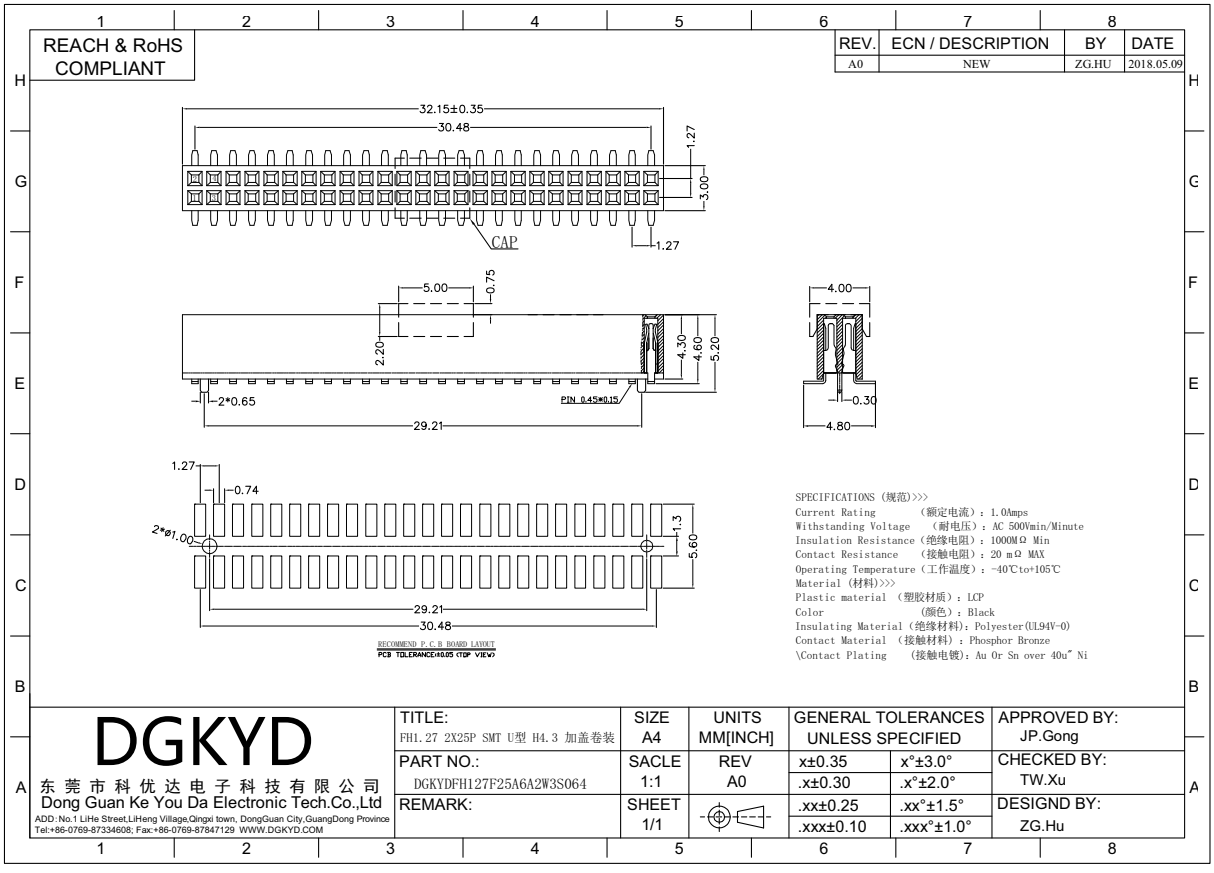


Fig.13: Technical drawings

4 Appendix

4.1 Manufacturer contact

More information of the devolo Green PHY module V2 can be found on our website www.devolo.global.

For further questions and technical issues, please contact our support via

- e-mail: support@devolo.com

or

- hotline. Our hotline numbers can be found on our website www.devolo.global/support-contact.

4.2 Revisions

Revision	Modification	Release date
1	original issue	October 2023
2	Fig. 13 updated	December 2023

Table 15: Revisions

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Germany

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