

RAM4X (SSM-72H) **Wireless Remote Access Microphone**



FELLECS TECH

Ihr Partner für Funktechnik

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NOTE

To connect the **SSM-72H (RAM4X)**, the **SCU-30** Wireless Access Point firmware must be Ver. 2.00.00 or later.

The **RAM4X (SSM-72H)** allows remote control for all functions (Except "SPEAKER SELECT" in the CONFIGURATION SETUP MENU), of the enabled Standard Horizon fixed mount VHF radio. The full dot matrix display and programmable keys make operations quick and easy. Additional features include a Water activated Emergency Strobe Light, a MOB (Man Over-Board) function, and all DSC functions including Distress Signaling. Utilizing the optional **SCU-30** Wireless Access Point, up to four **RAM4X (SSM-72H)** Wireless Remote Access Microphones may be connected to a fixed mount VHF radio.

Owner's Manual

The details for the installation and operation of the **RAM4X (SSM-72H)** are included in the Owner's Manual of the compatible fixed mount VHF radio, or the Owner's Manual can be downloaded at www.standardhorizon.com.

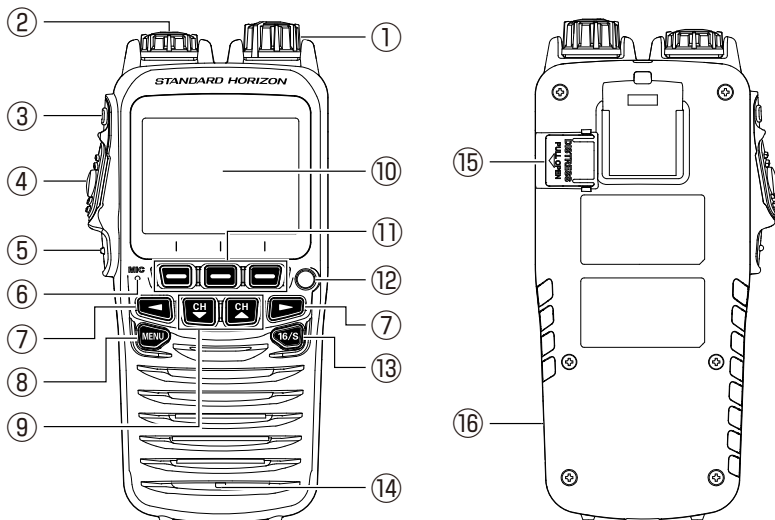
Safety Precautions (Be Sure to Read)

Be sure to read the safety precautions printed in the Operating Manual of the compatible fixed mount VHF radio to use this product safely.

NOTE

This instruction manual uses illustrations of the GX6000 display screen to explain the transceiver operating procedures.

Front and Rear Panel



① **Power/VOL knob**

Press and hold this knob to turn the **RAM4X** remote microphone ON or OFF.
Turn the knob to adjust the speaker volume.

② **DIAL/ENT knob**

While the normal operating screen is displayed, rotate the **DIAL/ENT** knob to select the desired channel. While the MENU screen is displayed, rotate the knob to select the desired menu item.

Secondary use:

Press this knob to enter a selection in the MENU.

③ **SQL key (Squelch control)**

Press this key to activate the squelch adjustment mode. Press the **[CH▲]** or **[CH▼]** key to adjust the squelch level.

④ **PTT (Push-To-Talk) switch**

Press this switch to enable transmit.

⑤ **CLEAR/🔒 key**

Press this key to cancel a menu selection. Press and hold this key to activate the key lock function.

Press and hold this key again to deactivate the key lock function.

⑥ **Microphone**

Yaesu Clear Voice Noise Reduction Technology will reduce the transmitted background noise, when speaking into the microphone.

Note: Position your mouth about 1/2" (1.5 cm) away from the microphone aperture and speak in a normal voice.

⑦ **◀ & ▶ keys**

Press these keys to switch the function menu.

Secondary use:

While the MENU screen is displayed, press the key to shift the on-screen menu to the right/left side.

⑧ **MENU key**

Press this key to access the MENU.

⑨ **CH▼ & CH▲ keys**

These keys are used to change the operating channel.

Press the key momentarily, to increase/decrease the channel one step. Holding the key, increases/decreases the channel number continuously.

Secondary use:

- While the MENU screen is displayed, press the key to shift the on-screen menu upward/downward.
- When in the PA or Fog mode, press the key to change the channel.

⑩ **Display**

Full dot matrix display (222 x 162 pixels).

⑪ **Soft keys**

These three programmable keys can be customized using the setup menu mode. When pressing one of these keys briefly, the key functions will appear at the bottom of the display.

⑫ **Strobe LED**

When the [**STROBE**] soft key is pressed, the Strobe LED will light or flash repeatedly. When the **RAM4X** comes in contact with water, the Strobe LED will light or flash to assist in locating the **RAM4X** in low light conditions.

⑬ **16/S key**

Pressing this key immediately recalls channel 16 from any channel location. Holding down this key recalls the SUB channel (The default setting is channel 9). Pressing this key again reverts to the previous selected working channel.

⑭ **Speaker**

The internal speaker is located here.

⑮ **DISTRESS key**

This key is used to send a DSC distress call.

⑯ **USB jack**

Use the micro USB type B jack to connect the **SSM-72H (RAM4X)** battery charger.

NOTES

- The RAM4X is only floating / submersible* when the USB jack is properly sealed with jack cover. *(IPX8 Specification for submersibility: 4.92 ft. (1.5 m) for 30 minutes.)
- Make sure that there is no dust, dirt or crack on the jack or the rubber gasket.
- Remove any dust and dirt before closing the cover.
- If you find any cracks on the jack cover or gasket, please contact Standard Horizon or your local dealer to purchase a replacement.
- To keep the LCD, keypad and speaker grill clean and in top operating condition after exposure to water: Clean the RAM4X with fresh water after exposure to salt water by rinsing the RAM4X under a sink faucet or by dunking the RAM4X in a bucket of fresh water. After washing, use a soft cloth and thoroughly dry all parts of the RAM4X.

Included Accessories and replacement part numbers

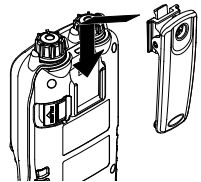
- **SAD-17** USB Wall Charger (100-240 VAC)
- **T9101648** USB Cable (Type USB "A" plug to Type USB micro "B" plug)
- **CLIP-22** Belt Clip
- **SCH-11** Belt Clip Hanger & Screws (U40412220 x 2 pcs)
- Hand Strap

Optional Accessories

- **SCU-30** Wireless Access Point with 5 feet (1.5 m) Cable*
*(The SCU-30 firmware must be Ver. 2.00.00 or later.)
- **SDD-14** USB DC Charger with Cigarette Lighter Plug

Belt Clip Installation / Removal

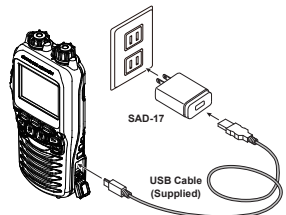
1. To install the Belt Clip **CLIP-22**, align it to the groove of the rear panel, then press the Belt Clip downward until it locks in place with a "Click".
2. To remove, pull the **CLIP-22** latch tab away from the rear panel to unlock the **CLIP-22**, then slide the **CLIP-22** upward to remove it.



Battery Charging

If the battery has never been used, or its charge is depleted, charge the **RAM4X** according to the following procedures:

1. Turn the **RAM4X** OFF.
2. Slide the USB jack cover button down to open the cover.
3. Referring to the figure at the right, connect the supplied USB Cable to the USB jack.
4. If the connection is correct, the **RAM4X**'s LCD display will show the battery charging icon.
5. A fully discharged **RAM4X** will be charged completely in approximately 4 hours. When charging is completed, the battery charging icon will disappear.



CAUTION

Waterproof and floating features of the **RAM4X** are assured only when the USB jack cover is locked completely.
The **SAD-17** or **SDD-14** is NOT designed to be waterproof. Charge the radio in a dry location.

Built-in Lithium-ion Battery

Capacity	1800 mAh			
Nominal Voltage	3.7 V			
Temperature Range	Minimum		Maximum	
	°C	°F	°C	°F
Charge	5	41	35	95
Discharge	-20	-4	60	140
Storage	-10	14	35	95

Battery Safety

This equipment contains a built-in Li-ion battery. This type of battery stores a charge powerful enough to be dangerous if misused or abused, especially when removed from the equipment. Please observe the following precautions:

DO NOT SHORT BATTERY PACK TERMINALS: Shorting the terminals that power the equipment can cause sparks, severe overheating, burns, and battery cell damage. If the short is of sufficient duration, it is possible to melt battery components. Do not place a loose battery pack on or near metal surfaces or objects such as paper clips, keys, tools, etc.

DO NOT INCINERATE: Do not dispose of any battery in a fire or incinerator. The heat of fire may cause battery cells to explode and/or release dangerous gases.

Battery Maintenance

For safe and proper battery use, please observe the following:

- Battery packs should be charged only in non-hazardous environments.
- Use only STANDARD HORIZON-approved batteries.
- Use only a STANDARD HORIZON-approved charger. The use of any other charger may cause permanent damage to the battery.
- Follow charging instructions provided with the chargers.

Battery Recycling

DO NOT PLACE USED BATTERIES IN THE REGULAR TRASH! LI-ION BATTERIES MUST BE COLLECTED, RECYCLED OR DISPOSED OF IN AN ENVIRONMENTALLY SAFE MANNER.








Incinerating Li-ion batteries, placing them in the land fill, or mixing them with the municipal solid waste collection, is PROHIBITED BY LAW in most areas.


Return batteries to an approved Li-ion battery recycler. This may be available where the battery was purchased.

Contact your local waste management officials for other information regarding the environmentally safe collection, recycling and disposal of Li-ion batteries.

NOTE: Contact a Standard Horizon dealer or Factory Service about the built-in battery replacement.

Battery Life Information

	: Full battery power
	: Enough battery power
	: Low battery power
	: Poor battery power. Charge battery.
	: Charge the battery immediately

When the “” icon appears, it is recommended that you charge the battery soon.

WARNING

If the RAM4X will be unused for a long period of time, be sure to fully charge the built-in battery before storing it. When the RAM4X is stored for an extended period, recharge the built-in battery every six months to prevent it from over-discharging.

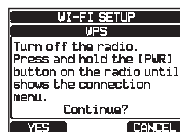
Connecting the RAM4X and the Transceiver

Once the transceiver and the **RAM4X** have been connected, and the settings have been stored to each other, when both are turned ON, they are automatically connected. Up to four **RAM4X** remote microphones can be connected at the same time.

WARNING

Keep the device away from 802.11b/g/n Wi-Fi devices, Bluetooth devices, cordless phones, transformers, heavy-duty motors, fluorescent lights, microwave ovens, and refrigerators to prevent signal interference or loss.

1. When the **RAM4X** is turned ON for the first time after purchase, the WI-FI SETUP screen will be displayed automatically.



(RAM4X Screen)

2. Press the [YES] soft key on the **RAM4X** to display the WPS screen.



(RAM4X Screen)

3. Press and hold the **POWER** switch on the transceiver for about 10 seconds until the WPS screen is displayed.

NOTE: If the **SCU-30** is not connected to the transceiver, a warning screen will be displayed. In that case, press the [OK] soft key, check the connection between the transceiver and the **SCU-30**, and then perform step 3.




(Transceiver Screen)

- Press the **[WPS]** soft key on both the transceiver and the **RAM4X**.

NOTE: If “Error!” appears on the screen, press the **[OK]** soft key, then perform step 1.



- If “**Subscribed**” appears on both the transceiver and the **RAM4X** screens, the connection is completed.

Press the **[OK]** soft key to return to the normal operating screen. The signal strength of WI-FI is displayed with the antenna icon “”.



Once the connection is completed, when the transceiver and the **RAM4X** are turned ON, they will be connected automatically.

NOTE: To connect with two or more **RAM4X** microphones, repeat the same procedure as above, or connect with the **RAM4X** using the WI-FI SETUP screen (see Page 6 or Page 7) for the transceiver setup.



WI-FI SETUP MENU of the RAM4X

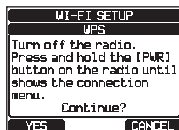
NOTE: If the MENU key on the **RAM4X** is pressed while searching for **SCU-30** after turning on **RAM4X**, the WI-FI SETUP screen will be called directly.

WPS (Wi-Fi Protected Setup)

This menu item connects the **RAM4X** and the transceiver using the WPS function.

-  → “**SETUP**” → “**WI-FI SETUP**” → “**WPS**”
(RAM4X)

- Press the **[YES]** soft key to display the WPS screen.
- Refer to “**WPS (Wi-Fi Protected Setup)**” in the WI-FI SETUP MENU of the transceiver (Page 9) to display the WPS screen on the transceiver.



- Connect the **RAM4X** and the transceiver by following the same procedure as described in the step 4 of “**Connecting the RAM4X and the Transceiver**” (Page 5).

When “**Subscribed**” is displayed, connection of the **RAM4X** and the transceiver is completed. Once the connection is completed, thereafter they will be connected automatically when the transceiver and the **RAM4X** are turned ON.

Up to four **RAM4X** remote microphones can be connected simultaneously to the transceiver.



CONNECTION

This menu item displays the information of the **SCU-30** and the **RAM4X** that are previously connected, and can be connected to the **SCU-30**.

1. **[MENU]** (RAM4X) ➡ **"SETUP"** ➡ **"WI-FI SETUP"** ➡ **"CONNECTION"**

The information of the **SCU-30** is displayed. The **"[SYC]"** icon is shown on the right side on the currently connected **SCU-30**.

2. Rotate the **DIAL/ENT** knob to select the desired **SCU-30** from the list, and press the **[SELECT]** soft key.

The connection information of the selected **SCU-30** is displayed.

- Deleting the **SCU-30** from the list

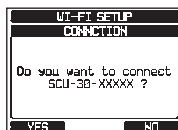
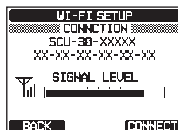
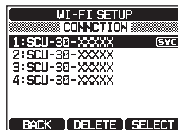
Rotate the **DIAL/ENT** knob to select the **SCU-30** that is not currently connected and then press the **[DELETE]** soft key to delete the **SCU-30** from the list.

3. Press the **[CONNECT]** soft key on the connection information screen to connect to the selected **SCU-30**.

If **"Error!"** appears on the screen, press the **[OK]** soft key, then perform step 1.

4. Press the **[YES]** soft key to start the connection. (To cancel, press the **[NO]** soft key.)

5. When **"Connected"** appears on the screen, press the **[OK]** soft key to return to the normal screen.



WI-FI SETUP MENU of the Transceiver

This menu is displayed only when the **SCU-30** is connected to the transceiver.

AP SETUP (Access Point SETUP)

This menu item displays the information of the **SCU-30** Wireless Access Point, and permits changing the setting.

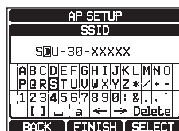
1. **[MENU]** (Press) ➡ **"SETUP"** ➡ **"WI-FI SETUP"** ➡ **"AP SETUP"** (GX6000)
[MENU] (Press and hold) ➡ **"WI-FI SETUP"** ➡ **"AP SETUP"** (GX2400)

2. Rotate the **DIAL/ENT** knob to select the desired menu item, and then press the **[SELECT]** soft key.

NOTE: Settings of “**SECURITY:**” and “**MAC ADDRESS:**” items cannot be changed.



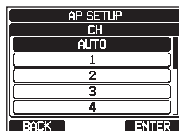
3. In the “**SSID:**” and “**PASSWORD:**” items, use the **DIAL/ENT** knob and the **[SELECT]** soft key to enter characters, and then press the **[FINISH]** soft key to store the entry.



4. In the “**CH:**” item, rotate the **DIAL/ENT** knob to set the Wi-Fi channel setting, and then press the **[ENTER]** soft key.

AUTO: Automatically selects Wi-Fi channel to be used

1~11: Use the set Wi-Fi channel



5. When all the desired settings have been entered, rotate the **DIAL/ENT** knob to select “**SAVE**”, then press the **[SELECT]** soft key to save the settings and return to the normal operating screen.



TERMINAL CONNECTION

This menu item displays the information of the **RAM4X** that the **SCU-30** previously connected.

1. **[MENU]** (Press) ➡ “**SETUP**” ➡ “**WI-FI SETUP**” ➡ “**TERMINAL CONNECTION**” (GX6000)
[MENU] (Press and hold) ➡ “**WI-FI SETUP**” ➡ “**TERMINAL CONNECTION**” (GX2400)

The information of the **RAM4X** is displayed. The “**[SYC]**” icon is displayed at the right side of the currently connected **RAM4X**.

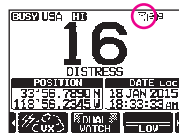
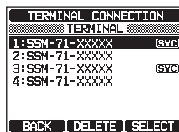
2. Rotate the **DIAL/ENT** knob to select the **RAM4X** from the list, and press the **[SELECT]** soft key.

The connection information of the selected **RAM4X** is displayed.

- Deleting the **RAM4X** from the list

Rotate the **DIAL/ENT** knob to select the **RAM4X** that is not currently connected and then press the **[DELETE]** soft key to delete the **RAM4X** from the list.

3. Press the **[CLEAR]** key to return to the normal operating screen. The signal strength of Wi-Fi is displayed with the antenna icon “**📶**”.



WPS (Wi-Fi Protected Setup)

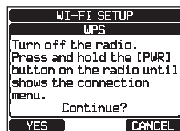
These menu item settings connect the transceiver and **RAM4X** using the WPS function.

- [MENU] (Press) ➡ "SETUP" ➡ "WI-FI SETUP" ➡ "WPS"
(GX6000)

[MENU] (Press and hold) ➡ "WI-FI SETUP" ➡ "WPS"
(GX2400)
- Press the [YES] soft key to display the WPS screen.
- Refer to "**WPS (Wi-Fi Protected Setup)**" of WI-FI SETUP MENU of the **RAM4X** (Page 6) to display the WPS screen of the **RAM4X**.
- Connect the transceiver and the **RAM4X** using the procedure in step 4 of "**Connecting the RAM4X and the Transceiver**" (Page 5).

When "**Subscribed**" is displayed, connection of the transceiver and the **RAM4X** is completed. Once the connection is completed, they will be connected automatically whenever the transceiver and the **RAM4X** are turned ON.

Up to four **RAM4X** can be connected simultaneously to the transceiver.



Configuration Setup

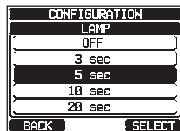
RAM4X operation is same as the enabled radio. This makes operation of the radio and **RAM4X** microphone similar and much easier. The only difference is that the following three items are added to CONFIGURATION SETUP:

LAMP

This menu selection is used to setup the illumination time of the display and keypad.

NOTE: This function is available for the GX6000 with the Radio firmware Ver2.00.06 or later and the AIS firmware Ver. 1.00.05 or later.

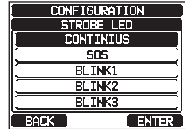
- [MENU] ➡ "SETUP" ➡ "CONFIGURATION" ➡ "LAMP"
(RAM4X)
- Rotate the DIAL/ENT knob to select the desired setting ("5sec" is default).
OFF: Disables the display/keypad lamp illumination.
3/5/10/20/30sec: Illuminates the display/keypad for the selected time when any key is pressed.
CONTINUOUS: Illuminates the display/keypad continuously.
- Press the [SELECT] soft key to store the selected setting.
- Press the **CLEAR/On** key to return to radio operation.



STROBE LED

When the **[STROBE]** soft key is pressed, the Strobe LED will light or flash repeatedly. When the **RAM4X** comes in contact with water, the Strobe LED will light or flash to assist in locating the **RAM4X** in low light conditions.

1. **[MENU]** → **"SETUP"** → **"CONFIGURATION"** → **"STROBE LED"**
(RAM4X)
2. Rotate the **DIAL/ENT** knob to select the desired setting from: **"CONTINUOUS"** (default setting), **"SOS"**, **"BLINK 1"**, **"BLINK 2"**, or **"BLINK 3"**.
3. Press the **[ENTER]** soft key to store the selected setting.
4. Press the **CLEAR/On** key to return to radio operation.
5. When the **[STROBE]** soft key is pressed, the Strobe LED will light or flash repeatedly.



SPEAKER SELECT

This menu item is not available for RAM4X.

Specifications

Supply Voltage:	3.7 VDC
Current Consumption:	100 mA @AF Mute / 450 mA @VOL Max.
Operating Temperature:	-4°F to +140°F (-20°C to +60°C)
Wireless Networking Module:	FCC ID: K660A290910, IC: 511B-0A290910
Frequency Band:	2412 to 2462 MHz
Wireless Networking Standard:	IEEE 802.11 b/g/n
RF Output:	0.09 W
AF Output:	700 mW @ 8 ohms for 10% THD
Display Size:	1.8" x 0.9" (45 mm x 23 mm)
Display Resolution:	222 x 162 dots
Dimensions (W x H x D):	2.5" x 5.3" x 1.3" (63 mm x 135 mm x 32.5 mm)
Weight (Approx):	7.76 oz (220 g) (with Belt Clip)

Symbol placed on the equipment

 Direct Current

FCC Notice

Unauthorized changes or modifications to this equipment may void compliance with FCC Rules. Any change or modification must be approved in writing by STANDARD HORIZON.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES. OPERATION IS SUBJECT TO THE FOLLOWING TWO CONDITIONS: (1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE, AND (2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED, INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRE OPERATION.

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, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Changes or modifications to this device not expressly approved by YAESU U.S.A. could void the User's authorization to operate this device.

YAESU

Declaration of Conformity

Type of Equipment: RAM4X Wireless Remote Access Microphone
Brand Name: YAESU
Model Number: SSM-72H
Manufacturer: YAESU MUSEN CO., LTD.
Address of Manufacturer: Tennozu Parkside Building, 2-5-8 Higashi-Shinagawa,
Shinagawa-ku, Tokyo 140-0002 Japan

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

The technical documentation as required by the Conformity Assessment procedures is kept at the following address:

Company: Yaesu U.S.A.

Address: 6125 Phyllis Drive, Cypress, CA 90630, U.S.A.

Telephone: (714) 827-7600

EU Declaration of Conformity

We, Yaesu Musen Co. Ltd of Tokyo, Japan, hereby declare that this radio equipment SSM-72H is in full compliance with EU Radio Equipment Directive 2014/53/EU. The full text of the Declaration of Conformity for this product is available to view at <http://www.yaesu.com/jp/red>

ATTENTION – Conditions of usage

This transceiver works on frequencies that are regulated and not permitted to be used without authorisation in the EU countries shown in this table. Users of this equipment should check with their local spectrum management authority for licensing conditions applicable for this equipment.



AT	BE	BG	CY	CZ	DE
DK	ES	EE	FI	FR	UK
EL	HR	HU	IE	IT	LT
LU	LV	MT	NL	PL	PT
RO	SK	SI	SE	CH	IS
LI	NO	–	–	–	–

Disposal of Electrical and Electronic Equipment

Products with the symbol (crossed-out wheeled bin) cannot be disposed as household waste.

Electronic and Electrical Equipment should be recycled at a facility capable of handling these items and their waste byproducts.

Please contact a local equipment supplier representative or service center for information about the waste collection system in your country.



FELLECS TECH

Ihr Partner für Funktechnik

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STANDARD HORIZON

Nothing takes to water like Standard Horizon

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