

DK-EVAL-04

IQRF development kit

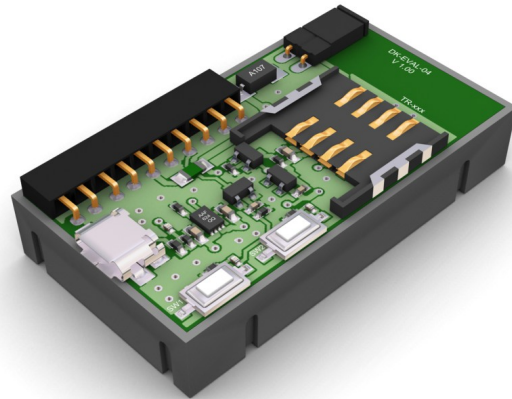
User's Guide



Description

DK-EVAL-04 is a universal development kit for wireless applications with IQRF transceiver modules. Very small size, LiPoL accumulator and low cost make this kit ideal for use in networks.

A user-specific functionality can be implemented by software in internal TR module.



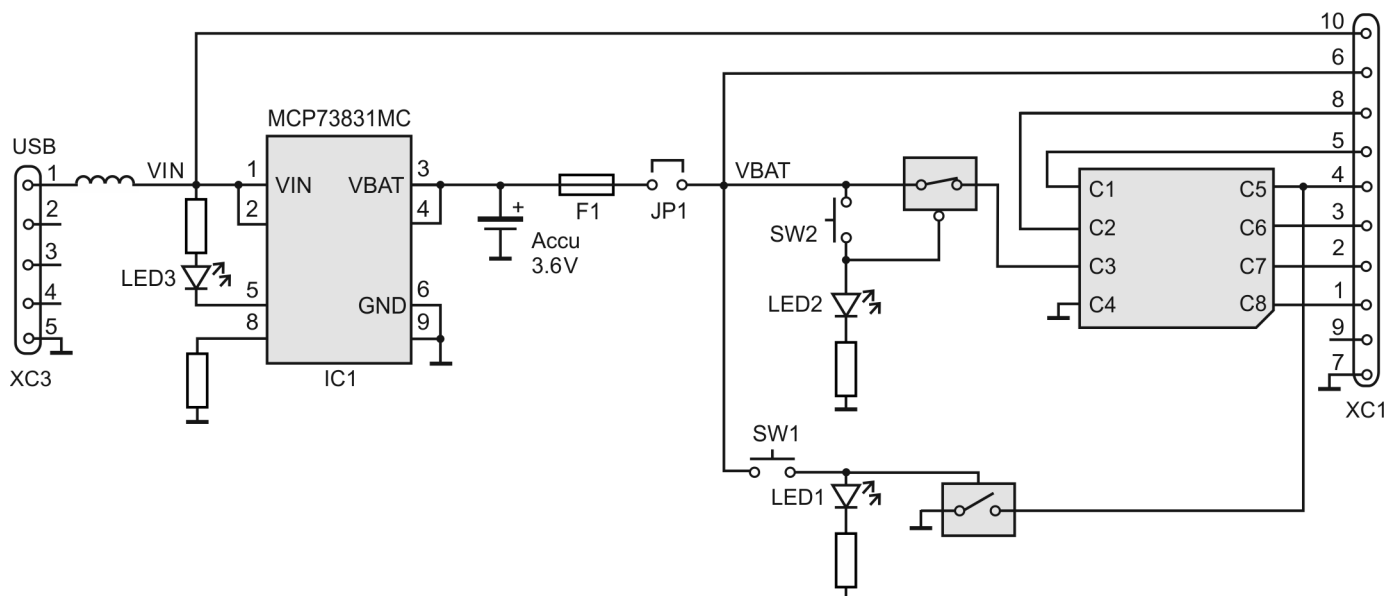
Applications

- Wireless applications development
- Host for IQRF TR modules
- Huge IQMESH networks debug and testing
- Battery powered and portable wireless systems

Key features

- SIM connector with metallic holder for TR module
- 2 pushbuttons, wake-up on button press capability
- 3 indication LEDs
- 6 I/Os
- LiPoL accumulator and internal charger. Charged via microUSB connector
- Accumulator over-current protection
- Voltage output to supply low power peripherals, sensors etc.
- Optional DK-PWR-01 power supply board to support operation and charging up to 5 kits available
- Compatible with IQRF DDC kits (Development Daisy Chain)
- Space saving

Simplified circuit diagram



Electrical specifications*(Typical values unless otherwise stated)*

Power supply	
Accumulator	LIP552240, 400 mAh, nominal voltage 3.7 V
External source	
via micro USB connector (with charging)	4.4 V to 6.0 V DC
via XC1 connector, pin 6	According to power supply range of TR module used
Supply current	
sleep	250 nA (powered from accumulator, jumper JP1 disconnected)
charging	50 mA max.
Temperature	0 °C to +45 °C (operating), +10 °C to +25 °C (storage)
Supported TR modules	TR-52B, TR-53B, TR-52D, TR-55D and similar types, in SIM card format
Dimensions	48 mm x 27 mm x 11 mm
Weight	17 g

Absolute maximum ratings

Stresses above those values may cause permanent damage to the device. Exposure to maximum rating conditions for extended periods may affect device reliability.

Power supply (from external source)	6.0 V
Storage temperature	-20 °C to +60 °C

Hardware

Power supply

DK-EVAL-04 is supplied from internal accumulator or from external power source via micro USB connector XC3 which also serves as a charger. The TR module is supplied when jumper JP1 is set. Charging is indicated by LED3. The accumulator is protected against over-current by resettable fuse SN035-16.

The accumulator should be kept charged.

For external power source also connector XC1 (pins 6 and 7) can be used.

Jumper JP1 must be disconnected in this case.

Pushbuttons

- User pushbutton SW1 is connected to pin C5 of the TR module, active low. Therefore, the TR module should have the C5 pin configured as input with internal pull-up. It is arranged by OS by default. Wake-up on change or interrupt on change on this pin can also be configured by user software.
- Reset pushbutton SW2 TR module is disconnected from power supply when the SW2 pushbutton is pressed.

LEDs

- LED1 and LED2 are on when the appropriate pushbutton is pressed.
- LED3: charging indication. LED3 is on during charging and switched off when fully charged.

SIM connector

Caution: TR-56D and similar TR types intended for soldering must not be used due to metallic SIM holder.

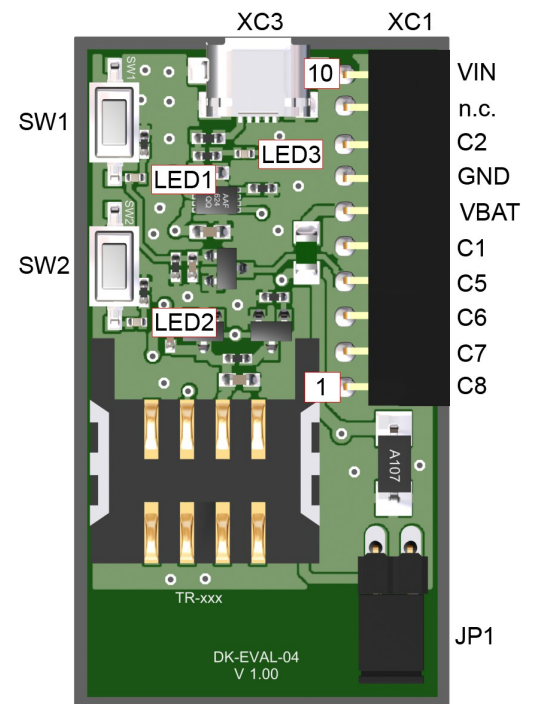
Caution: The TR module can be plugged / unplugged into / from the SIM connector while powered off only.

Tip: Use the SW2 pushbutton for this. The TR module is disconnected from power while the SW2 pushbutton is held.

Interface connector

Interface connector XC1 makes SIM I/O pins, power supply and ground accessible externally. It is compatible with IQRF DDC development kits.

Caution: DK-EVAL-04 PCB layout is optimized for space savings during development of network applications with a lot of nodes on a table. Thus, this kit is not intended for range tests using TR modules with internal PCB antenna (e.g. TR-52DA, the range would be shortened in this case). For range test use e.g. TR-52D and an external antenna.



Product information

Pack list

- DK-EVAL-04 kit (without a TR-module)
- Accumulator (soldered) inside
- 1 jumper (power on switch)

Recommended options

- TY-A6A Power supply with USB A connector
- CAB-USBABMICRO-100 Cable for TY-A6A power supply
- DK-PWR-01 Power supply expansion board (to supply and charge up to 5 DK-EVAL-04 kits)

Ordering code

- DK-EVAL-04 IQRF universal development kit

Document history

- 140124 Revised. Document file renamed from MNDKEVAL04 to User_Guide_DK-EVAL-04.
- 120926 Temperature range corrected.
- 120921 Accumulator voltage range added. Bug in pin 6 description fixed.
- 120208 Bug in description of XC1 and XC3 connectors fixed. New power adapter.
- 110419 Caution concerning range test added
- 110210 First release

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