



# DeLaval milking automation

BM213 BM204 IOM200 IOM400 CCM215 DM223

## Instruction Book

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# 1 Safety precautions

DeLaval milking automation, BM213 BM204 IOM200 IOM400 CCM215 DM223

## 1. Note to operator

It is the operator's responsibility to see that any person involved with the use or operation of this equipment follows all safety and operational instructions. Under no circumstances should this equipment be used if the equipment is faulty or the operator does not completely understand the operation of the equipment.

## 2. Disclaimer

The information, instructions and parts listed are applicable and current on the date when issued. DeLaval reserves the right to make changes without notice.

## 3. Definitions of admonishments

Admonishments are safety related warning messages.

Admonishments provide important information intended to prevent incorrect or hazardous use of equipment, machinery or software, and support risk assessment. The following list defines the different types of admonishments used in DeLaval documentation:

**Danger:** Refers to imminent and severe risk. Failure to comply with instruction will result in serious injury or death.

**Warning:** Refers to a potential but severe risk. Failure to comply with instruction could result in injury or death.

**Caution:** Refers to a limited risk. Failure to comply with instruction could result in minor injury.

**Mandatory:** Refers to an action or behavior which is essential to safe and successful use of the equipment.

**Prohibited:** Refers to an action or behavior which is incompatible to safe and successful use of the equipment.

**Note!** Is intended to draw attention to specific points of importance in the text and advice to prevent equipment damage.

#### 4. Safety regulations



**Warning!**

**Intended use**

Do not use the equipment for any other purposes than the intended use.



**Warning!**

**Risk of injury!**

The system must only be operated by trained personnel. Make sure that children and unauthorised people do not come into contact with the system.



**Mandatory!**

Read the instructions carefully before using the equipment. Contact the local DeLaval dealer if there are parts of these instructions that are not understood. Compliance with the instructions ensures a correct and safe use of the equipment. Save the instructions for future reference.

**Prohibited!****Do not use inadequate parts or consumables.**

Using products which do not meet specified requirements, for example spare parts or consumables, or not appropriately trained personnel for the DeLaval product may lead to risks or damage. Consequently it may also void or limit the warranty.

**Mandatory!**

Disconnect the electrical supply before removing shields, covers or guards.

**Caution!**

Never clean the equipment with a high pressure cleaner or any other jet of water. The equipment is sensitive and can be destroyed by the high pressure.

**5. Safety labels on the equipment****Warning!****Keep safety signs legible!**

Read all the safety signs on the machine and in this manual. Replace any lost or damaged signs. Keep safety signs clean and legible at all times.

## **2 Regulatory**

### **2.1 FCC Statement**

**NOTE:** This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Changes or modifications to the equipment not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

To comply with FCC/IC RF exposure limits for general population / uncontrolled exposure, the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from any persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

### **2.2 ISED Canada Statement**

This Device complies with Industry Canada License-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage ; (2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

### 3 General description

The milking automation family (currently) consist of the modules BM213, BM204, IOM 200, IOM400, CCM215, DM223. All units have the same technical base, when it comes to supply voltage (24V DC), physical dimensions and mechanical interface (footprint). All devices in the family are equipped with a blue tooth radio (BLE 4.2) and all modules have the same environmental class, IP56

However all modules have their area of use.

### 4 Function description

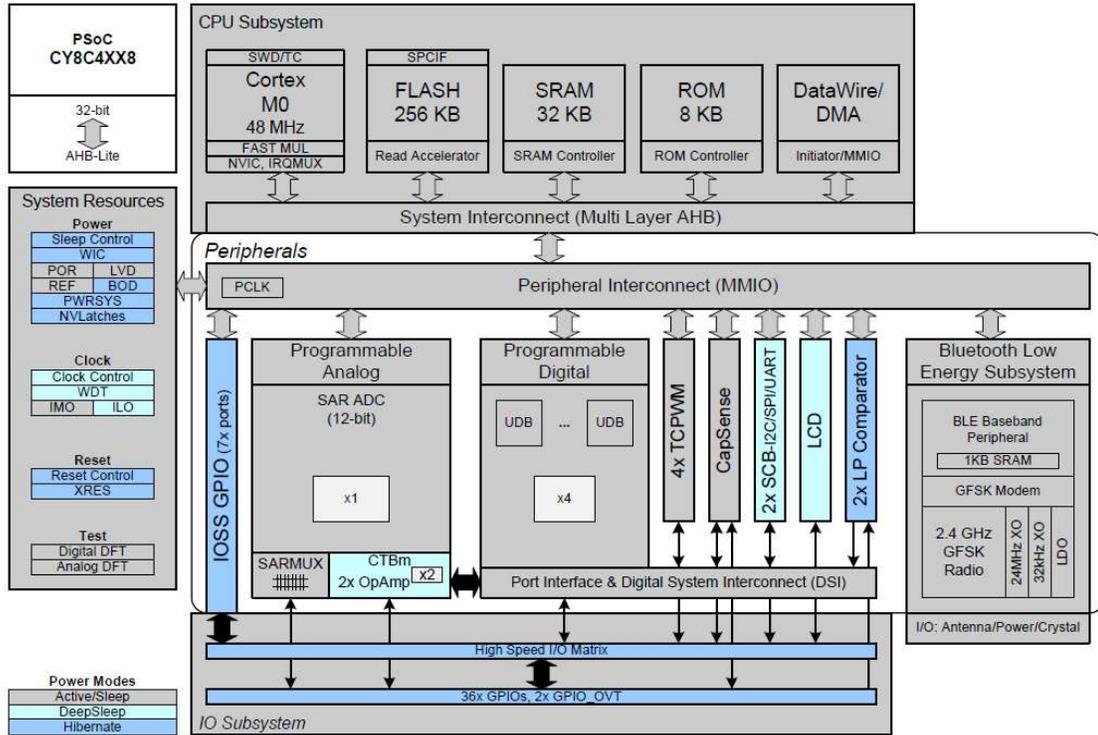
#### 4.1 General technical data

Operate at 24VDC +10% and -20%. Supply from LPS
Power consumption, max 7W
Temperature range +4 °C to + 40 °C
Dimensions 120*107*51 mm
IP class 56

#### RF CHARACTERISTICS OF THE TRANSMITTER

Frequency range	2402 – 2480 MHz (ISM band)
Number of channels	40
Channel BW	1 MHz
Category	Receiver category 2
Classification	Equipment for fixed use
Operating modes	Transceiver
Types of modulation	GFSK
Rated output power	Maximum 4 dBm EIRP

## BLOCK SCHEMATIC CYPRESS PSoC4 WITH BLE RADIO



Not valid for SPM006

### 4.2 Technical Data BM213, BM204, IOM 200

The BM213 IOM200 and BM204 are based on the same electronic board and design (PCBA), differences are within the setup of buttons and application software. All I/O and interfaces are the same.

Name	I/O	Buttons
BM213	12 Input/output channels, BLE radio	1 large 3 small
BM204	12 Input/output channels, BLE radio	4 small
IOM200	12 Input/output channels, BLE radio	None

### 4.3 Technical Data DM223

The DM223 is a display unit for MMI communication B/W display and touch buttons

Name	I/O	MMI
DM223	12 Input/output channels, BLE radio	3 Touch buttons and a B/W display

#### 4.4 Technical Data IOM400

The usages IOM400 is controlling different motor applications, typical feeding applications.

Name	I/O	MMI
IOM400	12 Input/output channels, BLE radio	None

#### 4.5 CCM215

The CCM215 are used for linking local buses (Lin bus) from multiple modules, typical on 1 bus you connect 3 pcs. of BM213 modules + 3 pcs. of IOM200 + 3 pcs. of DM223 so you get 9 units on 1 bus (maximum 10 devices on one bus is allowed). All local busses are then connected to 1 Ethernet bus, via a 10mbit RJ45 connector. Typical you connect up to 45 devices to 1 CCM215.

Name	I/O	MMI
CCM215	1 Ethernet + 5 Local bus	None

## 4.6 Photographs

Photographs of the modules

Front picture of the IOM200/CCM215 and BM213





DM223



BM204

Picture of the back of the modules



## 5 Standards

RED 2014/53/EU Annex 5	
Electromagnetic Compatibility	EN 301 489-01:V2.1.1 (2017-02) EN 301 489-17:V3.1.1 (2017-02) EN 55032:2012 + AC:2013
Radio Characteristics	ETSI EN 300 328 v2.1.1 (2016-11)
Information technology equipment – Safety	IEC 60950-1:2005 (Second Edition) + Am 1:2009 + Am 2:2013
FCC	FCC Part 15.247 Frequency Hopping Transmitters / Digital Transmission Systems
IC, Canada	Industry Canada RSS-247, Issue 2 Low Power License-Exempt Radio communications Devices