PE3001 UHF Logger

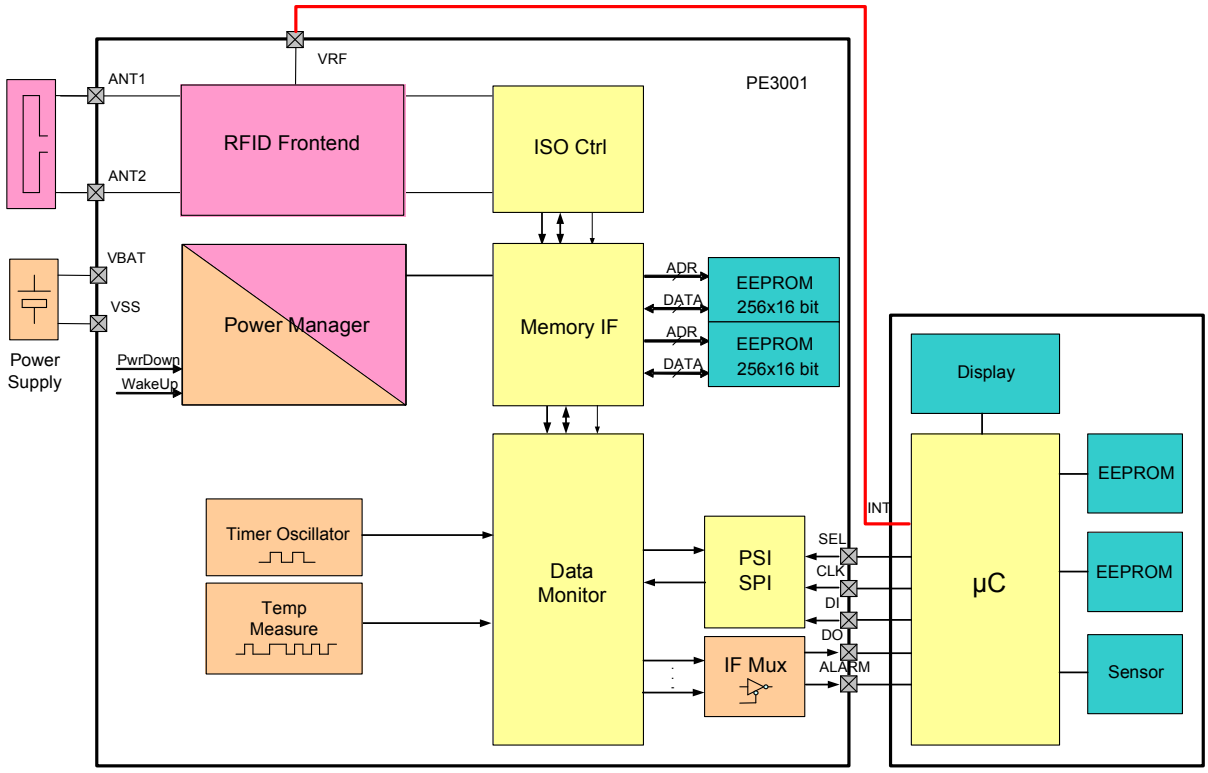
Application Note

Connect to µC via SPI

SERMA PRODUCTIVITY ENGINEERING

General

This proposal presents a possible principal application to connect the PE3001 with any µC via SPI.



It is important to design a zero load connection between VRF and INT. VRF is load limited and must not be tight to a high voltage potential, e.g. on a pull-up port. Typically a source follower or Schmitt-trigger can be used between VRF and INT. The microcontroller usually has a CMOS input, which in this case can also be driven directly.

The following procedure is possible to communicate through the RFID interface to a µC:

1. Define a range of addresses in USER-Bank (e.g. TRANS0_F) to read and write transferred data.
2. Define an address (e.g. COMM) in USER-Bank as communication process interface:
   - e.g.: 01h read data via RFID from USER-Bank (TRANS0_F),
     02h write data via RFID to USER-Bank (TRANS0_F),
     03h data via RFID transferred to USER-Bank (TRANS0_F),
     04h data via RFID transferred from USER-Bank (TRANS0_F),
     05h read data via SPI from USER-Bank (TRANS0_F),
     06h write data via SPI to USER-Bank (TRANS0_F),
     07h data via SPI transferred to USER-Bank (TRANS0_F),
     08h data via SPI transferred from USER-Bank (TRANS0_F),
     00h transfer ended or no transfer necessary,
   … what ever more is necessary for internal communication

3. Procedure for Communication:
   - Data to µC from RFID
     - RFID write data to TRANS0_F
     - RFID write 03h on address COMM in USER-Bank
     - µC if VRF=0 (red line on block diagram, Interrupt detected), read address COMM via SPI
     - µC if data on COMM = 03h, read TRAN0_F, write 08h on address COMM in USER-Bank
     - RFID procedure was repeated or RFID write 00h to COMM for transfer end
   - Data to RFID from µC
     - µC write data to TRANS0_F via SPI
     - µC write 07h on address COMM in USER-Bank
     - RFID polling read address COMM
     - RFID if data on COMM = 07h, read TRAN0_F, write 04h on address COMM
     - µC procedure was repeated or µC write 00h to COMM for transfer end
   - there are more possible transfer procedures for a handshake communication between RFID and µC

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