RF module system "Proline2" for Combio- XXX MHz, RolTop-XXX MHz

For: transceiver modules TMWA for Combio, RolTop

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1. Description of the product

The RF modul for using as transceiver in different products (Combio- XXX MHz, RolTop-XXX MHz)
based on the transceiver chip CC1101 (TI) with antenna matching networks .
The CC1101 module is controlled by a application MCU via SPI using a protocol stack for RX and TX mode
for the RF communication, only in the bidirectional application mode the CC1101 will be used as
transmitter and receiver simultanously. All TX- and RX transmissions for bidirectional communication
are packet oriented for short transmission times and use suitable LBT and CCA processes.

1.1 technical specifications

1.1.1 Duty cycle estimation
   a)   Transmitting specification Proline2 remote controls

Size of data protocol	41 Byte	min.(1 Destination or Group)
(including PHY)	68 Byte	max. (10 Destinations)
transfer rate packet mode	76.800 Bps	
transfer PHY	~~869,525 MHz/ deviation 32 kHz /RBW 210 kHz or~~	
	918,300 MHz/ deviation 32 kHz/ RBW 210 kHz	
Traffictime (time to air)	min. 4,3 ms / data protocol	
	max. 7,1 ms / data protocol	
Normally volume of traffic:	**</= 8 x traffic events/d** by user about transmitter	
	(= 0,33 traffic events per hour)	

   b)   Transmission modes
-   Broadcast transmission (group > 10 destinations, no routing path)
    ⇨   transmission of max. 1 * data protocol (4,3 ms)
    ⇨   **< 5 ms** / user initiated event
-   Unicast for 1 destination
    ⇨   transmission of max. 2 * data protocol (2 * 4,3ms, cut off > 100 ms between sendings)
    ⇨   **< 9 ms** / user initiated event
-   Unicast for 10 destination
    ⇨   transmission of max. 2 * data protocol (2 * 7,1 ms, cut off > 100 ms between sendings)
    ⇨   **< 15 ms** / user initiated event

   c)   Estimation of duty cycle (<u>worst case</u>)
-   Broadcast (group)
    max. traffic time = 5 ms
    ⇨   max. traffic time * Normally volume of traffic per hour = 5 ms * 0,33 **= 0,0016 s / h**
-   Unicast for 1 destination
    max. traffic time = 9 ms
    ⇨   max. traffic time * Normally volume of traffic per hour = 9 ms * 0,33 **= 0,003 s / h**
-   Unicast for 10 destinations
    max. traffic time = 15 ms
    ⇨   max. traffic time * Normally volume of traffic per hour = 15 ms * 0,33 **= 0,005 s / h**

Files	Project	Author	Rev. No.	Rev. Date
technical files_RF system Proline2	Proline2 UL	PRR		11.02.2013