

DeLaval Activity System (Receiver)

Dual frequency usage

Two variants are produced, one 418 MHz and one 433 MHz, they use the same design, only part list differs.

Both versions use a 12 MHz crystal oscillator, no other oscillator.

Power supply

12 VAC is feed to the unit; the following voltages are present on board:

- Rectified, unregulated DC
- Linear regulated +10 VDC
- Linear regulated +5 VDC
- Linear regulated +3.3 VDC

Leds

Three leds are used on the board and visible for the end user:

- One green for power on
- One yellow for indication of communication on the ALCOM bus
- One red for indication that a message has been received and decoded by the PIC

ALCOM bus

The receiver communicates with other DeLaval equipment trough the standard DeLaval system bus, called ALCOM bus. It's a 2-wire bus isolated with transformer, token passing to avoid collisions.

The bus is realized with one ASIC, that also has an oscillator to which a 12 MHz crystal is connected. The ASIC has a 12 MHz output clock signal that feeds the 8051 and PIC.

8051/external memory/watchdog and straps

The 8051 microcontroller is responsible for communication with other DeLaval equipment on the farm, the 8051 has external memory. Straps are used to set the Alcom bus node address.

An external watchdog circuit resets the 8051 if not kicked approx. every 1.6 seconds.

PIC

The PIC microcontroller is responsible for the RF message decoding.

Antenna connector / Filter / Amplifier / RF Receiver

Antenna connector: BNC connector, connection to an external antenna, 50Ω impedance.

Signal from antenna first passes a bandpass filter then an amplifier and in the end the signal goes into the RF Receiver, with a 50Ω impedance matching net between each stage.