

# **DDC-SE-01**

**IQRF Development Daisy Chain**

**Sensor kit**

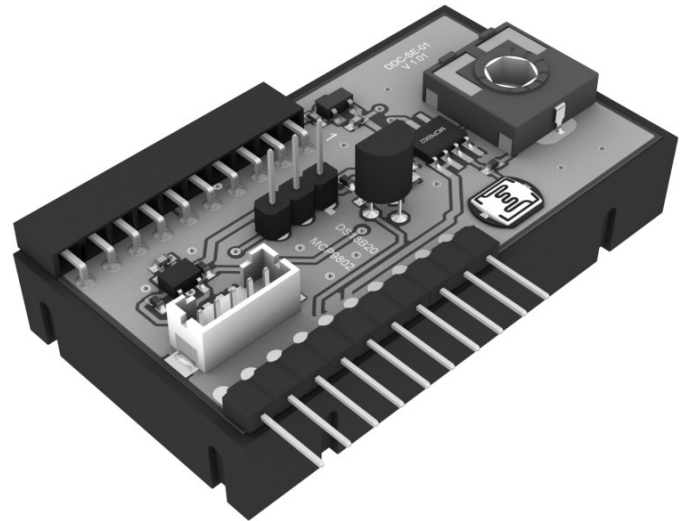
**User's Guide**



## Description

A sensor development kit for IQRF wireless applications with transceiver modules (TR) plugged in DK-EVAL-04 kit. Compatible with other DDC (Development Daisy Chain) kits.

Ready-to-use examples are available demonstrating how to use I<sup>2</sup>C and Dallas 1-wire buses and A/D converter inside TR to measure temperature, voltage etc.



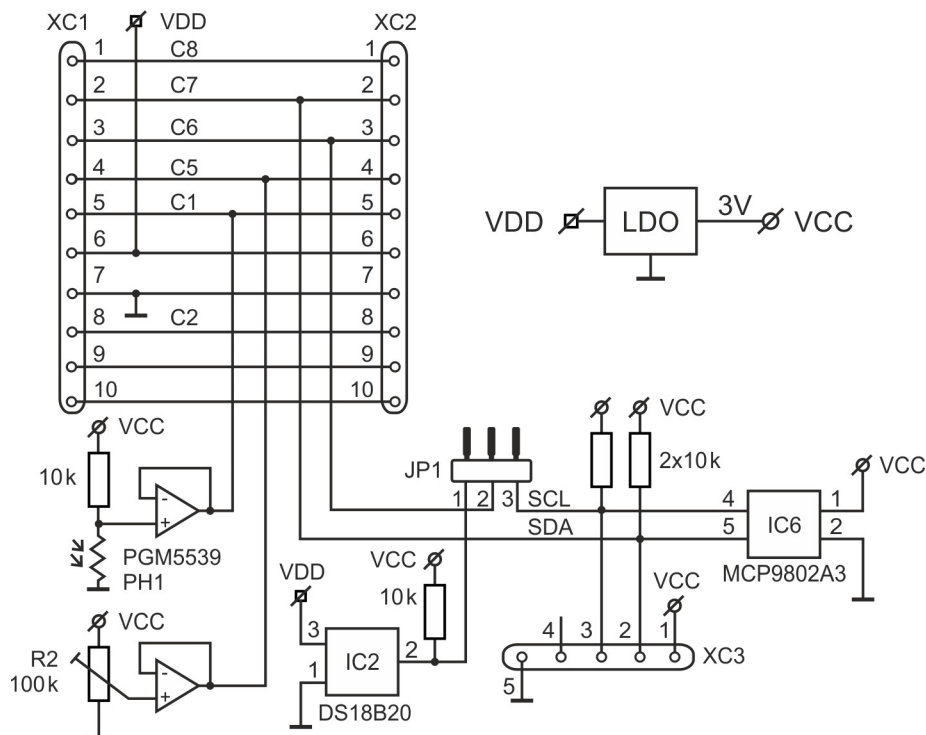
## Applications

- Development of IQRF applications
- I<sup>2</sup>C and Dallas 1-wire bus demonstration
- A/D measurement demonstration

## Key features

- Compatible with other IQRF DDC kits
- Supplied from DK-EVAL-04
- I<sup>2</sup>C temperature sensor
- I<sup>2</sup>C bus connector to access external peripherals
- Dallas 1-wire temperature sensor
- Light intensity measurement using a photoresistor
- Voltage measurement using a potentiometer
- Internal voltage LDO regulator

## Simplified schematics



## Electrical specifications

(typical values unless otherwise stated)

Power supply (VDD)	3.2 V to 5.5 V DC
Internal supply voltage (VCC)	3 V
Supply current (when peripherals inactive)	650 $\mu$ A
Temperature range	0 °C to +70 °C
Dimensions	48 mm x 27 mm x 11 mm
Weight	10 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.

Supply voltage:	6.0 V
Storage temperature:	-40 °C to +85 °C

## Hardware

### Power supply

DDC-SE-01 should be supplied from DK-EVAL-04 via connector XC2.

### Interface connectors

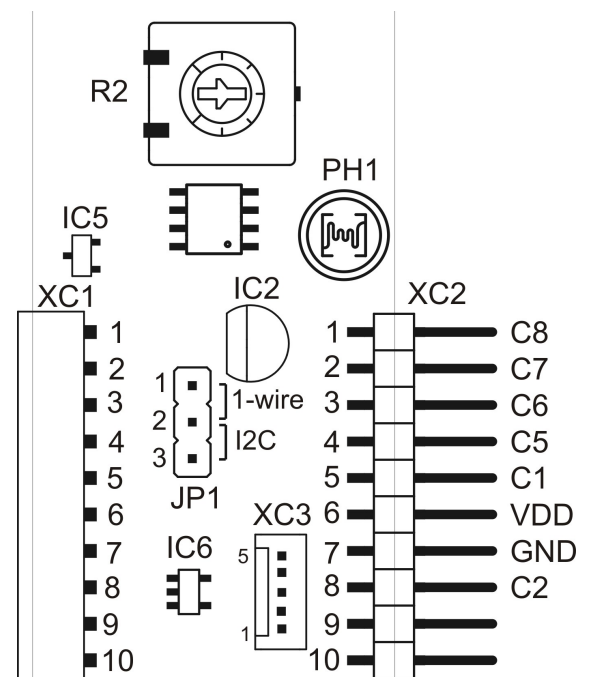
The XC2 male connector with square 0.635 mm, 2.54 mm pitch pins is intended for I/Os and power supply.

Corresponding XC1 female connector serves for interconnection with other DDC kits.

XC3 is a 1.25 mm pitch miniature connector DF13C-5P (Hirose). Mating Hirose cable connector: DF13-5S (plastic shell), DF13 crimp contacts.

### Internal peripherals

- **I<sup>2</sup>C temperature sensor:** MCP9802A3 (Microchip) with fixed I<sup>2</sup>C slave address 10010110 (in binary).
- **1-wire temperature sensor:** DS1820B20 (Dallas).
- **Photoresistor:** PGM5539 by Token. Resistance 30-90 k $\Omega$  at 10 lux, dark resistance 5 M $\Omega$ .
- **Potentiometer:** The potentiometer is intended for voltage measurement using the A/D converter inside the MCU on the TR transceiver.



### Caution

To enable correct functionality of the pushbutton SW1 on the DK-EVAL-04(A) kit connected, the potentiometer shaft must be in the intermediate position.

### External I<sup>2</sup>C peripheral

- External I<sup>2</sup>C device should be connected via the XC3 connector. It must have I<sup>2</sup>C slave address different from 10010110 (in binary).

### Jumper JP1

- In position 1 – 2 enables 1-wire sensor.
- In position 2 – 3 enables I<sup>2</sup>C temperature sensor and I<sup>2</sup>C external bus.

Refer to datasheets of used devices.

## Software

Ready-to-use examples are available in the Startup package at [www.iqrf.org](http://www.iqrf.org).

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**Product information**

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**Pack list**

- DDC-SE-01                    DDC sensor kit

**Recommended options**

- DK-EVAL-04                IQRF development kit for TR modules
- DDC-IO-01                 DDC input/output kit
- DDC-RE-01                DDC relay kit
- DF13-5S                    Cable connector fitting to XC3
- DF13                        Crimp contacts for cable connector fitting to XC3

**Ordering code**

- DDC-SE-01                IQRF sensor DDC kit

**Document history**

- 180918                      Photoresistor type changed. Chapter *Potentiometer* with the caution regarding the impact on the pushbutton on DK-EVAL-01(A) added.
- 160203                      The value of pull-up resistor on Dallas bus added to simplified schematics.
- 110415                      First release

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## Sales and Service

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### Quality management

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