

IQRF OS

Operating System

version 2.10

User's/Reference Guide Supplement



Simple way to smarter wireless solutions

Document history

This document is just a temporary supplement to IQRF OS v2.09 User's guide and Reference guide. It describes new features of OS v2.10. It will be replaced by IQRF OS v2.10. User's guide and Reference guide.

Compatibility

TR module	current OS	modulation
TR-11A	v2.08	ASK
TR-21A v1.02 and v1.03	v2.08	ASK
TR-31B	v2.10	ASK
TR-32B	v2.10	ASK

IQRF OS versions and history

Version	Main differences	Release	Status
v2.10	<ul style="list-style-type: none"> concept of OS plug-ins RF power not limited during bonding green LED support 	Dec 2009	current for TR-31B and TR-32B
v2.09	<ul style="list-style-type: none"> minor change in first falling to Sleep mode bonding robustness increased 	Jul 2009	not for new designs
v2.08	<ul style="list-style-type: none"> broadcast message support added 	Oct 2008	current for TR-11A and TR-21A
	<ul style="list-style-type: none"> implemented in TR-31B modules 	Nov 2008	
v2.07	<ul style="list-style-type: none"> bug in the setLoggingOff() function fixed Wake-up on pin change improved. To utilize it, the sequence GIE = 0; RBIE = 1; is required just before iqrfSleep(). 	Sep 2008	not for new designs
v2.06	<ul style="list-style-type: none"> minor change in routing 	Aug 2008	not for new designs
v2.05	<ul style="list-style-type: none"> higher RF noise immunity corrected transfer of MPRWx while not routing several minor bugs not affecting module functionality corrected 	Aug 2008	not for new designs
v2.04	<ul style="list-style-type: none"> setNetworkFilteringOn() switches just packet from active network (1 or 2), non-networking communication ignored Wake-up on pin change under user's control. Default disabled. To enable, set RBIE = 1 before iqrfSleep(). Not compatible with previous versions (permanently enabled in Sleep up to v2.03). 	Jul 2008	internal release only
v2.03	<ul style="list-style-type: none"> BufferCOM size increased from 35B to 41B Number of nodes in one network increased from 128 to 239 Minor bug in routing fixed 	Jul 2008	not for new designs
v2.02	<ul style="list-style-type: none"> minor SPI bug fixed 	May 2008	not for new designs
v2.01	<ul style="list-style-type: none"> function wipeBondNR() added function batteryValueOK() added 	Mar 2008	not for new designs
v2.00	<ul style="list-style-type: none"> Much more effective, easier to use, higher performance Networking totally reworked. Extended capability. Complete IQMESH. SPI on background Encoded network communication Indirect RAM access Temperature measurement supported by OS Supports user application debugging directly by IQRF OS Many other improvements IDE – complete development environment with all SW tools integrated including effective debug tools 	Jan 2008	not for new designs
v1.14	previous generation	Jul 2007	not for new designs

IQRF transceiver modules allow **upgrades** to current OS versions. This service must be done by the manufacturer.

Functions

LED indication functions are extended for two LEDs with shared time base: LEDR (red, connected to the _OUT2 pin) and LEDG (green, _OUT1). Functions `pulsingOUT2()`, `pulseOUT2()` and `stopOUT2()` are renamed to `pulsingLEDR()`, `pulseLEDR()` and `stopLEDR()`. Macros delivered with the IQRF examples ensure compatibility for older names.

RF power is not limited during bonding. To avoid influence on other modules, bonding can be performed on minimal distance with RF power lowered by the user.

LED indication	
<code>setOnPulsingLED(ticks)</code>	LEDR and LEDG On times setting (for blinking)
<code>setOffPulsingLED(ticks)</code>	LEDR and LEDG On times setting (for blinking)
<code>pulsingLEDR()</code>	LEDR activation (blinking on background)
<code>pulseLEDR()</code>	single LEDR pulse (one flash on background)
<code>stopLEDR()</code>	LEDR off, blinking stopped
<code>pulsingLEDG()</code>	LEDG activation (blinking on background)
<code>pulseLEDG()</code>	single LEDG pulse (one flash on background)
<code>stopLEDG()</code>	LEDG off, blinking stopped
Bonding - Node	
bit <code>bondRequest()</code>	request for bonding. RF power not affected.
Bonding - Coordinator	
bit <code>bondNewNode()</code>	bonding a Node. RF power not affected.

Concept of OS plug-ins

IQRF operating system can be extended via optional plug-ins.

Plug-in is a SW module delivered (typically by the IQRF manufacturer) as a file with the `.IQRF` extension. It should be uploaded to the TR module by the IQRF IDE and an IQRF programmer (e.g. CK-USB-02). The procedure is similar to uploading a user program.

Plug-ins can be located in the part of memory dedicated to OS (2 Kword) or in user part of memory (up to 1 Kword). More plug-ins can be used at the same time.

To utilize a plug-in, corresponding header files (with the `.H` extension, also delivered with the plug-in) should be included to source program similarly to other system header files.

Example: `#include "plug-ins/PlugInXY.h"`

Then all plugged-in functions are available like standard system ones.

Users are allowed to create their own plug-ins. The IQRF manufacturer offers custom plug-in conversion from `.HEX` to encrypted `.IQRF` format.

Documentation and information

IQRF website www.iqrf.org

IQRF OS User's guide www.iqrf.org/weben/downloads.php?id=83

IQRF OS Reference guide www.iqrf.org/weben/downloads.php?id=84

IQMesh specification www.iqmesh.org/iqmesh

SPI specification www.iqrf.org/weben/downloads.php?id=85

TR-31B datasheet www.iqrf.org/weben/downloads.php?id=92

TR-32B datasheet www.iqrf.org/weben/downloads.php?id=94

TR-52B datasheet www.iqrf.org/weben/downloads.php?id=91

TR-21A datasheet www.iqrf.org/weben/downloads.php?id=93

TR-11A datasheet www.iqrf.org/weben/downloads.php?id=95

PIC16LF88 datasheet www.iqrf.org/weben/downloads.php?id=127

PIC16LF886 datasheet www.iqrf.org/weben/downloads.php?id=126

IQRF IDE www.iqrf.org/weben/downloads.php?id=86

Basic examples (included in the StartUp Package) www.iqrf.org/weben/downloads.php?id=112

IQRF support site www.iq-esupport.com

A lot of additional information is available on the IQRF website. If you need a help please visit the IQRF support pages and submit a ticket with your request.

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The IQRF products utilize several patents (CZ, EU, US)

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