CM–15

condenser microphone
user guide

CM–15

introduction

CM–15 is an ultra-portable studio grade condenser microphone. with more features than meets the eye, it's a most diverse audio device, both in and outside the studio. this guide is written to take you on a tour of CM–15 for you to discover its full functionality. the latest manual can be found online.

- have a pleasant field trip!

field system

field system began as an idea to create a series of products that function as part of a whole. with aluminum casings and nylon bag accessories; every item is designed with portability, compatibility and durability in mind. as usual, we aim to pack in as much technology into as little space as possible, getting the most out of every device. more than just an engineering challenge, field system is driven by a desire to rethink the way we approach music making.

care

before getting started, make sure to carefully read these instructions. see the section at the end on warnings and warranty for more information. CM–15 is a highly technical and delicate product. make sure to learn how to properly operate, care for and store your device, and take time to register your unit here: teenage.engineering/register

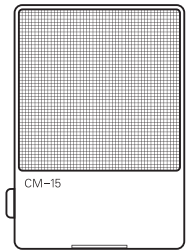
the latest version of this guide: teenage.engineering/guides/cm-15

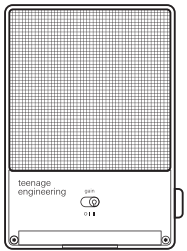
hardware

CM–15 is the worlds first ultra-portable, battery powered, large-diaphragm condenser microphone, with simultaneous audio output over usb-c, mini jack line out, and phantom powered mini xlr. it is encased in anodized aluminum, with custom capsule suspensions and an embedded table stand. your CM–15 comes with a ¼ – ⅜ inch threaded stand adapter, a mini xlr to xlr cable and a usb-c cable.

CM–15 highlights:

- 1-inch large-diaphragm capsule
- 48 V phantom power compatible
- pseudo-balanced mini xlr output
- dual mono mini jack line output
- usb-c class compliant device with high performance SABRE ADC
- OPA 140 JFET amplifier stage with ultra low distortion and extremely high input impedance
- 10 hour rechargeable battery
- flexible power system
- ±18 dB pad / gain switch
- embedded table stand

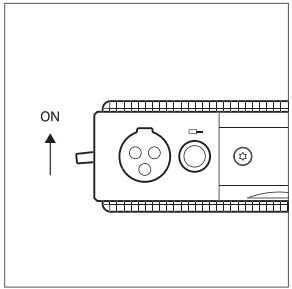




power on

turn on the unit by flipping the power switch to the on position. the status led next to the switch will light up, indicating that the unit is on. a green light means that it is fully charged.

protect your hearing. be careful when turning the unit on and when connecting to external equipment.



charging

CM–15 is charged through the usb port. use the included usb-c cable and connect the unit to a computer, or a dedicated charger to charge the battery.

charging from empty battery to full takes about 2 hours, depending on the charger used.

to keep the battery healthy, the unit should be charged at least every 6 months.

firmware update

to update the CM–15 firmware: connect the unit via usb to a computer and visit the midi updater web page. use your favorite web browser to access this page and follow the on-screen instructions:

teenage.engineering/apps/update

you can also update by downloading a firmware file. the latest file and instructions can be found here:

teenage.engineering/downloads/cm-15

powering

CM–15 has flexible power options that makes it useful in many different scenarios. it can be powered by three different sources, one at a time or simultaneously, and it automatically handles the power priority.

the internal battery is only charged from the usb-c port. phantom power cannot charge the battery.

CM–15 can be powered by:

- 48 V phantom power
- usb type c
- internal battery

note: CM–15 handles all power switching automatically.

status led

green

solid:
the power is on and the battery is charged.

pulsating:
the battery is fully charged.

orange

solid:
the power is on and the battery is getting low.

pulsating:
the battery is charging.

red

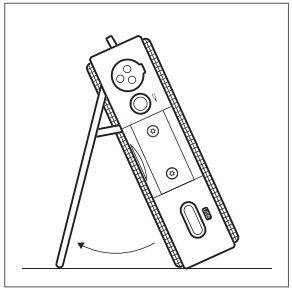
flashing:
low battery!
time to charge.

note: the full battery life is approximately 10 hours.

built-in stand

CM–15 has a built-in table stand that can be used to rest and angle the microphone on a surface.

for the best possible recording quality, make sure to avoid any unwanted surface vibrations when recording this way.

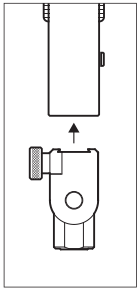


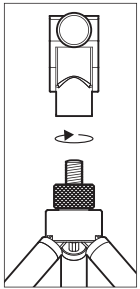
tripod adapter

your CM–15 also comes with a standard ¼" and ⅜" adapter, making it universally compatible with standard microphone stands and tripods. it fits perfectly with the tripod mini accessory (sold separately).

mount the adapter by first loosening the thumbscrew. place it on the center, bottom side of the mic, and tighten until properly mounted.

fix the adapter on the tripod by simply screwing it on clockwise.



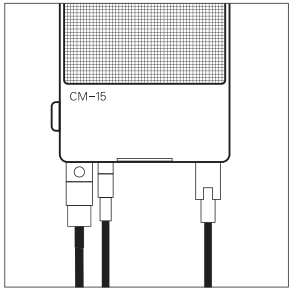


outputs

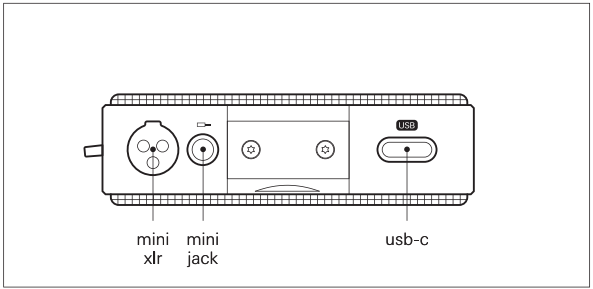
CM–15 field mic features three audio outputs that can be used individually or in any simultaneous combination.

the three outputs are located on the bottom of the unit: the mini xlr, 3.5 mm mini jack and usb-c. this means there are two analog outputs, each with its own advantage for use.

the usb-c port can be used as a digital audio interface, as well as for firmware updates and for charging the internal battery.



outputs



connections

mini xlr

the compact size mini xlr output gives you the highest quality recordings and is intended to be used with your recording console, preamp or audio interface. use the included mini xlr to xlr cable, and apply 48 volt phantom power.

the power consumption is around 3 mA. in phantom-power operation the status led is green.

mini jack

the mini jack output is meant to be used in portable battery powered scenarios, such as with TX–6, OB–4 or a camera mic input.

it is a line level output and it features a dual mono signal, meaning the signal is identical for both tip and ring. use a stereo cable for stereo inputs, or a stereo to dual mono splitter for mono inputs.

note: do not apply phantom power to the mini jack.

usb-c

CM–15 is a usb class compliant audio device. when connecting it to a usb host device, such as a laptop or OP–1 field, it will show up as a 1-input audio interface, as long as the unit is turned on.

when connected while turned off, the device is only charging the battery and it won't show up as an interface.

the available audio rates are:

- 44.1 kHz
- 48 kHz
- 88.2 kHz
- 96 kHz

when in usb mode, an additional ±12 dB digital gain is applicable from the usb interface settings in your computer.

start

CM–15 is designed to be easy to use. use the tripod adapter or the built in stand to set it up, connect any cable needed for your application and you are ready to record.

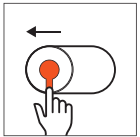
the only setting on the microphone itself is the pad / gain switch. adjust it based on the sound source. move the switch left to pad –18 dB, and right to gain +18 dB. this is analog gain that applies to all the outputs, without SNR degradation. additional ±12 dB are available digitally in usb mode.

pad / gain switch

0 db

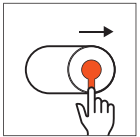
the pad / gain switch has three settings: –18 dB, 0 dB and +18 dB.

–18 dB



move the switch to the far left position to pad –18 dB.

+18 dB



move the switch to the far right position to apply +18 dB gain.

guide conventions

gain set to –18 dB

gain set to 0

gain set to +18 dB

current power source

these following icons are shown in the scenario section, as a recommended setting for each individual set-up.

scenarios

as with all teenage engineering products, CM–15 has been developed with portability and compatibility in mind.

while it is best used in a controlled studio setting, the following pages illustrate a variety of ways in which CM–15 can be put to use.

make sure to adjust the pad / gain switch accordingly based on the sound source.

CM–15 features an acoustically transparent fine mesh to protect the capsule. however, do not abuse the capsule by blowing directly on the front or back of the microphone.

slightly angling the mic away from your mouth, or a high pressure sound source, will give a natural pop filter effect. an external pop filter is recommended for voice recordings, such as podcasts and singing.

a windscreen is recommended for outdoor use.

studio recording

CM–15 is perfect for studio use, both in the vocal booth and for instruments, including your drum kit.

interview / podcast

it is great for interviews, video conferences and podcasts, where you need the highest audio quality.

field work

since CM–15 is small and can be battery powered it's easy to travel with. the 10 hour battery life comes in handy.

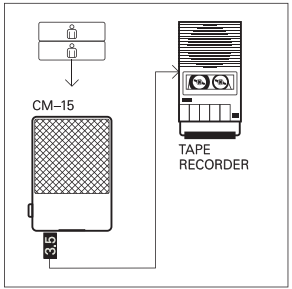
camera mic

when filming with a video camera, you can plug in CM–15 to record the audio directly.

interview

gain: II

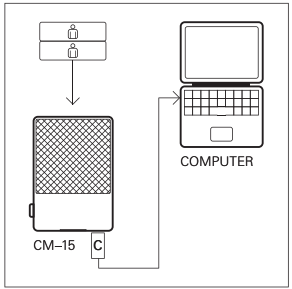
battery



video conference

gain: II

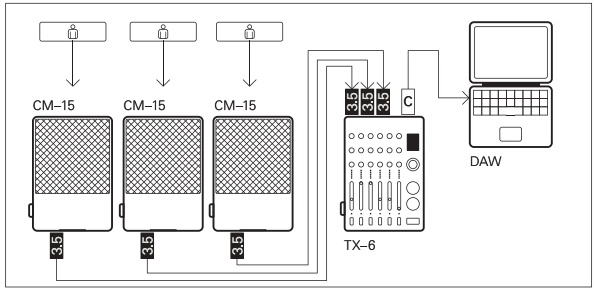
usb-c



podcast

gain: I

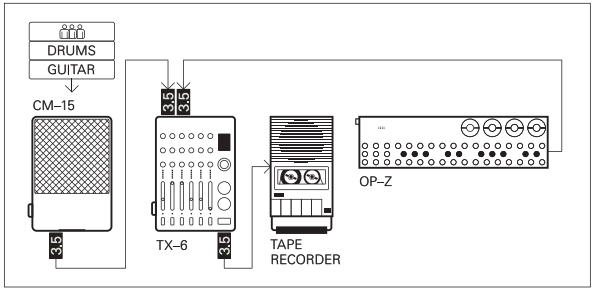
battery



field jam

gain: I

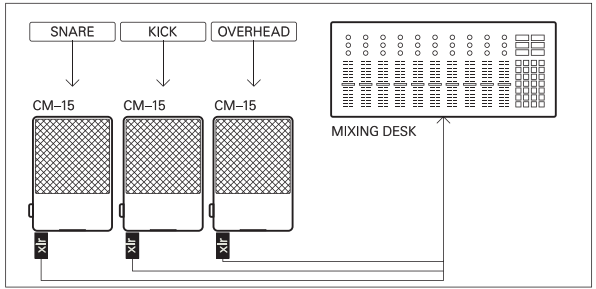
battery



drums

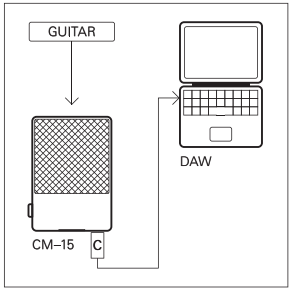
gain: 0

phantom



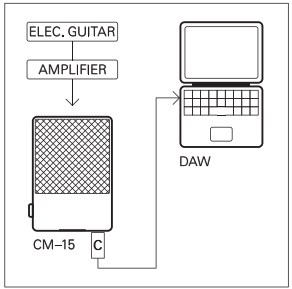
acoustic guitar jam

gain: I usb-c



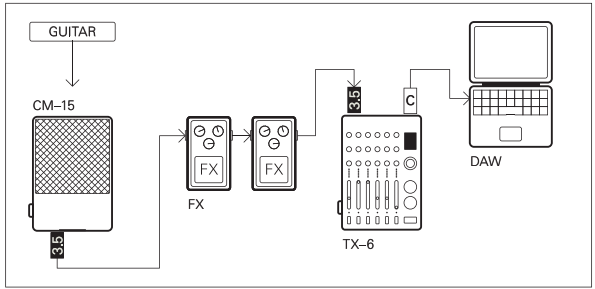
electric guitar jam

gain: 0 usb-c



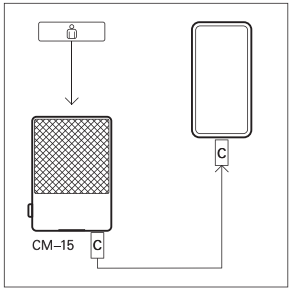
pedal board jam

gain: I battery



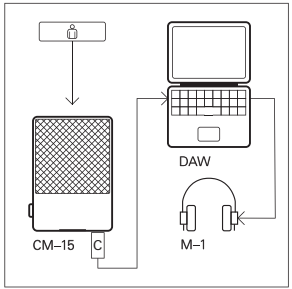
mobile recording

gain: I usb-c



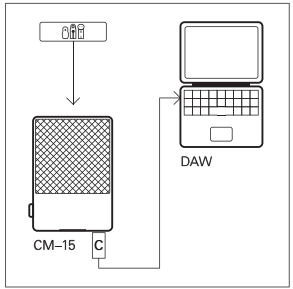
solo vocals

gain: I usb-c



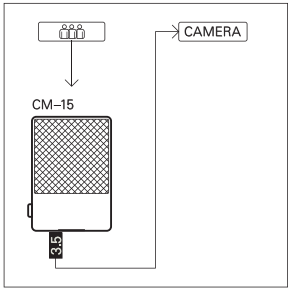
choir

gain: II usb-c



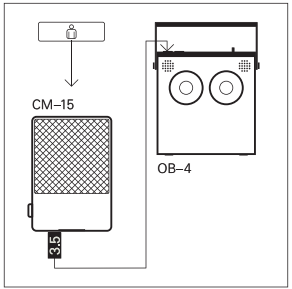
camera

gain: 0 battery



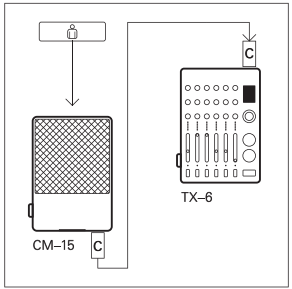
megaphone

gain: I battery



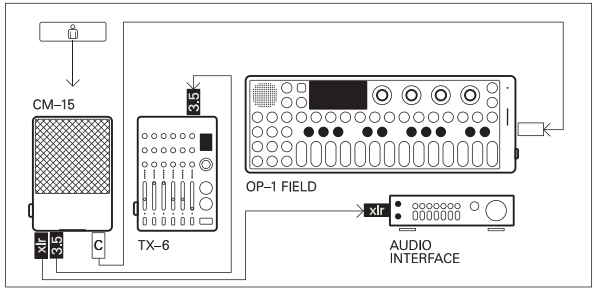
field mix

gain: I usb-c



parallel monitoring

gain: I usb-c

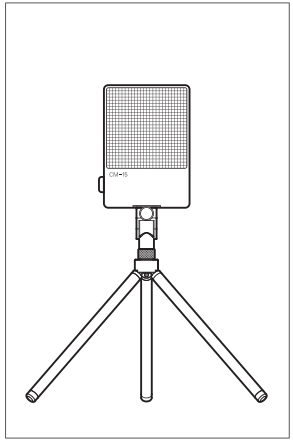


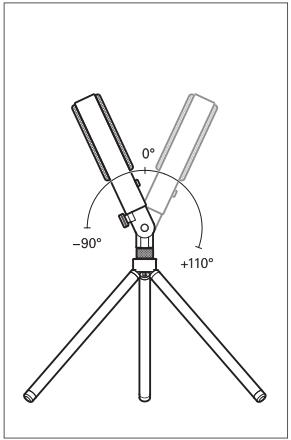
mounting options

to get the most out of your CM–15 mic, we have developed a stand: tripod mini.

tripod mini measures 184 mm in height, unfolded, with the adapter mounted, and 146 mm when standing. the mic is easily mounted with the included adapter. the adapter helps you tilt the unit in the angle you prefer, 90° frontwards and 110° backwards. the angle makes it possible for the mic to be mounted on a boom arm or to tilt it to better record overheads.

adjust the angle by rotating the center screw on the tripod. tighten or loosen the mount with the thumb screw on the adapter.





technical specifications

- 1-inch large-diaphragm capsule
- 48 V phantom power compatible
- pseudo-balanced mini xlr output
- dual mono mini jack line output
- usb-c class compliant device with high performance SABRE ADC
- usb audio class 1
- 10 hour rechargeable battery
- ±18 dB pad / gain switch
- dimensions: 90 x 65 x 22 mm
- weight: 132 g / 4.6 oz

audio characteristics

- self noise: 14 dBA
- max SPL for 0.5% THD: 138 dB
- usb SNR dBA FS: 120 dB
- impedance xlr: 600 Ohm, pseudo-balanced
- impedance line: 300 Ohm
- polar pattern: supercardioid
- polarity: positive

handling

ambient working temperature:
0–50°C (32–122°F)

ambient storage temperature:
0–30°C (32–86°F)

handle with care. do not drop, throw or shake the unit. clean the shell of the unit with a microfibre cloth.

to keep the battery healthy, the unit should be charged at least every 6 months. if not used for a long time, it may not charge again.

capsule

CM–15 features a large-diaphragm capsule with a rubber suspension mechanism, designed to be very durable.

when using CM–15 outdoors it's recommended to use a windscreen. also make sure to adjust the pad / gain switch accordingly based on the sound source.

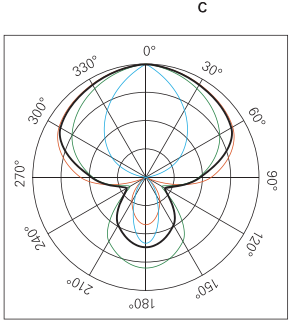
when transporting the microphone please pack it well to protect it and to reduce the risk of damage from excessive vibrations.

polar pattern

8 kHz
1 kHz
250 Hz
125 Hz

CM–15 has a supercardioid polar pattern, which means that it is unidirectional and mainly picking up sounds located in front of it.

this allows for very focused recordings of voices or instruments.



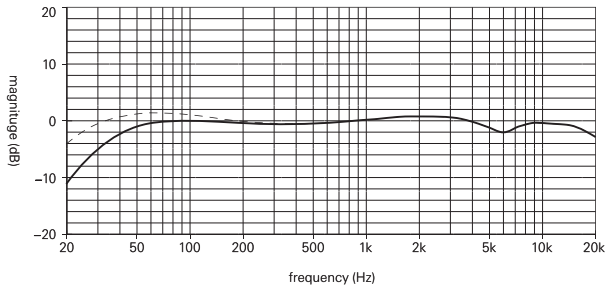
frequency response

CM–15 has the flattest frequency response at a distance of 50 cm. there will be a bass increase if used at a closer distance, and a bass decrease if used further away.

experiment with placing the microphone at different locations to get the desired result for your recording session.

frequency response

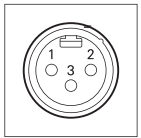
50 cm distance
30 cm distance



cable pin out

this is the pin out for the included xlr to mini xlr cable, as well as for the standard 3.5 mm trs line cable.

xlr: plug

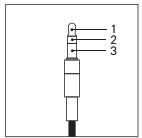


1: ground (shield)
2: positive (hot)
3: negative (cold)

mini xlr: socket

1: ground (shield)
2: positive (hot)
3: negative (cold)

line



the signal is duplicated on both tip (1) and ring (2). sleeve (3) is ground.

warnings and warranty

TEENAGE ENGINEERING CM–15
MODEL NO: TE029AS001

RISK OF EXPLOSION OR FIRE IF THE BATTERY IS REPLACED WITH INCORRECT TYPE. ONLY A BATTERY SUPPLIED BY TEENAGE ENGINEERING AND INSTALLED BY QUALIFIED PERSONNEL SHOULD BE USED. TO PREVENT POSSIBLE HEARING DAMAGE, DO NOT LISTEN AT HIGH SOUND LEVELS FOR LONG PERIODS.

FOR WARRANTY, SAFETY INSTRUCTIONS AND FULL REGULATORY INFORMATION, VISIT:
teenage.engineering/guides/cm-15

THIS DEVICE COMPLIES WITH PART 15 OF THE FCC RULES AND ISED CANADA'S LICENCEEXEMPT RSS(S). 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.

MODIFICATIONS NOT EXPRESSLY APPROVED BY TEENAGE ENGINEERING COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

avertissements et garantie

TEENAGE ENGINEERING CM–15
MODEL NO: TE029AS001

RISQUE D'EXPLOSION OU DE FEU SI LA BATTERIE EST REMPLACÉE PAR UN TYPE DE BATTERIE INCORRECT. SEULE UNE BATTERIE FOURNIE PAR TEENAGE ENGINEERING ET INSTALLÉE PAR UN PERSONNEL QUALIFIÉ DOIT ÊTRE UTILISÉE. AFIN D'ÉVITER TOUT DOMMAGE LIÉS À VOTRE AUDITION, IL EST RECOMMANDÉ DE NE PAS ÉCOUTER VOTRE MUSIQUE TROP FORT ET TROP LONGTEMPS.

POUR PLUS D'INFORMATIONS À PROPOS DE LA GARANTIE, LES INSTRUCTIONS DE SÉCURITÉS ET INFORMATIONS RÉGLEMENTAIRES, VISITEZ:
teenage.engineering/guides/cm-15

CET APPAREIL EST CONFORME À LA PARTIE 15 DES RÈGLES DE LA FCC ET LE PERMIS D'ISED CANADA NORMES RSS EXEMPTÉES. SON FONCTIONNEMENT EST SOUMIS AUX DEUX CONDITIONS SUIVANTES:

(1) CET APPAREIL NE DOIT PAS PROVOQUER D'INTERFÉRENCES PRÉJUDICIABLES, ET

(2) IL DOIT ACCEPTER TOUTE INTERFÉRENCE REÇUE, Y COMPRIS LES INTERFÉRENCES POUVANT ENTRAÎNER UN MAUVAIS FONCTIONNEMENT.

LES MODIFICATIONS NON EXPLICITEMENT APPROUVÉES PAR TEENAGE ENGINEERING PEUVENT CONDUIRE À ANNULER LES DROITS DE L'UTILISATEUR À UTILISER L'ÉQUIPEMENT.

CAUTION

DO NOT TRY TO CHARGE OR USE A UNIT WITH A SEEMINGLY DAMAGED BATTERY.

ONLY A BATTERY SUPPLIED BY TEENAGE ENGINEERING INSTALLED BY QUALIFIED PERSONNEL SHOULD BE USED.

DISPOSAL OF A BATTERY INTO FIRE OR A HOT OVEN, OR MECHANICALLY CRUSHING OR CUTTING OF A BATTERY CAN RESULT IN AN EXPLOSION.

LEAVING A BATTERY IN AN EXTREMELY HIGH TEMPERATURE SURROUNDING ENVIRONMENT THAT CAN RESULT IN AN EXPLOSION OR THE LEAKAGE OF FLAMMABLE LIQUID OR GAS.

TO PREVENT POSSIBLE HEARING DAMAGE, DO NOT LISTEN AT HIGH SOUND LEVELS FOR LONG PERIODS.

STORE SMALL PARTS OUT OF THE REACH OF CHILDREN AND INFANTS. IF ACCIDENTALLY SWALLOWED, CONTACT AN EMERGENCY MEDICINE DOCTOR IMMEDIATELY

RECYCLING

ELECTRICAL AND ELECTRONIC EQUIPMENT, PARTS AND BATTERIES MARKED WITH THIS CROSSED-OUT WHEELIE BIN SYMBOL MUST NOT BE DISPOSED OF WITH NORMAL HOUSEHOLD WASTAGE, IT MUST BE COLLECTED AND DISPOSED OF SEPARATELY TO PROTECT THE ENVIRONMENT. THIS PRODUCT CONTAINS A BUILT IN LI ION BATTERY.

TEENAGE ENGINEERING AB
TEXTILGATAN 31
120 30 STOCKHOLM
SWEDEN / SUÈDE

designed and
engineered by
teenage
engineering