Ex-PMR 1000

Operating Instructions

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1. Application

The Ex-PMR 1000 is a radio unit that does not require registration in many European countries (446 MHz range) for industrial use in potentially explosive areas of zones 2 and 1 or 22 in accordance with Directive 1999/92/EC (ATEX 137).

2. Safety instructions

These operating instructions contain information and safety regulations that must be followed to ensure safe and reliable operation of the unit under the described conditions. Failure to follow the information and instructions can have dangerous consequences or may contravene applicable regulations. **Please read these operating instructions carefully before starting to use the unit!** In the event of any doubt or discrepancies (e.g. due to translation or printing errors), the German version of these operating instructions shall govern.

3. Errors and load restrictions

If there is any risk that the safety or integrity of the unit has been compromised, the unit must be taken out of operation immediately and removed from the Ex-area without delay. Action must be taken to prevent the device from being accidentally placed into operation again. We recommend that the unit should be sent to the manufacturer to be examined.

The safety and reliability of the unit may be at risk if, for example:
- visible damage is evident on the housing.
- the unit has been subjected to excessive loads for which it is not designed.
- the unit has been improperly stored.
- the unit has been damaged in transit,
- inscriptions or lettering on the unit are illegible.
- malfunctions occur.
- permitted tolerances or threshold values have been exceeded.

4. Safety regulations

Any person using the unit must observe the standard safety regulations and read the certificate to prevent incorrect operation or abuse of the unit.
The following additional safety regulations must also be observed:
- The unit must not be opened within the Ex-area.

- The battery must only be changed outside the Ex-zone.
- Additional or spare batteries must not be carried in the Ex-area.
- Only the Ex-battery module Ex-AM PMR 1000 specified by the manufacturer may be used.
- The use of other batteries is strictly prohibited and will result in termination of Ex-protection.
- The battery must only be charged outside of the Ex-area with the designated charger LS PMR 1000 and the corresponding power supply unit PS PMR 1000.
- Only the corresponding Remote Control Speaker Microphone Ex-HS 01 should be connected to the headset port inside the Ex-area.
- Only the corresponding EP1 earphones should be connected to the Remote Control Speaker Microphone Ex-HS 01 inside the Ex-area.
- Only accessories approved by ecom instruments GmbH may be used (siehe: *www.ecom-ex.com*)
- Accessories may only be exchanged outside the Ex-area.
- It must be ensured that the unit is not taken into zone 0, 20 or 21.
- Clean only with a damp cloth!

5. General safety instructions
5.1 Transport safety
NEVER use a hand-held radio unit while operating a vehicle. Park the vehicle before answering a call or before placing a call yourself. To avoid having the radio unit fly about in the event of a collision or a sudden braking manoeuvre, do not place the radio unit on the front passenger's seat or in a place where it can become dislodged. Always remember the following:
Transport safety takes priority!

5.2 Operating environment
The particular regulations that apply to an area must be observed at all times. The radio unit must always be turned off if the use of radio units is prohibited or if it causes interference which may lead to hazardous situations. The device must always be held in a normal operating position. Since parts of the radio unit are magnetic, metal parts may be attracted to it.
To avoid metal parts being attracted to the radio unit, you should always secure the device in a specially-designed holder. Do not allow credit cards or other magnetic data carriers to come into close proximity to the radio unit, since the data contained on these items could be deleted.

5.3 Electronic devices
Today, most electronic devices are shielded from so-called RF (radio frequency) signals. It can happen, however, that some electronic devices are not shielded from the RF signals of your radio unit.

5.3.1 Pacemakers
The following applies for persons with pacemakers:
- The general rule is to maintain a minimum interval of 20 cm between the radio unit and the pacemaker when the radio unit is turned on.
- To keep the risk of possible disturbances as low as possible, we recommend that you use the ear furthest from the pacemaker when operating the unit.
- If you have cause to suspect that your pacemaker has been disturbed, turn your radio unit off at once.

5.3.2 Hearing aids
It is especially important that persons who use hearing aids do not hold the radio unit to the ear with the hearing aid. In the event of possible disturbances with some types of hearing aids, please contact your local service partner.

5.3.3 Other medical devices
As is the case with other electronic devices as well, your radio unit may interfere with medical devices that are not adequately shielded. If you should need information regarding sufficient shielding of a medical device against external RF signals, please contact the respective physician or the manufacturer of the medical device. To generally avoid malfunctions, you should turn your radio unit off in all health care facilities if so requested by signs, placards or regulations.

Please note:
Devices which react sensitively to external RF signals are often used in hospitals and other health care facilities.

5.3.4 Respectively designated locations
You should turn your radio unit off in all places where such requests are fitting and appropriate.

5.4 Vehicles
5.4.1 Automobiles
Under certain circumstances, RF signals can have a negative impact on the function of improperly installed or insufficiently shielded electronic systems within your automobile (e.g. electronically controlled fuel injection, electronic anti-lock braking systems, electronic speed regulator, air bag systems). You can obtain information about your vehicle from your vehicle manufacturer or his representative. To prevent disturbances, only skilled personnel should install the radio unit in the vehicle. Faulty installation or maintenance can lead to dangerous consequences. Please keep in mind that these mistakes may result in the forfeiture of the valid warranty on your unit. We recommend regular inspection of all installed components of the radio unit equipment in your vehicle. In vehicles with airbags, these airbags are filled with a great deal of kinetic energy. To reduce the risk of injuries or malfunctions, you should not mount any parts in the area claimed by the inflated airbag.

5.4.2 Airplanes
The use of radio units on airplanes is prohibited in most cases. Turn your radio unit off before boarding the airplane. Since operation of a radio unit on board an airplane can have dangerous consequences, non-compliance with such instructions may result in the person acting contrary to instructions being forbidden to use it and/or legal action could be initiated against him/her.

5.5 Detonaters and detonating areas
To avoid possible interference with the detonating operation, you should take your radio unit out of operation in the vicinity of electric detonators, in a detonating area or in environments with an appropriate instruction to "Turn off all transmitting and receiving devices". Follow all warnings and instructions.

6. Ex-data
EC-type examination certificate no.: ZELM 05 ATEX 0271
Ex-designation: $\langle\!\langle\!\varepsilon_x\rangle\!\rangle$ II 2 G Ex ib IIC T4
  $\langle\!\langle\!\varepsilon_x\rangle\!\rangle$ II 3 D Ex ibD 22 T130°C IP5x

Approved for Zones 2 and 1, device group II, gas group C potentially explosive gases, vapours or mist, temperature class T4.

Approved for zone 22, device group II, dust with increased risk of explosion, T130 °C.

7. Technical data

Ambient temperature Ta:	-20 °C ... +50 °C
Storage temperature:	-20 °C ... +45 °C
Charging temperature:	0 °C ... +40 °C
Power supply:	Ex-battery pack Ex-AM PMR 1000
Period of operation:	approx. 13 hours (90% standby, 5%TX, 5%RX)
Charging time:	approx. 4 hours
Dimensions:	126 x 64 x 42 mm
Frequency range:	446.00625 – 446.09375 MHz
Sensitivity:	approx. 0.30 μV at 12 dB SINAD
Channels:	8
Channel grid:	12.5 kHz
Max. Transmission power:	0.5W ERP
NF – power output:	max. 0.5 W
Weight:	approx. 450g (including battery pack)
IP rating:	IP 54
CE designation:	$C \in 0102$
	$C \in 0678$ ①

Channel frequency table

Channel	Frequency	(MHz) Channel	Frequency (MHz)
1	446.00625	5	446.05625
2	446.01875	6	446.06875
3	446.03125	7	446.08125
4	446.04375	8	446.09375

8. Functional description / operating information

Please take the time to carefully read through this owner's manual to ensure that you are familiar with all of the functions of your Ex-PMR 1000 and know how to use them. For you own safety and information please read through the information on the following pages.
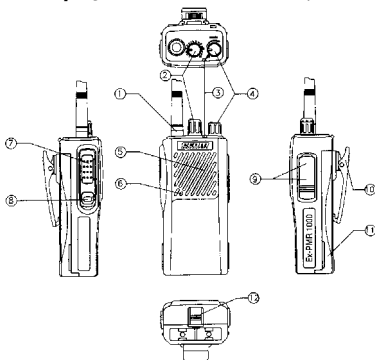
① *Antenna*

② *Channel switch*
This knob is turned to select channel storage spaces 1–S (channel S can be programmed as a search run function) For pre-set channels and pilot tones, see table: "Default Values of Channels" under Item 8.4.4

③ *LED display*
The red LED display illuminates when transmitting. The green LED display illuminates when receiving. The red LED flashes when the battery voltage is low.

④ *ON/OFF and volume control*
Turn the knob clockwise to turn the device on. To turn the device off, turn it counter clockwise until a signal tone sounds. When the radio unit is turned on, this knob is used to control the volume.

⑤ *Loudspeaker*   /   ⑥ *Microphone*

⑦ *PTT (Push to Talk)*
PTT is pressed for transmitting and PTT is released for receiving.

⑧ *Monitor key*
Press the MONI key to monitor activities on the current channel.

⑨ *Loudspeaker/microphone sockets*
When these accessory sockets are not being used, cover them up with the protective cap.

⑩ *Belt clip* / ⑪ *Ex-battery module* / ⑫ *Battery locking mechanism*

8.2 Functions
All 8 channels are very easy to switch
The Ex-PMR 1000 can be operated on all 8 channels.

FM for crystal-clear connections
Transmission is in frequency modulation (FM), which ensures lifelike and low-disturbance playback, as with the UKW.
16 channel storage spaces
So you always have sufficient fixed alternatives for your radio partners.

CTCSS & DCS
With CTCSS/DCS, you can ignore unwanted calls from other parties on the same channel. When CTCSS/DCS is set, the user can only receive the calls on the same channel with the same CTCSS/DCS.
Please observe: Although you can ignore unwanted calls with CTCSS/DCS, this does not mean that your conversations are private.

TOT Switch-off Timer
The Time-out function is used so as not to use the same channel too long and to prevent damage to the device due to continuous transmission.
If the transmission exceeds the prescribed time (60 s), it is interrupted and an alarm sounds. This is stopped by releasing PTT. Press PTT again to transmit.

TOT-Reset Time
If the send pause is longer than the set time (TOT-Reset Time), the TOT – shut-off timer will be reset. If the send pause is shorter than the set time (TOT-Reset Time), the TOT – shut-off timer will be added on.
The function is deactivated. Changing the setting is only possible with optional software.

TOT – Rekey Time
After activating the TOT – shut-off timer, the send function is blocked until the pre-set time (TOT-Rekey Time) has lapsed.
The function is deactivated. Changing the setting is only possible with optional software.

TOT – Alert Time
An alarm sounds at a programmed point in time before activating the TOT – shut-off timer. Subsequent send interruption by TOT – shut-off timer. The function is deactivated. Changing the setting is only possible with optional software.

Monitor
Radio activities on the current channel can be monitored by pressing and holding the "MONI" key. This is especially useful for setting the volume or if you are receiving a weak signal.
When holding the "MONI" key, the green LED display illuminates.

Channel search run
Set the channel switch to "S"; the radio unit then only automatically records the channels that have been programmed for search run in channels 1-15. If a signal is detected on a channel, the radio unit stops on this active transmission channel.

Preferred channel search run
Each programmed channel can be set as a preferred channel. The radio unit records the preferred channel at regular intervals and interrupts a non-preferred channel. If a signal is detected on the preferred channel, the radio unit automatically goes to this channel.
The function is deactivated. Changing the setting is only possible with optional software.

Revert Channel Search Run
This function brings you to the right channel, while you are initiating a call during channel search run. Press PTT and the unit will stop search run and transmit on the revert channel (channel 1).

Busy Channel Lockout
If the selected channel is set as "Busy Channel Lockout" and being used by

others, a warning signal sounds when activating PTT. The signal is not trans-
mitted. The warning signal is stopped by releasing PTT. When the channel is
free, press PTT again to transmit.
The function is deactivated. Changing the setting is only possible with optional
software.

Battery saving function
This function can be used to save current when no signal is being received
and none of the functions are being carried out (when no keys are being
pressed and no knobs are being turned). The battery saving function switches
on when there is no radio activity on a channel for 25 seconds and no func-
tions are being carried out. As soon as a signal is received or the device is
otherwise being used, this function switches off.

Low Battery Warning
The "Low Battery Warning" Imeans that you must charge or replace the batte-
ry module. If the battery module goes below a pre-set voltage during operati-
on, the red LED display flashes. If an alarm sounds, the transmission process
is aborted. Please charge the battery module or replace it with a replacement
module.

Sockets for loudspeaker and microphone
A headset or microphone/loudspeaker combination can be connected to the
sockets on the side of the device. Please note: only accessories approved by
ecom instruments GmbH may be connected.

8.3 Integrated Antenna
The Ex-PMR 1000 comes with a flexible, integrated rubber antenna and only
this antenna may be used! This integrated antenna is connected together
non-detachably with the handheld radio telephone (radio unit).
Note:
- Never carry the radio unit by the integrated antenna!
- Connecting a different antenna is punishable!

8.4 Getting started
8.4.1 Inserting the battery module
First insert the Ex-battery module Ex-AM PMR 1000 included in the scope of
supply into the guide rails of the Ex-PMR 1000. Slide the battery module on the
guides until the battery locking mechanism locks in position on the radio unit.

8.4.2 Basic functions
1. To switch on, turn the ON/OFF or volume control clockwise until a signal tone sounds.
2. To control the volume, turn the ON/OFF or volume control while simultaneously holding down the monitor key.
3. To select a channel, turn the channel switch to select the respective channel.
4. To transmit, press and hold PTT and speak into the microphone in a normal voice. Hold the microphone about 5 cm from your mouth.
5. Release PTT to receive.

Please observe: If the battery voltage is too low, the transmission process will stop and the red LED display will flash. Further information can be found at: 8.2 Functions - Low Battery Warning

8.4.3 Changing the pre-programmed storage spaces
8.4.3.1 Channels
You can change the frequency allocation of the 16 pre-programmed channel storage spaces. Select a value from 0 – 8 to change the frequency allocation of the selected channel.

Please observe: After programming is complete, switch the unit off and back on again, so that it is back in the operating mode.
If "0" is selected, the programmed channel is empty (no frequency).

1. Turn the radio unit on while pressing PTT and the monitor key.
   Only release PTT and the monitor key when the LED display illuminates in orange.

2. Press PTT until the LED display changes from orange to green and a signal tone sounds, which means that the radio unit is in the frequency setting mode.
3. Select the desired channel using the channel switch.

4. Using PTT, select the frequency number from the 9 different numbers 0-8. Each time you press it, the frequency number changes accompanied by a signal tone.

Operation	Channel number	Signal tone
Press and hold PTT for 2 seconds	0	1 second tone
Press PTT one time	1	.
Press PTT two times	2	..
Press PTT three times	3	...
Press PTT four times	4	....
Press PTT five times	5	.....
Press PTT six times	6	-.
Press PTT seven times	7	-..
Press PTT eight times	8	-...

Please observe:
Select channel number "0" when not selecting any channel. To do so, press PTT for about 2 seconds until a 1-second long signal tone sounds.
If PTT is pressed more often than 8 times, a signal tone sounds and no value is selected.

5. The respective signal tone of the selected number sounds after 2 seconds.
6. Press the monitor key to end this setting. The red LED flashes two times.
7. Press the monitor key again to confirm the signal tone of the desired number.
8. Program another channel as described in steps 3 through 7 above.

Example: Changing a channel storage space (11) to channel number 8
1. Select channel storage space 11 in the set mode.
2. Press PTT 8 times to select 8 as the channel number. Each time you press it, a signal tone will sound.
3. After 2 seconds, one long and three short signal tones sound, to confirm your selection of channel number 8.
4. Press the monitor key to complete the setting. The red LED display flashes

two times.
5. Press the monitor key again. One long and three short signal tones confirm that channel number 8 has been selected.

8.4.3.2 Pilot tones
Please observe:
After programming is complete, switch the unit off and back on again, so that it is back in the operating mode.
All of the CTCSS/DCS pilot tones are listed in the following table.
After confirmation of a signal number ≥ 10, a short trace occurs between the tens and the units.

No.	CTCSS/DCS	No.	CTCSS/DCS	No.	CTCSS/DCS	No.	CTCSS/DCS
0	OFF	25	156,7 Hz	50	D072	75	D261
1	67,0 Hz	26	162,2 Hz	51	D073	76	D263
2	71,9 Hz	27	167,9 Hz	52	D074	77	D265
3	74,4 Hz	28	173,8 Hz	53	D114	78	D271
4	77,0 Hz	29	179,9 Hz	54	D115	79	D306
5	79,7 Hz	30	186,2 Hz	55	D116	80	D311
6	82,5 Hz	31	192,8 Hz	56	D125	81	D315
7	85,4 Hz	32	203,5 Hz	57	D131	82	D331
8	88,5 Hz	33	210,7 Hz	58	D132	83	D343
9	91,5 Hz	34	218,1 Hz	59	D134	84	D346
10	94,8 Hz	35	225,7 Hz	60	D143	85	D351
11	97,4 Hz	36	233,6 Hz	61	D152	86	D364
12	100,0 Hz	37	241,8 Hz	62	D155	87	D365
13	103,5 Hz	38	250,3 Hz	63	D156	88	D371
14	107,2 Hz	39	D023	64	D162	89	D411
15	110,9 Hz	40	D025	65	D165	90	D412
16	114,8 Hz	41	D026	66	D172	91	D413
17	118,8 Hz	42	D031	67	D174	92	D423
18	123,0 Hz	43	D032	68	D205	93	D431
19	127,3 Hz	44	D043	69	D223	94	D432
20	131,8 Hz	45	D047	70	D226	95	D445

21	136,5 Hz	46	D051	71	D243	96	D464
22	141,3 Hz	47	D054	72	D244	97	D664
23	146,2 Hz	48	D065	73	D245	98	D723
24	151,4 Hz	49	D071	74	D251	99	D754

1. Turn the device on while holding down PTT and the monitor key at the same time. Only release PTT and the monitor key when the LED display illuminates in orange.
2. Press the monitor key until the LED display changes from orange to green and a signal tone sounds, which means that the radio unit is changing to the CTCSS/DCS set mode.
3. Select the desired channel storage space using the channel switch.
4. Select the "tens" digit of the signal number between 0-9 by pressing PTT. Each time you press it, the signal number changes and is accompanied by a signal tone.
5. The respective signal tone of the selected number sounds after 2 seconds.
6. By pressing PTT, select the unit of the signal number from 10 different numbers 0-9. Each time you press it, the signal number changes and is accompanied by a signal tone.

Operation	Number	Signal tone
Press PTT and hold for 2 seconds	0	1 second tone
Press PTT one time	1	.
Press PTT two times	2	..
Press PTT three times	3	...
Press PTT four times	4	....
Press PTT five times	5	.....
Press PTT six times	6	-.
Press PTT seven times	7	-..
Press PTT eight times	8	-...
Press PTT nine times	9	-....

Please observe:
In order not to select any pilot tone, select the pilot tone number "0". Press PTT and hold it for approx. 2 seconds, until a one-second tone sounds. If PTT is pressed more often than 9 times, a warning tone sounds and no value is selected.

7. The respective signal tone of the selected number sounds after 2 seconds.
8. The setting is completed by pressing the monitor key.
   The green LED display flashes two times.
9. Pressing the Monitor key again confirms the signal tone of the selected number.
10. Program another channel just the same as in the above steps 3-9.

Example: Changing a channel storage space (2) with CTCSS – pilot tone No. 25
1. Select channel storage space 2 in the CTCSS/DCS set mode.
2. Press PTT 2 times to select 2 for the "tens" digit.
3. After 2 seconds, 2 short signal tones confirm that 2 has been selected.
4. Press PTT 5 times to select 5 for the "units" digit. Each time you press it, a signal tone will sound.
5. After 2 seconds, 5 short signal tones confirm that 5 has been selected.
6. Press the monitor key and the green LED display flashes two times.
7. Press the monitor key again. Two short signal tones will sound and - after a short pause - 5 short signal tones, to confirm the selection of 25.

8.4.4 Checking the channel storage space settings
You can check the settings of your radio unit.

Please observe:
After checking is complete, switch the unit off and back on again, so that it is back in the operating mode. No signal tone will sound if "0" is selected for the "tens" digit.

1. Turn on the unit while pressing the PTT key. The radio unit goes into the check mode.

2. Select the channel storage space which you would like to check.

3. Press PTT and the signal tone sounds (that is, when channel number 8 is set, one long and three short signal tones sound).

4. Press the Monitor key and a signal tone sounds (that is, when pilot tone 25 is set on the channel, two short signal tones and after a short pause, five additional tones will sound).

5. Turn the unit off when the check is complete.

Confirming the signal tone

Number	Signal tone	Number	Signal tone
0	1 second tone	5	.....
1	.	6	-.
2	..	7	-..
3	...	8	-...
4	....	9	-....

Default values of the channel

Channel number	Frequenz	CTCSS / DCS
1	1 (446,00625)	0 (OFF)
2	2 (446,01875)	0 (OFF)
3	3 (446,03125)	0 (OFF)
4	4 (446,04375)	0 (OFF)
5	5 (446,05625)	0 (OFF)
6	6 (446,06875)	0 (OFF)
7	7 (446,08125)	0 (OFF)
8	8 (446,09375)	0 (OFF)
9	1 (446,00625)	1 (67,0 Hz)
10	1 (446,00625)	39 (D023)
11	2 (446,01875)	1 (67,0 Hz)
12	2 (446,01875)	39 (D023)
13	3 (446,03125)	1 (67,0 Hz)

14	3 (446,03125)	39 (D023)
15	4 (446,04375)	1 (67,0 Hz)
16 (S)	search run	

8.5 Accessories
8.5.1 Approved accessories within the Ex-area

Battery compartment:
- Battery pack Ex-AM PMR 1000

Headset connection:
- ExTRA 300 A headsets
- Microphone/loudspeaker combination Ex-HS 01

Ex-HS 01 earphone connection:
- Earphones EP 1

Additional accessories are available at: *www.ecom-ex.com*

8.5.2 Charger
The battery must only be charged outside of the Ex-area with the designated charger LS PMR 1000 and the corresponding power supply unit PS PMR 1000.

9. Charging the battery module
9.1 General Information
Turn the radio unit off before charging the battery module. Using the device while charging can result in charging problems.
Use only the approved charger LS PMR 1000 and the corresponding power supply unit PS PMR 1000 for charging. The battery may only be charged outside the Ex-area! The battery module can be charged together with the Ex-PMR 1000 or separately (see illustration). Please observe:
Charging temperature range: 0 ℃ … +40 ℃.
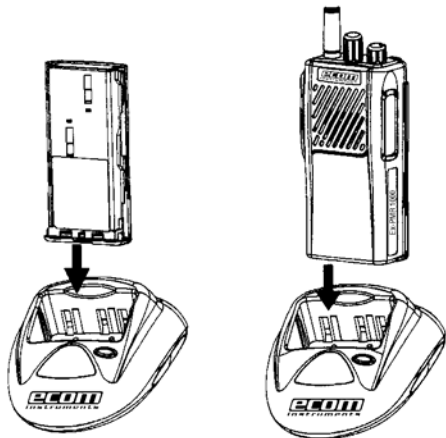
9.2 LED display / Charging process

An LED display is located on the front side of the charger to indicate the charge status.

⚙ ERROR

● CHARGING

● FULLY CHARGED

If the charger is connected to the power supply unit, The LED will not illuminate. When an Ex-PMR 1000 with mounted or individual Ex-AM PMR 1000 is inserted, the LED illuminates in red (CHARGING).
Charging is complete after about 4 hours and the LED illuminates green (FULLY CHARGED).

In case of failure, the LED flashes red (ERROR) and the Ex-PMR 1000, or the battery module, must be removed from the charger immediately. The battery module and charger should be sent off to ecom instruments GmbH for inspection.

Battery care
- The battery should be completely charged before use.
- Note that the maximum capacity of the battery is achieved only after about six charging and discharging cycles.
- Since the performance of batteries declines over time, they should be completely discharged occasionally to maintain their full capacity. When doing this, leave the unit turned on until it turns itself off. Subsequently fully charge the battery pack Ex-AM PMR 1000 outside of the Ex-area.

Battery replacement
- Only the approved battery module Ex-AM PMR 1000 may be used!
- Please ensure that all used batteries are properly disposed of in an environmentallyfriendly manner.

Note:
Please use only the LS PMR 1000 charger to charge the Ex-battery module Ex-AM PMR 1000!

High quality lithium-ion batteries are used in your Ex-PMR 1000. These batteries have numerous advantages in everyday use, such as a low weight and high capacity in a nevertheless compact construction. In addition these batteries also exhibit practically no memory effect.

However, these batteries are susceptible to a natural ageing process which impairs their functionality. Modern batteries today have a lifespan of around 500 charge cycles, which, when used daily, corresponds to a service life of approximately 2 years. The ageing process increases rapidly after this period, which means that the batteries are deemed technically defective after 500 charge cycles. Moreover, the batteries could blow up and cause irreparable damage to your device in a worst case scenario.
For this reason rechargeable batteries with lithium cells should be replaced after 2 years at the latest or after reaching a battery capacity that is 50% of its initial value.

Note: The battery used in this unit poses a fire hazard and can cause chemical injuries if it is used improperly. Neither the battery nor the battery cells should be opened or disassembled and they should not be burned or exposed to temperatures exceeding 100℃.

10. Legal Information

No registration – no fees
Your radio unit is approved for short-range radio in many European countries without requiring registration or fees.

The handheld radio telephones (radio units) in a frequency range of 446.00625 – 446.09375 MHz are intended for the transmission of speech. Only handheld radio units with integrated antennas may be used. Please also observe the respective directives and telecommunications laws which are in effect for your specific country.

11. Repairs

Repair work is subject to the nationally valid regulations and directives. We therefore recommend that such work be performed by ecom instruments GmbH, Germany, as all repairs must be examined to ensure functional safety.

12. Disposal

Old electrical equipment and „historic" old electrical equipment from ecom instruments GmbH will be disposal obligation and disposed of at no cost in accordance with the EC Directive 2002/96/EC and the German Electrical and Electronic Equipment law of 16/03/2005. The costs of the transport of the equipment to ecom instruments GmbH are borne by the sender.

In accordance with Article 1, Section 18 and Article 2 of the Act revising the law of Waste-Related Product Responsibility for Batteries and Accumulators (Gesetz zur Neuregelung der abfallrechtlichen Produktverantwortung für Batterien und Akkumulatoren) dated 25 June 2009, we are obligated to provide the following information.

Your device contains a rechargeable lithium battery.

Depleted batteries or rechargeable batteries that can no longer be recharged should never be disposed of along with normal or household waste. Old batteries can contain harmful substances that are hazardous to health and damaging to the environment. Please return the batteries/rechargeable batteries. Return is free of charge and required by law. Please only dispose of discharged batteries in the designated containers and tape the terminals of lithium batteries.

Note: The battery used in this unit poses a fire hazard and can cause chemical injuries if it is used improperly. Neither the battery nor the battery cells should be opened or disassembled and they should not be burned or exposed to temperatures exceeding 100 °C.

If the battery needs to be disposed of, it can be removed as described under point (8.4.1). The disposal regulations specified above are also applicable for old devices.
All batteries and rechargeable batteries can be recycled. Precious raw materials such as iron, zinc and nickel can therefore be reused.

The symbol ⊠ has the following meaning:
Batteries and rechargeable batteries should not be disposed of along with normal or household waste.

13. Cleaning, maintenance and storage
- Only use a suitable cloth or sponge to clean the unit. Do not use solvents or abrasive cleaning agents to clean the unit.
- We recommended having the function and the accuracy of the unit checked by the manufacturer every two years.
- The storage temperature should be within the permitted ranged of -20 °C to +45 °C.
- When the unit is not in use, the accessory sockets should be covered with the protective cap.

14. Warranty and liability
Under the general terms and conditions of business, ecom instruments GmbH offers a 2-year warranty for function and materials on this product under the specified operating and maintenance conditions. Not covered are all wearing parts (e.g. batteries, sensors, displays, lamps, etc.) as well as calibrations.
We give a manufacturer's warranty of six months especially for the supplied Ex-batteries.

This warranty does not extend to products that have been used improperly, altered, neglected, damaged by accident or subjected to abnormal operating conditions or improper handling.
In the event of a warranty claim, the faulty device should be sent in. We reser-

ve the right to readjust, repair or replace the unit.

The above warranty terms represent the sole rights of the purchaser to compensation and apply exclusively and in place of all other contractual or statutory warranty obligations. ecom instruments GmbH does not accept liability for specific, direct, indirect, incidental or consequential damages or losses, including the loss of data, regardless of whether they are caused by breach of warranty, lawful or unlawful actions, actions in good faith or other actions.

If in certain countries the restriction of statutory warranty and the exclusion or restriction of incidental or consequential damages is unlawful, then it may be possible that the above restrictions and exclusions do not apply for all purchasers. If any clause in these warranty terms should be found to be invalid or unenforceable by a competent court, then such a judgement shall not affect the validity or enforceability of any other clause contained in these warranty terms.

15. EC-Type Examination Certificate

<div align="center">

Prüf- und Zertifizierungsstelle

ZELM Ex

</div>

(1) # EC-Type Examination Certificate

(2) Equipment and Protected Systems Intended for Use in Potentially
Explosive Atmospheres - Directive 94/9/EC

(3) EC-Type Examination Certificate Number

<div align="center">

ZELM 05 ATEX 0271

</div>

(4) **Equipment:** **Explosion-protected Mobile Radio Unit Ex-PMR 1000**

(5) Manufacturer: ecom Instruments

GmbH

(6) Address: D-97959 Assamstadt

(7) The design of this equipment and its various approved embodiments are defined in the
attachment to this type examination certificate.

(8) The Prüf- und Zertifizierungsstelle ZELM, notified body no. 0820 in accordance with Article 9 of
the EC Council Directive dated March 23, 1994 (94/9/EC), certifies that this equipment has
been found to conform with the essential health and safety requirements for the design and
construction of equipment and protected systems for proper intended use in potentially
explosive areas in accordance with Appendix II of the directive.

The results of the test are documented in the confidential test report no. ZELM Ex
0550512403.

(9) The essential health and safety requirements are met by virtue of conformity with

<div align="center">

EN 60079-0:2004   **EN 50020:2002**   **EN 50281-1-1:1998**

</div>

(10) If the certification number is followed by an "X", then this indicates that special conditions exist
for the safe operation of the equipment. These special conditions are contained in the
attachment to this certificate.

(11) This EC-type examination certificate only refers to the construction/design, checking and
testing of the specified equipment or protection system in accordance with Directive
94/9/EC. Further requirements contained in this directive may apply with regard to the
manufacturing process and the supply of the equipment or protected system. Such
requirements are not covered by this certification.

(12) The equipment must be labelled with the following information:

<div align="center">

⟨Ex⟩   II 2 G   EEx ib IIC T4 ; II 3 D   T 130°C IP54

</div>

Zertifizierungsstelle ZELM Ex   Braunschweig, August 4, 2005

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ZELM Ex

First addition

(addition in accordance with EC Directive 94/9 Annex III Clause 6)
to the EC type-examination certificate
ZELM 05 ATEX 0271

Device:	**Explosion-proof handheld two-way radio, Type Ex-PMR 1000**
Manufacturer:	**ecom Instruments GmbH**
Address:	**D-97959 Assamsstadt**

Description of the addition
The first addition to the EC type-examination certificate particularly concerns the internal design without significant modifications to the circuit-board layout.

The technical data and identification as well as the information provided in the EC type-examination certificate remain unchanged.

Test Report No.
ZELM Ex 1500515433

Special conditions
Not applicable

Fundamental safety and health requirements
The fundamental safety and health requirements are fulfilled through compliance with

EN 60079-0 : 2004   **EN 50020: 2002**   **EN 50281-1-1 : 1998**

Certification Body ZELM Ex   Braunschweig, 10.01.2006

((Signature, stamp: Test and Certification Body ZELM Ex))
Dipl.-Ing. Harald Zelm   Page 1 of 1

Prüf- und Zertifizierungsstelle (Test and Certification Body) ZELM Ex * Siekgraben 56 * D-38124 Braunschweig, Germany

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Prüf- und Zertifizierungsstelle

ZELM Ɛx

(13) # Attachment

(14) EC-Type Examination Certificate ZELM **05ATEX 0271**

(15) <u>Description of the equipment</u>

The explosion-protected mobile radio unit Ex-PMR 1000 serves for communicating in the potentially explosive area.
The equipment is fitted with a rechargeable battery module Ex-AM PMR 1000 and must be charged only outside the potentially explosive area.
Only approved accessories listed in the operating instructions may be connected to the mobile radio unit.

The permitted ambient temperature range is -20°C to +50°C.

<u>Electrical data</u>

Supply	from an internal, rechargeable battery module EEx ib IIC The internal circuits are intrinsically safe.
Transmission power	up to 0.6 W
Microphone speaker Circuit:	Only for connection to approved accessories according to the operating instructions
Charging socket	Only for connection to the designated chargers.

Note

The operating instructions must be followed; the battery module must be charged only outside the potentially explosive area and only with the designated charger.

(16) <u>Test report no.</u>

: ZELM Ex 0550512403

(17) <u>Special conditions</u>

Not applicable

(18) <u>Essential health and safety requirements</u>

satisfied by virtue of
the standards

Zertifizierungsstelle **ZELM** Ɛx

Braunschweig, August 4, 2005

ZELM Ex

Translation

1st Addendum

(Addendum in accordance with EC directive 94/9, appendix III number 6)

to EC type approval test certificate

ZELM 05 ATEX 0271

Device:	Explosion-protected handheld radio Ex-PMR 1000
Manufacturer:	ecom instruments GmbH
Address:	D-97959 Assamstadt

Description of the addendum

The 1st addendum to the EC type approval test certificate particularly concerns internal design changes and does not involve significant changes to the PCB layout.

The technical data and the labeling, as well as the indications in the EC type approval test certificate, remain unchanged.

Test report no. ZELM Ex

1500515433

Special conditions not

applicable

Basic health and safety requirements

The basic health and safety requirements are met by virtue of conformance with

EN 60079-0: 2004   EN 50020: 2002   EN 50281-1-1: 1998

Zertifizierungsstelle
(Certification Body)
ZELM ex

Dipl.-Ing. Harald Zelm

Brunswick, 10.01.06

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2nd Addendum

(Addendum in accordance with EC directive 94/9, appendix III number 6)

ZELM eX

Translation

to EC type approval test certificate

ZELM 05 ATEX 0271

Device: **Explosion-protected handheld radio Ex-PMR 1000**

Manufacturer: **ecom instruments GmbH**

Address: **D-97959 Assamstadt**

Description of the addendum

The **2**nd addendum to the EC type approval test certificate relates to the Ex-PMR 1000 explosion-protected handheld radio and considers changes to the internal configuration, updates to existing standards and a change of the certification for dust approval to "protection by intrinsic safety - iD".

The "electrical data", including the permitted ambient temperature range, as well as the information specified in the EC type approval test certificate remain unaffected and are also applicable for this **2**nd addendum.

In the future the Ex-PMR 1000 explosion-protected handheld radio may also be manufactured in accordance with this **2**nd addendum and designated as follows:

Ignition protection class / designation:

⟨Ex⟩

II 2 G Ex ib IIC T4
II 3 D Ex ib D 22 T 130°C IP5x

The electrical data and all other specifications, as well as the details specified in the EC type approval test certificate remain unaffected and shall continue to apply.

Test report no. ZELM Ex
1660812675

Basic health and safety requirements

Furthermore, the basic health and safety requirements are met by virtue of conformance with:

EN 60079-0:2006
EN 60079-11:2007
EN 61241-0:2006
EN 61241-11:2006

Brunswick, 04.05.09

Zertifizierungsstelle (Certification Body) ZELM ex Dipl.-Ing. Harald

ZELM ex

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Kommunikation

Mobile Computing

Portable Handlampen

Mess- & Kalibriertechnik

Communication

Portable Lighting

Mobile Computing

Measuring & Calibration