PRECISE DAIRY FARMING

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SCR

LD Module SPECIFICATIONS

[CONFIDENTIAL]

Meir D.

Version 0.1

Version History:

0.10	Initial version

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LD Module FCC ID: AMULDBUMODULE

Manufacturer: SCR Engineers Ltd.
This device complies with Part 15 of the FCC Rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference, and
(2) this device must accept any interference received, including interference that may cause undesired operation**.**

The FCC Wants You to know

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
-Reorient or relocate the receiving antenna.
-Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.

FCC Warning

Changes or modifications to this equipment not expressly approved by the party responsible for compliance (SCR Engineers Ltd.) could void the user's authority to operate the equipment

1 Global system specifications

All units are for outdoor use, required Radio regulations according to target market & Low voltage 24VDC regulation (except for tags which powered by internal battery).

Target market

- Europe (EU), Swiss, Norway
- USA, Canada
- Eastern/North Europe (Belarus , Ukraine, Baltic states & All former Soviet union republic)
- South/Center America (Brazil, Argentina, Chile, Columbia, Peru, Ecuador, Mexico)
- China
- Japan
- Vietnam
- South Korea
- India
- New Zealand
- Australia
- South Africa
- Turkey
- Israel

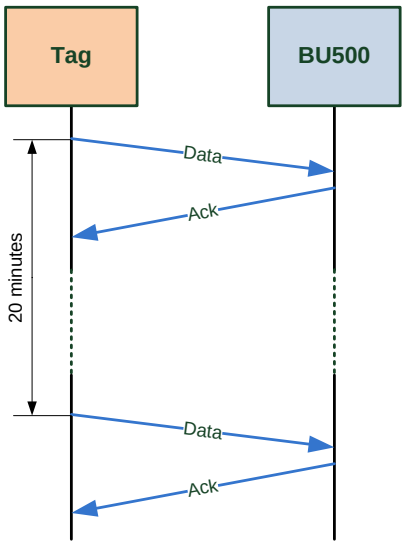
1.1 System components

LD Module – RF module of BU-500

BU-500 – LD Base unit, with 10BASE‑T/100BASE-TX Ethernet network interface.
H-TAG-LD – Activity based tag with RF transceiver & IRDA receiver.
HR-TAG-LD – Activity & Rumination based tag with RF transceiver & IRDA receiver.
IDU530 – Tag identification unit with CAN-Bus network interface, IRDA transmitter & 2.4GhZ Receiver ONLY.
IDU510 – Tag identification unit with SCR C.L. network interface, IRDA transmitter & 2.4GhZ Receiver ONLY.
BU-500E – LD Base unit, with RS-485 network interface.

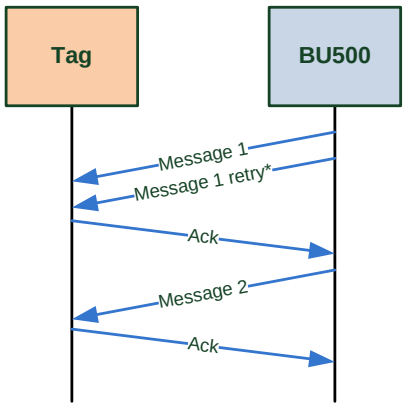
1.2 TAG/IDU/BU communication overview

Tag initiate sending data

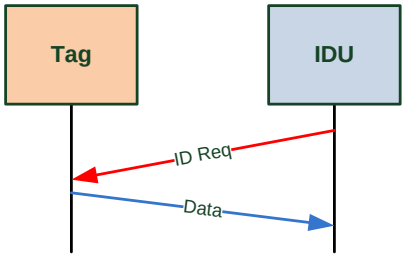


No retries when tag sends data

BU initiate sending messages



*When no ACK from tag



Only IDU can initiate ID request

Legend:
Optic
RF

2 LD Module of BU-500

LD Module FCC ID: AMULDBUMODULE

RF Transceiver: Atmel AT86RF230
RF Frequency: 2.4GHz
Modulation type: QPSK
RF Channels: 16 RF Channels
Baud Rate: 250K Bit/Sec (Not configurable)
RF Module output power: 3dBm

BU-500 (Base Unit) is a unit used to collect messages from tags and send them to central management system.
The unit replies to each tag upon receiving a message. They unit is also used to set various tag parameters and to update software inside the tag.

Outdoor unit powered from 24V DC via external AC to DC PS – 110/220VAC.

2.1 BU-500 Units contains Internal Antenna

Internal Antenna type: Internal diversity patch antenna, ~10dBi, directional
Antenna gain: ~12dBi (Max gain: 15dBi)

Average RF data: 3 messages/hour, 1mSec/message, ~30bytes/message per tag.
Option to connect External antenna with same parameters

2.2 LD Module Options

Option 1: Direct assembly on BU-500 board with connection to antenna by coax cable.

Option 2: Direct assembly on the antenna with connection to BU-500 board by flat cable