# **RF Modules**



## **Technical Operating Manual**

RF\_01.01\_08.10\_EN

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### PREMISE

This manual contains all the instructions for connecting and programming the radio module as well as all the information necessary for its correct functioning.

In thanking you for the acquisition of this module, we want to call to your attention some aspects of this manual:

- This booklet is only intended to supply useful instructions for the operation and the programming of the radio module to which it refers; the manufacturing firm declines any responsibility derivable from possible weighing errors.
- The person responsible for using the radio module must make sure that all safety rules in force in the country of its use should be applied, in order to guarantee that the equipment is used in conformity with the use for which it is destined and avoid any dangerous situation for the user.
- This booklet must be considered as an integral part of the radio module and must be included with the deed of sale;
- Neither this publication, nor part of it, can be reproduced without written authorization on the part of the manufacturing firm.
- All of the information reported herein is based on data available at the moment of printing; the manufacturing firm reserves the right to carry out modifications to its own products at any moment, without notice and without any sanction. It is therefore suggested to always verify possible updates.



This instrument is covered under warranty provided that **IT HAS NOT BEEN OPENED BY THE USER** for any reason. Any attempt to repair or alter the unit can expose the user to the danger of electric shock and it will void our warranty. If any problem with the unit or system has been experienced please notify the manufacturer or the dealer from which the instrument was acquired.

#### Do not pour liquids on the device

Do not use solvents to clean the device

#### Do not expose device to either direct sun light or any heat sources

### READ CAREFULLY & APPLY WHAT DESCRIBED IN THE POWER SUPPLY & START-UP SECTION

Do not install in an environment with any risk of explosion

# All the connections of the device have to be made respecting the rules applicable in the zone and in the installing environment



The crossed-out wheeled bin on the product means that at the product end of life, it must be taken to separate collection or to the reseller when a new equivalent type of equipment is purchased. The adequate differentiated refuse collection in having the product recycled, helps to avoid possible negative effects on the environment and health and supports the recycling of the materials of which the equipment is made. The unlawful disposal of the product by the user will entail fines foreseen by the current regulations.

### **1. MAIN TECHNICAL SPECIFICATIONS**

The product of this manual is a multi channel radio module, with performance up to 25 mW of power in the 868 MHz ISM band (unlicensed frequency band).

### **SPECIFICATIONS:**

POWER SUPPLY	5-12Vdc 100mA max
OPERATING TEMPERATURE	From -10 to +40 °C.
TIMING	Power Up Sequence: 135 ms Enter in Serial Stand-by: 3.2 ms Wake Up from Serial Stand-by: 5.5ms
MAXIMUM POWER	25mW
WORK FREQUENCY	From 868 to 870 MHz
NUMBER OF CHANNELS	Up to 52
RADIO TRANSMISSION SPEED	Up to 38.4 kbps
SERIAL TRANSMISSION SPEED	Up to 19.2 kbps
INPUT/OUTPUT	1 RS232 PORT on AMP connector or 1 USB port (with a 1m long USB cable fitted), depending on the model.
FUNCTIONING DISTANCE, IN APPROPRIATE CONDITIONS	Up to 70m indoors, up to 150m outdoors
CONTAINER	Box in PVC (depending on the model)
ANTENNA	Swivelling and inclinable

### 2. INSTALLATION

### 2.1 CONNECTION

#### 232 MODEL

Please find below the connection of the radio module to PC through the 6-way AMP connector

C	ONNECTION TO PC		
	RADIO MODULE	PC 9 pin (male)	PC 25 pin (male)
	AMP 6-way (male)		
RX	1 Reception	2	3
ТХ	2 Transmission	3	2
GND	6 GND	5	7

POWER SUPPLY	
	RADIO MODULE
	AMP 6-way (male)
+VIN	4 Power supply + (5-12Vdc 100mA max)
GND	6 Power supply -

#### **USB MODEL**

To connect the radio module to PC through the USB connector, use a USB cable; the radio module will be auto-powered by PC.

### 2.2 DRIVER FOR USB CONNECTION

With the use of an RF module with a USB connector, one should install the drivers necessary for the communication.

The following procedure will explain how to install the driver needed from the PC, and the creation of the virtual COM port.

#### NOTES

- The minimum requirement of the PC operating system must be Windows XP.
- Do not disconnect the USB during the installation.
- 1) Save the driver in a folder on the PC.
- 2) Connect the radio module to a free USB port of the PC through a USB cable.
- 3) The operating system detects automatically the USB, then it asks for the driver to be used: if the request for the driver search on Internet appears, **click no** and then continue on.

Found New Hardware Wiz	zar d	
	Welcome to the Found New Hardware Wizard Windows will search for current and updated software by looking on your computer, on the hardware installation CD, or on the Windows Update Web site (with your permission). Read our privacy policy	
	Can Windows connect to Windows Update to search for software? Yes, this time only Yes, now and <u>e</u> very time I connect a device No, not this time	
	Click Next to continue.	
	KBack Next > Cancel	

4) Select the second option ("install from a specific folder") and go ahead.



5) Set the path of the folder which contains the driver previously saved and go ahead.

Found New Hardware Wizard			
Please choose your search and installation options.			
⊙ Search for the best driver in these locations.			
Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.			
Search removable media (floppy, CD-ROM)			
Include this location in the search:			
C:\usb_drivers_ver020406 Browse			
O Don't search. I will choose the driver to install.			
Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.			
< <u>B</u> ack <u>N</u> ext > Cancel			

6) Confirm the following message (if present):



und New Hardware Wizard Please wait while the wizard installs th	he software.	15	
USB Serial Converter			
Ď	Ø	B	
FTLang.dll To C:\WINDOWS\system:	32		
		1 North	Para



- 7) The first installation is complete: confirm the window.
- 8) The PC proceeds with the second installation: repeat the operations in the same way as previously mentioned.
- 9) The device is now ready to use: a virtual COM port will be automatically created; to check the port number open the Windows Device Manager:



10) In the example, the COM3 can be used as a standard serial port of the PC.



The radio module, including the antenna, must not be put inside a metal container or near metallic parts or devices.

The antenna must be put far from the electronic parts which can cause disturbances.

It is advisable to put the radio module not too close to the ground.

2.3

Maintain a minimum distance of 3m between the modules having the same radio channel, and a minimum distance of 10 m between the modules having a different radio channel.

Verify the presence of the necessary adequate environmental conditions in order to guarantee the desired performance, being wary of the radio signal attenuation factors shown in the following table:

Factor / Environment	Signal loss in %	
Open space	0	
Window	15	
Thin walls or of medium thickness	from 35 to 50	
(i.e. plasterboard or wood)		
Walls, floors, or thick or armoured	from 60 to 80	
attics		
Rain or fog	95	

### **3. MAIN FUNCTIONS**

- Configuration of communication parameters and programming of the module
- Saving the configuration on a file
- Restoring the configuration from a file.
- Reception of the configuration from the module

### 4. PC MINIMUM REQUIREMENTS

- Pentium 4 with 256 Mb Ram
- 200 MB of empty space on disk
- Windows XP operating system
- Monitor with 800x600 minimum resolution, 256 colours
- A RS232 serial port.
- Installation of the following components:
  - Microsoft .net Framework 2.0. Careful: larger or smaller frameworks do not support the application.

### **5. PROGRAM INSTALLATION**

1) By launching the installation file, the following screenshot will appear:

Installer	Language	×
$\overline{\mathbf{N}}$	Please select a language.	
	English	*
	OK Cancel	

Select the language to be used in the installation wizard and press on "OK" to continue.



3) Follow the installation steps; at the end the following window will appear:

🕿 RFTool Setup		
E DINI ARGEO	Installation Complete Setup was completed successfully.	
Completed		
Nullsoft Install System v2.39 -	< <u>B</u> ack	Cancel

4) Click on "Close" to end the procedure; it's now possible to open the RFTool using the connection created on the desktop.

### 6. LANGUAGE SELECTION

1. Launch the software, the following screenshot will appear:

Dini-Argeo RF Tool 01.0	01.00		
DINI ARG	EI ·ms	(	((())
Configuration Report Language Configuration Report LastConfig.xml Configuration Description	ve Save ation Configuration	) La Config	oad uration
Parameter	Value	Units	^
Radio Frequency Sub-Band	1f (868-868.6 MHz)		
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
Radio Channel	Channel 0	1200	
Serial Port Baud Rate	9600	bps	1000
Low power mode: Serial Timeout	20	ms	v
COM Port Badio Channel			
COM1 Channel 0	Wizard	Prog Mod	ram ule
			12

2. Click on the language button shown in the previous figure; the following window will appear:

Language	
English	<b>~</b>
Cancel	ОК

Select one of the available languages to view the descriptions of the checks in the desired language, and confirm with "**Ok**" or press "**Cancel**" to not save; by confirming with "**OK**", the selected language will be automatically enabled.

### 7. QUICK CONFIGURATION

Through the quick configuration it is possible to quickly select one of the radio channels available in the selected sub-band, leaving the other parameters at the values set in the open configuration.

In the case that a greater number of channels is requested, one should carry out the advanced configuration procedure described in the following section.

#### **PROCEDURE:**

**1.** Launch the software; with each start of the programme, the last executed configuration is opened automatically, and it will be automatically saved in a file at the closing of the programme (see last section).

At the first start, the file contains already a factory configuration, with the following parameters:

DINI ARG		(	((
Configuration Report LastConfig.xml Configuration Description	ve Save ation Configuration	) Lo Config	ad uratio
Parameter	Value	Units	
Radio Frequency Sub-Band	1f (868-868.6 MHz)		
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
	Channel 0	1200	
Radio Channel		DDS	
Serial Port Baud Rate	Displied		
Serial Port Baud Rate Low power mode: Serial Timeout	Disabled	ms	~
Serial Port Baud Rate Low power mode: Serial Timeout	Disabled 20	ms	2
Serial Port Baud Rate Low power mode: Serial Timeout COM Port COM1 Channel 0	Disabled 20 Wizard	ms Progr Modu	am ule
Serial Port Baud Rate Low power mode: Serial Timeout COM Port COM1 Channel 0	Disabled 20 Wizard	ms Progr Modu	am ule

2. Select the "Serial Port" of the PC to which the radio module is connected:

Beceiv	ve Save		ad
Language Configura	ation Configuration	Config	uration
Configuration Report			
Loniguration Report			
_LastConfig.xml			
Configuration Description			
· -			
Parameter	Value	Units	~
Badio Frequency Sub-Band	1f (868-868 6 MHz)	and the second second	
riddio i roddorio, odb baria	(000 000.0 Militz)	2511	
Badio Output Power	25	mw	
Radio Output Power Badio Bit Bate	25 19.2	kbps	
Radio Output Power Radio Bit Rate Radio Channel	25 19.2 Channel 0	mw kbps	
Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate	25 19.2 Channel 0 9600	mw kbps bps	
Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode:	25 19.2 Channel 0 9600 Disabled	mw kbps bps	
Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout	25 19.2 Channel 0 9600 Disabled 20	mw kbps bps ms	~
Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout	25 19.2 Channel 0 9600 Disabled 20	mw kbps bps ms	~
Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout COM Port Radio Channel	25 19.2 Channel 0 9600 Disabled 20	mw kbps bps ms Progr	ram

3. Select the "Radio Channel" in the combined box shown in the previous figure;

RF

Dini-Argeo RF Tool 01.0	1.00		
DINI ARG			((p)
Configuration Report LastConfig.xml Configuration Description	ve Save ation Configuration	Config	ad uration
Parameter	Value	Units	~
Radio Frequency Sub-Band Badio Output Power	1f (868-868.6 MHz) 25	mW	
Radio Bit Rate Badio Channel	19.2 Channel 0	kbps	
Serial Port Baud Rate	9600 Disabled	bps	-
Serial Timeout	20	ms	~
COM Port Radio Channel COM1 Channel 0	Vizard	Prog Mod	ram ule
Exit			0

4. Connect the radio module to the PC and press on the "Module programme"; the following window will appear

DINI ARG	EU ems		
Configuration Report LastConfig.xml Configuration Description	ration Save Configuration	) Lo Config	ad uratior
Parameter	Value	Units	~
Parameter Radio Frequency Sub-Band	Value 1f (868-868.6 MHz)	Units	^
Parameter Radio Frequency Sub-Band Radio Output Power	Value 1f (868-868.6 MHz) 25	Units mW	Ŷ
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate	Value 1f (868-868.6 MHz) 25 19.2 Character 9	Units mW kbps	^
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Band Bate	Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600	Units mW kbps	^
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate	Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600 Disabled	Units mW kbps bps	• • • • • • • • • • • • • • • • • • •
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout	Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600 Disabled 20	Units mW kbps bps ms	~
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout COM Port Radio Channel	Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600 Disabled 20	Units mW kbps bps ms	

After this, the following will show up in this sequence

Configuration Report				
LastConfig.xml Configuration Description				
Parameter	Valu	e	Units	^
Radio Frequency Sub-Band	1f (8	368-868.6 MHz)		
Radio Output Power	25		mW	
Radio Bit Rate	19.2	a al O	kbps	
Serial Port Baud Bate	9600	neru	bos	
Low power mode:	Disat	bled	ops	
Serial Timeout	20		ms	Y
COM Port Radio Channel			Prog	am
COM1 🔽 Channel O	~	Wizard	Mode	le
Exit Pini-Argeo RF Tool 01.0	ound at	9600		
Exit Dini-Argeo RF Tool 01.0 DINI ARG ales - Weighing syste	pund at	9600	-	
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARG ales - Weighing syste ales - Weighing syste Receir Language	ound at	9600 Save Configuration	Lo Config	ad
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARG ales - Weighing syste ales - Weighing syste Configuration Report	ound at	9600 Save Configuration	Lo Config	ad
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARG ales - Weighing syste Language Configuration Report LastConfig.xml Configuration Description	ound at 01.00 ED oms ve ation	9600 Save Configuration	Lo Config	ad
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARG DINI ARG	ve ation	9600 Save Configuration	Lo Config	aduration
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARG ales - Weighing syste Configuration Report LastConfig.xml Configuration Description Parameter Badio Frequency Sub-Band	ve ation	9600 Save Configuration	Lo Config	aduration
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARG ales - Weighing syste Configuration Report LastConfig.xml Configuration Description Parameter Radio Frequency Sub-Band Radio Output Power	ve ation Valu	9600 Save Configuration	Lo Config	aduration
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARG DINI ARG	ve ation Valu 1f [8 25 19.2	9600 Save Configuration	Units mW kbps	aduration
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARGO DINI ARGO	Valu 11.00	9600 Save Configuration e 368-868.6 MHz) nel 0	Lo Config	aduration
Exit RF Module for Dini-Argeo RF Tool 01.0 DINI ARG DINI ARG	Value	9600 Save Configuration	Units mW kbps bps	aduration
Exit RF Module for Pini-Argeo RF Tool 01.0 DINI ARG DINI ARG	Valu 11.00 Ve ation Valu 1f (E 25 19.2 Chan 9600 Disab 20	9600 Save Configuration e 368-868.6 MHz) nel 0	Units mW kbps bps ms	aduration
Exit RF Module for Dini-Argeo RF Tool 01.0 Dini-Argeo RF Tool 01.0	Valu 11.00 Ve ation Valu 1f (E 25 19.2 Chan 9600 Disat 20	9600 Save Configuration e 368-868.6 MHz) nel 0	Lo Config	aduration

If the communication is correct and the programming has gone well, otherwise

🗅 DINI ARGI			
les - Weighing syste	<b>II</b> Ems		((-
Configuration Report LastConfig.xml configuration Description	ve Save ation Configuration	) Lo Config	ad uratior
Parameter	Value	Unite	~
Badio Frequency Sub-Band	1f (868-868 6 MHz)	Oriko	
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
Radio Channel	Channel 0	0.00000	
	9600	bps	-
Serial Port Baud Rate	Disabled		
Serial Port Baud Rate	Disabica		100
Serial Port Baud Rate Low power mode: Serial Timeout	20	ms	Y

If the communication is not correct and the programming has not ended well (one should check the connections and verify the functioning of the serial line).

### 8. ADVANCED CONFIGURATION

Through the advanced configuration it is possible to modify all the module's communication parameters. **1.** Launch the software: the following window will appear:

Dini-Argeo RF Tool 01.0	1.00		
DINI ARG			0
Configuration Report LastConfig.xml Configuration Description	ve Save ation Configuration	Lo Config	ad uratior
Parameter	Value	Units	^
Radio Frequency Sub-Band	1f (868-868.6 MHz)	A Second Cont	
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
Radio Channel	Channel 0		
Serial Port Baud Rate	9600	bps	
Low power mode:	Disabled		
Serial Timeout	20	ms	Y
COM Port Radio Channel		Prom	
COM1 🔽 Channel 0	Wizard	Mode	ule
			10000
E 31			

2. Click on the "Wizard" button: the following window will appear:

"1" Dini-Argeo RF Tool 01.01.00	
DINI ARGEO Scales - Weighing systems	((m))
Configuration Wizard	Save Load Configuration
Instrument to	configure
LCS	
	< Back Next >
Exit	6

RF

- 4. In the combined box, select the type of instrument to which you want the radio module connected:
- LCS: radio module connected to LCS instruments or instruments which communicate with it; it will be possible to configure only some parameters; the other parameters will be automatically set for the correct functioning with the selected indicator. For further details, see the description of the parameters in the following point.
- Generic instrument: radio module connected to a generic DINI ARGEO instrument, PC, or other instruments; it will be possible to configure all the parameters.
- 5. Click on the "Ahead" button: the first parameter to be configured will appear.

**NOTE:** Each of these parameters is already configured by the manufacturer; the (!) symbol indicates the value configured by the manufacturer.

• RADIO BIT-RATE (radio transmission speed of the data)

"1" Dini-Argeo RF To	ol 01.01.00		
Scales - Weighing	RGEO		((p))
Configuration Wizard	Receive Configuration	Save Configuration	Load Configuration
	Radio Bit Rate		
kbps	38.4	×	
Warning will be 1	: max baud-rate allo 9200	owed on serial port	Next >
Exit			C

RADIO BIT-RATE
4.8 kbps
9.6 kbps
19.2 kbps
38.4 kbps

#### (!) 19.2 kbps

Select the desired radio speed and press on "Ahead".

#### NOTES:

- In order to communicate, the modules of the same group must have the same Radio Bit-Rate.

- The selected Radio Bit-Rate influences on the other communication parameters (see the description of the parameters for further details).

- With the LCS instrument, the parameter is not displayed and the Radio Bit-Rate is automatically configured at 19.2 kbps.

RADIO SUB-BAND FREQUENCY

1° Dini-Argeo RF To	ol 01.01.00	
Scales - Weighing	RGEO	((p))
Configuration Wizard	Receive Configuration Configu Radio Frequency Sub-	Band
	1f (868-868.6 MHz)	~
Warning this sub-	max time usage duty-cycle band Kac	is 1 % for
Exit		o

The radio band, in other words, the interval of selectable frequencies, goes from 868 to 870Mhz; it is subdivided in 9 subbands which determine specific limitations in terms of maximum power and spacing between the channels (work frequencies):

SUB-BAND	FREQUENCIES (Mhz)	Maximum Power (mW)	Channel spacing (khz)
1f	868 - 868.6	25	Not specified
7a	868.6 - 868.7	10	25
1g	868.7 - 869.2	25	Not specified
7d	869.2 - 869.25	10	25
7b	869.25 - 869.3	10	25
1h	869.3 - 869.4	10	25
1i	869.4 - 869.65	500	25 or the whole band
7c	869.65 - 869.7	25	25
1k	869.7 - 870	5	Not specified

#### (!) 1f (868 - 868.6 Mhz)

These restrictions are integrated in the same configuration of the module, which allows the only selection of the powers and the admitted channels in every sub-band.

The number of usable sub-bands vary according to the Radio Bit-Rate previously configured:

- With the Radio Bit-Rate configured at 4.8 or 9.6 kbps, the module can use any of the 9 sub-bands.

- With the Radio Bit-Rate configured at 19.2 or 38.4 kbps, the module is limited at the following 4 sub-bands:

SUB-BAND	FREQUENCIES (Mhz)
1f	868 - 868.6 Mhz
1g	868.7 - 869.2 Mhz
1i	869.4 - 869.65 Mhz
1k	869.7 - 870 Mhz

Select the desired sub-band and press on "Ahead". **NOTES:** 

- In order to communicate, the radio modules of the same group must have the same radio Sub-band and the same radio channel.

- The selected Radio Sub-band influences the other communication parameters (see the description of the parameters for further details).

- With the LCS instrument, the parameter is not displayed, and the sub-band is automatically configured at 1f (868 - 868.6 Mhz).

• BAUD RATE ON THE SERIAL LINE

1 <sup>th</sup> Dini-Argeo RF Tool 01.01.00	
Scales - Weighing systems	((p))
Receive Save Configuration Configuration	Load Configuration
Serial Port Baud Rate	
< Back	Next >
Exit	6

The maximum allowed Baud-Rate on the serial port depends on the previously set Radio Bit-Rate:

RADIO BIT-RATE	4.8 kbps	9.6 kbps	19.2 kbps	38.4 kbps
	1200 bps	1200 bps	1200 bps	1200 bps
BAUD-RATE	2400 bps	2400 bps	2400 bps	2400 bps
ON THE SERIAL	-	4800 bps	4800 bps	4800 bps
LINE	-	-	9600 bps	9600 bps
	-	-	-	19200 bps

#### (!) 9600 bps

Select the desired serial line speed and press on "Ahead".

#### NOTES:

- In order to communicate, the module and the instrument connected to it, must have the same serial line Baud-Rate.

- With the LCS instrument, the parameter is not displayed and the Baud-Rate on the Serial line is automatically configured at 9600 bps.

• RADIO CHANNEL

"1" Dini-Argeo RF T	ool 01.01.00	
Scales - Weighin	ARGEO g systems	((p))
Configuration Wizard	Receive Configuration Configur	ation Load Configuration
	Radio Channel Channel 0	
Exit	< Back	Next >

The selectable Radio Channels vary depending on the Radio Bit-Rate and the radio Sub-Band previously configured:

Sub-band	1f	7a	1g	7d	7b	1h	1i	7c	1k
Frequency (Mhz)	868 -	868.6 -	868.7 -	869.2 -	869.25 -	869.3 -	869.4 -	869.65 -	869.7 -
	868.6	868.7	869.2	869.25	869.3	869.4	869.65	869.7	870
		Ra	adio Bit-Ra	te: 4.8 kbps	s & 9.6 kbp	s			
RADIO CHANNELS	12	4	10	2	2	4	10	2	6
0 CHANNEL (MHZ)	868.025	868.6125	868.725	869.2125	869.2625	869.3125	869.4125	869.6625	869.725
SPACING (khz)	50	25	50	25	25	25	25	25	50
			Radio B	lit-Rate: 19.	2 kbps				
RADIO CHANNELS	6	-	5	-	-	-	1	-	3
0 CHANNEL (MHZ)	868.05	-	868.75	-	-	-	868.525	-	869.75
SPACING (khz)	100	-	100	-	-	-	100	-	100
			Radio B	it-Rate: 38.	4 kbps				
RADIO CHANNELS	3	-	2	-	-	-	1	-	2
0 CHANNEL (MHZ)	868.1	-	868.85	-	-	-	869.525	-	869.775
SPACING (khz)	200	-	200	-	-	-	200	-	200

#### (!) Channel 0

Select the desired radio channel and press on "Ahead".

#### NOTES:

- In order to communicate, the modules of the same group must have the same Radio Channel.

- If various groups of modules are present in the same zone, each group must be set on a different radio channel in order to communicate without interferences from other groups. It is advisable to select the channel of each group, or the farthest possible from the channel of the other groups, in order to avoid interference between the channels.

#### • RADIO SIGNAL OUTPUT POWER

1 Dini-Argeo RF To	ool 01.01.00		
Scales - Weighin	RGEO		((p))
Configuration Wizard	Receive Configuration	Save Configuration	Load Configuration
m₩	Radio Output	Power	
Exit	[	< Back	Next >

The power of the Radio Signal Output determines the maximum communication distance between the modules of the same group: higher the value, and greater is the distance which can be obtained.

The selectable powers of the Radio Signal Output vary depending on the Radio Bit-Rate Radio and the radio Sub-band previously configured:

Band	1f	7a	1g	7d	7b	1h	1i	7c	1k
<b>F</b> rancis	000	000 0	060 7	960.0	960.25	960.3	960 4	960.65	960 7
Frequency	000 -	000.0 -	000.7 -	009.2 -	009.20 -	009.3 -	009.4 -	009.00 -	009.7 -
Sub-band (MHz)	868.6	868.7	869.2	869.25	869.3	869.4	869.65	869.7	870
			Radio	Bit-Rate: 4	.8 kbps				
RADIO SIGNAL	1mW	1mW	1mW	1mW	1mW	1mW	1mW	1mW	1mW
POWER	3mW	3mW	3mW	3mW	3mW	3mW	3mW	3mW	3mW
	8mW	8mW	8mW	8mW	8mW	8mW	8mW	8mW	
	25mW		25mW				25mW	25mW	
			Radio	Bit-Rate: 9.	.6 kbps				
RADIO SIGNAL	1mW	1mW	1mW	1mW	1mW	1mW	1mW	1mW	1mW
POWER	3mW	3mW	3mW	3mW	3mW	3mW	3mW	3mW	3mW
	8mW	8mW	8mW	8mW	8mW	8mW	8mW	8mW	
	25mW		25mW						
		Ra	dio Bit-Rat	e: 19.2 kbp	s & 38.4 kb	ops			
RADIO SIGNAL	1mW	-	1mW	-	-		1mW	-	1mW
POWER	3mW		3mW				3mW		3mW
	8mW		8mW				8mW		
	25mW		25mW				25mW		

(!) 25 mW

Select the desired power and press on "Ahead.

• LOW CONSUMPTION MODE

"1" Dini-Argeo RF T	ool 01.01.00		
Scales - Weighir	ARGEO 19 systems		((p))
Configuration Wizard	Receive Configuration	Save Configuration	Load Configuration
	Low power mod	e:	
Exit		< Back	End

By enabling the Low Consumption Mode, it is possible to put the radio module in stand-by when it is not used and "woken up" when necessary, in order to reduce the consumption.

To enter and exit the stand-by status, one should use the following serial commands:

#### SEQUENCE OF STAND-BY COMMANDS

"+++"Enter in setup"ATP"<CR>Enter in stand-by status

#### SEQUENCE OF AWAKENING COMMANDS

<NULL> Exits the stand-by status "ATO"<CR> Exits the set-up

LEGEND: <NULL> = Null (ASCII 0 character). <CR> = Carriage Return (ASCII 13 character).

#### LOW CONSUMPTION MODE Disabled Enabled

#### (!) Disabled

Select the desired option, and press on "Ahead".

- PROGRAMMING
- 1. Once the last parameter is configured, the following window will appear:

Configuration Report	e Save Configuration		(()
Language Receive Configurat	e Save tion Configuration		
LastConfig.xml Configuration Description		] Configu	ad uratior
Parameter	Value	Units	~
Radio Frequency Sub-Band	1f (868-868.6 MHz)		
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
Radio Channel	Channel 0	12-14	
Serial Port Baud Rate	9600	bps	
Low power mode:	Disabled	4222	~
Sellar Lillieout	20	1112	2
COM1 Channel Channel	Wizard	Progr Modu	am Jle

2. Select the "Serial Port" of the PC to which the radio module is connected:

ales - Weighing syste	-ms		((p)
Configuration Report LastConfig.xml Configuration Description	ve Save ation Configuration	) (Lo Config	ad uration
	<b>67.1</b>	1.	
Parameter	Value	Units	~
Parameter Radio Frequency Sub-Band	1f (868-868.6 MHz)	Units	^
Parameter Radio Frequency Sub-Band Radio Output Power	Value 1f (868-868.6 MHz) 25	Units mW	î
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate	Value 1f (868-868.6 MHz) 25 19.2	Units mW kbps	^
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel	Value 1f (868-868.6 MHz) 25 19.2 Channel 0	Units mW kbps	^
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate	Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600	mW kbps bps	<u>^</u>
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Sorial Timogaut	Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600 Disabled 20	mW kbps bps	
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout	Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600 Disabled 20	Units mW kbps bps ms	~

**3.** If necessary, modify the "Radio Channel" in the combined box shown in the previous figure;

Save Configuration Cor ue Units (868-868.6 MHz) mW	Load
Save Configuration Cor ue Units (868-868.6 MHz) mW	Load nfiguration
ue Units 868-868.6 MHz) mW	<u>^</u>
(868-868.6 MHz) mW	
? kbps nnel0 bps	
bled ms	~
Pr	ngram
Wizard	odule
	0 bps abled ms Wizard Pr

4. Connect the radio module to the PC and press on the "Module programme" button; the following window will appear:

ales - Weighing syste		(	((m)
Configuration Report Language Configuration Report LastConfig.xml Configuration Description	ve Save ation Configuration	) Lo Config	ad uration
Parameter	Value	Units	^
Parameter Radio Frequency Sub-Band	Value 1f (868-868.6 MHz)	Units	^
Parameter Radio Frequency Sub-Band Radio Output Power	Value 1f (868-868.6 MHz) 25	Units mW	^
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate	Value 1f (868-868.6 MHz) 25 38.4	Units mW kbps	^
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel	Value 1f (868-868.6 MHz) 25 38.4 Channel 0	Units mW kbps	^
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate	Value 1f (868-868.6 MHz) 25 38.4 Channel 0 19200	Units mW kbps bps	^
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode:	Value 1f (868-868.6 MHz) 25 38.4 Channel 0 19200 Disabled 20	Units mW kbps bps	
Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout	Value 1f (868-868.6 MHz) 25 38.4 Channel 0 19200 Disabled 20	Units mW kbps bps ms	~

ales - Weighing sys	tems		8
Configuration Report LastConfig.xml Configuration Description	ceive Save guration Configuration	) Lo Config	ad uratior
Parameter	Value	Units	~
Radio Fraguencu Sub Pan	d 1f (868-868.6 MHz)		
riadio riequency Sub-ban			
Radio Output Power	25	mW	
Radio Output Power Radio Bit Rate Badio Channel	25 19.2 Channel 0	mW kbps	
Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate	25 19.2 Channel 0 9600	mW kbps bps	
Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode:	25 19.2 Channel 0 9600 Disabled	mW kbps bps	1
Radio Output Power Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout	25 19.2 Channel 0 9600 Disabled 20	mW kbps bps ms	~
Radio Output Power Radio Output Power Radio Bit Rate Radio Channel Serial Port Baud Rate Low power mode: Serial Timeout COM Port Radio Channel COM1	25 19.2 Channel 0 9600 Disabled 20 el Wizard	mW kbps bps ms Progr Mode	ramule

ales • weighing syste	ms		8
Language Configura	ve Save Save	Lo	ad utation
			arador
Configuration Report			
LastConfig.xml			
Configuration Description			
Parameter	Value	Units	^
Radio Frequency Sub-Band	1f (868-868.6 MHz)	1 States I	
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
Radio Channel	Channel 0	2004015	
Serial Port Baud Rate	9600	bps	-
Low power mode:	Disabled		
The second second second second second second	20	ms	2
Serial Timeout		Dream	
Serial Timeout COM Port Radio Channel		FIUUI	alli
Serial Timeout COM Port Radio Channel COM1 S Channel 0	Wizard	Mode	de

if the communication is correct and the programming has gone well, otherwise

Dini-Argeo RF Tool 01.0	01.00		
DINI ARG			((-
Language Recei	ve Save ation Configuration	Lo Config	ad uratior
_LastConfig.xmi Configuration Description			
Parameter	Value	Units	~
Radio Frequency Sub-Band	1f (868-868.6 MHz)	and a cool	
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
Radio Channel	Channel 0	0.00000	
Serial Port Baud Rate	9600	bps	-
Low power mode:	Disabled		_
Serial Timeout	20	ms	Y
COM Port Radio Channel		Dear	
COM1 💽 Channel O	Vizard Vizard	Mod	ule
E BE Module R	JOT found		1

if the communication is not correct and the programming has not gone well (one should check the connections and verify the functioning of the serial line).

### 9. SAVE A CONFIGURATION ON A FILE

**1.** Once all the parameters are configured, the programme shows the following window:

Language Configuration Repo	Receir Configur It	ve Save ation Configuration	Lc Config	oad juration
_LastConfig.xml Configuration Desc	iption			
Parameter		Value	Units	^
Radio Frequency	Sub-Band	1f (868-868.6 MHz)	10000	
Radio Output Pov	ver	25	mW	
Radio Bit Hate		19.2 Channel Ø	KDDS	
Serial Port Baud P	late	9600	hns	
Low power mode:		Disabled	HP C	
Serial Timeout		20	ms	Y
COM Port Rad	o Channel		Prog	
Carrie (1991) Las		Wizard	riog	

2. If necessary, enter a description in the field shown in the previous figure;

Dini-Argeo RF Tool 01.0	1.00		
DINI ARG		(	((p))
Configuration Report _LastConfig.xml Configuration Description	ve Save ation Configuration	Lo Configi	ad uration
Order Ref. 10000/2008			
Parameter	Value	Units	^
Radio Frequency Sub-Band	1f (868-868.6 MHz)		
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
Radio Channel	Channel 0		
Serial Port Baud Rate	9600	bps	-
Low power mode:	Disabled		20
Serial Limeout	20	ms	
COM Port Radio Channel		Progr	am
COM1 🔽 Channel 0	Wizard	Modu	le
Landard Hill Landard Landard			
Exit			43

3. Press on the "Save Configuration" key; if a description has not been entered, the following message will appear:



By pressing "No" one cancels the saving request, while with "Yes" one confirms.

4. The following window will appear:

Save As			? 🔀
Save jn:	C RFTool	S 🗘 📴 🛄 •	
My Recent Documents Desktop	🔮 _LastConfig		
My Documents			
My Computer			
	File <u>n</u> ame:	*.xm	<u>Save</u>
My Network	Save as type:	File xml (*.xml)	Cancel

5. Select the destination path of the file.



6. Enter the name of the file and press on "Save"; one will find a new XML file in the selected path, containing the configured parameters.

### **10. OPEN A CONFIGURATION FROM A FILE**

1. Launch the software, the following window will appear:

Den Save Configuration		iad uration
on Save Configuration	Units	pad juration
Value	Units	1
		-
If (868-868.6 MHz)		
25	mW	_
19.2	kbps	
Channel U	- E	
JOUU Disabled	ops	
20	ms	Y
· · · · · ·		
- Wizard	Mode	iam ule
	25 9.2 Channel 0 Jisabled 20 Wizard	25 mW 9.2 kbps Channel 0 1600 bps Disabled 20 ms Wizard Progr Mod

2. Press on the "Open Configuration" key; the following window will appear:

Open				2 🔀
Look in:	C RFTool		<b>O D E</b>	🤊 🛄 •
My Recent Documents Desktop	LastConfig	nfiguration, Order Ref. 10000	-2008	
My Documents				
My Computer				
	File <u>n</u> ame:			<u>Open</u>
My Network	Files of type:	File xml (*.xml)		Cancel

3. Select the destination path of the file.

Ореп						? 🔀
Look jn:	C RFTool		~	0 🦻	🖻 🛄 •	
My Recent Documents Desktop	LastConfig	nfiguration, Order Ref.	10000-2008			
My Documents						
My Computer						
🤍 <	File <u>n</u> ame:	RF module configura	tion, Order Ref.	10000-20	0 🛩	<u>O</u> pen
My Network	Files of type:	File xml (*.xml)			*	Cancel

4. Select the desired configuration file and press on "Open"; the configuration parameters saved in the file will be automatically uploaded.

### **11. RECEIVE THE CONFIGURATION FROM THE MODULE**

1. Launch the software; the following window will appear:

Dini-Argeo RF Tool 01.0	1.00		
DINI ARG			((p))
Configuration Report LastConfig.xml Configuration Description	ve Save ation Configuration	) Lo Config	ad uration
Parameter	Value	Units	~
Radio Frequency Sub-Band Radio Output Power	1f (868-868.6 MHz) 25	mW	
Radio Bit Rate Radio Channel	19.2 Channel 0	kbps	
Low power mode: Serial Timeout	Disabled 20	ms	~
COM Port COM1 Channel	Wizard	Progr	am ule
Exit			6

2. Select the "Serial Port" of the PC to which the radio module is connected:

Save Configuration	1 Lo Config	ad uration
Save Configuration	n Lo Config	ad uration
	Units	^
68-868.6 MHz)		
	mW	
	kbps	
nel O		
-0.12	bps	
led		
	ms	-
Marrie	Progr Modu	am ule
	Wizard	Wizard Progr Mode

3. Connect the radio module to the PC and press on the "Receive configuration" button; the following window will appear:

.01.00	
EO	((m))
eive Save Juration Configuratio	on Configuration
Value 4 Un president 6 MHz 25 192	Units
Channel D 9600 Disabled 20	ttes ma
	tems seive Save Configuration ted RF module

After this, if the communication is correct, and the programming has finished well, the following will appear in sequence:

	ol 01.01.00	
DINI A	RGEO	((())
Language	Receive Sav Configuration Configu	re Load ration Configuration
Configuration of co Configuration Descripti	onnected KF module	
Parameter	Value	Units

Configuration Report	ve Save ation Configuration	Load Configuration
Configuration of connecter Configuration Description	d RF module	
Parameter	Value	Units
Radio Frequency Sub-Band	1f (868-868.6 MHz)	adul.
Radio Bit Rate	19.2	kbps
Radio Channel	Channel 0	and the second se
Serial Port Baud Rate	9600 Disabled	bps
Serial Timeout	20	ms
COM Port Radio Channel		Program
COM1 💉 Channel 0	Vizard	Module
Exit Please wait o module Dini-Argeo RF Tool 01.0 DINI ARG	vhile reading firmware ve 01.00	ersion from RF
Exit Please wait of module Dini-Argeo RF Tool 01.0 DINI ARGO Scales - Weighing syste Scales - Weighing syste Configuration Report Configuration of connecter	while reading firmware ve 11.00 EO ms ve stion Save Configuration cd RF module	ersion from RF
Exit Please wait of module Dini-Argeo RF Tool 01.0 Dini-Argeo RF Tool 01.0	while reading firmware ve 11.00 EO ms ve Save ation Save configuration ed RF module	ersion from RF
Exit Please wait undule Dini-Argeo RF Tool 01.0 Dini-Argeo RF Tool 01.0 Recei Configuration Report Configuration Description Parameter	vhile reading firmware ve 11.00 01.00 0 ve stion Save Configuration cd RF module Value	ersion from RF
Exit Please wait of module Dini-Argeo RF Tool 01.0 Dini-Argeo RF Tool 01.0	vhile reading firmware ve v1.00 Source ve Save Configuration cd RF module Value 1f (868-868.6 MHz)	ersion from RF
Exit Please wait undule Dini-Argeo RF Tool 01.0 Dini-Argeo RF Tool 01.0 Din	vhile reading firmware ve ve Save ation Configuration ed RF module Value 1f (868-868.6 MHz) 25 19 2	ersion from RF
Exit Please wait undule Dini-Argeo RF Tool 01.0 Dini-Argeo RF Tool 01.0 Recei Configuration Report Configuration Description Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Channel	vhile reading firmware ve ve Save ation Save Configuration cd RF module Value 1f (868-868.6 MHz) 25 19.2 Channel 0	ersion from RF
Exit Please wait undule Dini-Argeo RF Tool 01.0 Dini-Argeo RF Tool 01.0 Din	vhile reading firmware ve ve Save ation Save Configuration ed RF module Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600	ersion from RF
Exit Please wait u module Dini-Argeo RF Tool 01.0 Dini-Argeo RF Tool 01.0 D	vhile reading firmware ve ve Save ation Save Configuration cd RF module Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600 Disabled 20	ersion from RF
Exit Please wait u module Please wait u module Planeter Configuration ARCO Configuration Second Configuration Description Parameter Radio Frequency Sub-Band Radio Output Power Radio Bit Rate Radio Dist Rate Radio Dist Rate Compower mode: Serial Port Baud Rate Low power mode: Serial Timeout COM Port Radio Channel	vhile reading firmware ve ve Save ation Configuration ed RF module Value 1f (868-868.6 MHz) 25 19.2 Channel 0 9600 Disabled 20	ersion from RF

The configuration parameters of the module and the firmware and loader version will be uploaded automatically.

If instead the communication is incorrect and the programming has not finished well, the following will appear:

Dini-Argeo RF Tool 01.0	1.00		
DINI ARG		(	(( <b>p</b> )
Language Receir Configuration Report	ve Save ation Configuration	Lo Config	ad uration
LastConfig.xml		110302	
		Units	
Radio Output Power	25	mW	
Badio Bit Bate	192	khos	
Radio Channel	Channel 0		
Serial Port Baud Rate	9600	bps	-
Low power mode:	Disabled		
Serial Timeout	20	ms	Y
COM Port Radio Channel COM1 V Channel 0	Wizard	Prog	ram ule
BE Module N	IOT found		
Evit ( ) I'm modulo n	2752 1.1 2 2 2 2 7 7 7 7		

In this case, one should check the connections and verify the functioning of the serial line; after this, try again.

# 12. EXITING THE PROGRAMME AND AUTOMATIC SAVING/OPENING OF THE LAST CONFIGURATION

To end the work session:

• Press the closing button in the upper right of the RfTool window; a message will appear asking for the confirmation of the choice:



By pressing "No" one cancels the request to end the work session, while with "Yes" one definitely exits.

• The programme automatically saves the last open configuration in the "\_LastConfig.xml" file, opened automatically with each start-up of the programme.

Dini-Argeo RF Tool 01.0	01.00		
DINI ARG	EI Pms		(( <b>-</b> )
Language Recei	ve Save ation Configuration	Lo Config	ad uration
LastConfig.xml			
Configuration Description			
Order Ref. 10000/2008			
Parameter	Value	Units	^
Radio Frequency Sub-Band	1f (868-868.6 MHz)		
Radio Output Power	25	mW	
Radio Bit Rate	19.2	kbps	
Radio Channel	Channel U	pro-	
Serial Port Baud Rate	Disabled	DDS	120
Serial Timeout	20	ms	Y
COM Port Badio Channel		-	
COM1 Channel 0	Wizard	Progr Mode	am ule
Exit			

### **DECLARATION OF CONFORMITY**

This device conforms to the essential standards and norms relative to the applicable European regulations. The Declaration of Conformity is available in the web site <u>www.diniargeo.com</u>

#### WARRANTY

The TWO YEARS warranty period begins on the day the instrument is delivered. It includes spare parts and labour repair at no charge if the INSTRUMENT IS RETURNED prepaid to the DEALER'S PLACE OF BUSINESS. Warranty covers all defects NOT attributable to the Customer (such as improper use) and NOT caused during transport.

If on site service is requested (or necessary), for any reason, where the instrument is used, the Customer will pay for all of the service technician's costs: travel time and expenses plus room and board (if any).

the Customer pays for the transport costs (both ways), if the instrument is shipped to DEALER or manufacturer for repair.

The WARRANTY is VOIDED if any of the following occurs: repairs or attempted repairs are made by unauthorised personnel, connected to equipment installed by others, or is incorrectly connected to the power supply, or instrument has defects or damage due to carelessness or failure to follow the guidelines in this instruction manual.

This warranty DOES NOT provide for any compensation for losses or damages incurred by the Customer due to complete or partial failure of instruments, even during the warranty period.

### AUTHORIZED SERVICE CENTRE STAMP