

# SC20 SERIES HAND-PORTABLES



## DIMENSIONS

Height: 139mm (excluding antenna and rotary)  
Width: 61mm (54mm)  
Depth – standard battery: 32.5mm  
Depth – high-capacity battery: 38mm

## WEIGHT

With standard battery: 241g (excluding antenna)  
With high-capacity battery: 266g (excluding antenna)

## TETRA FREQUENCY BANDS

136-174MHz – SC2021  
380-430MHz – SC2020  
403-470MHz – SC2024  
806-870MHz – SC2028

## POWER SUPPLY

7.4V (nominal) lithium polymer battery packs  
Intelligent reporting batteries  
1160mAh standard battery<sup>1</sup>  
1880mAh high-capacity battery<sup>1</sup>

## TETRA RF PERFORMANCE

RF power:  
MS power Class 3 (2.7W)<sup>1</sup>, Class 3L (1.8W), & Class 4 (1W)<sup>1</sup>  
MSPD power Class 3 (2.7W)<sup>1</sup>, Class 3L (1.8W) & Class 4 (1W)<sup>1</sup>  
DMO repeater power Class 3 (2.7W)<sup>1</sup>, Class 3L (1.8W), & Class 4 (1W)<sup>1</sup>  
RF power customisable for:  
• TMO/DMO/DM-repeater  
• Adaptive power control  
• Receiver class A & B  
• Receiver static sensitivity -116dBm (-118dBm typical)  
• Receiver dynamic sensitivity -107dBm (-109.5dBm typical)

## AUDIO PERFORMANCE

Speaker audio power: 2W with EN-FI filtering  
Rugged accessory connector (sRAC)<sup>2</sup>  
Water porting technology continually clears water from mic/earpiece & speaker to allow use in constant rain

## ENVIRONMENTAL PERFORMANCE

Operational temperature (conformance tested) -20°C to +60°C  
Operational temperature (min./max.) -30°C to +65°C<sup>3</sup>

Storage temperature -40°C to +85°C<sup>4</sup>

Dust & water protection to IP65, IP66, IP67 & IP68

- IPx5 (weatherproof)
- IP6x (dustproof)
- IPx6 (waterproof – heavy rain/spraying/water-jet)
- IPx7 (waterproof – submersible, 1m depth for 30mins)
- IPx8 (waterproof – submersible, 2m depth for 1hour)
- 'Fit for purpose' tested for complete 8hr shifts "in the pouring rain"

Shock, drop & vibration: ETSI EN 300 019 5M3

Salt fog: MIL-STD-810G Method 509; duration 24hr salt<sup>5</sup>

Salt water: submersion, rated at 2m depth for 1hour<sup>5</sup>

## RFID PERFORMANCE

Internal tag: HITAG S2048, short range, 125 KHz, ISO11784 & ISO11785 compliant

Range: 1 cm from back of individual radio box pack

User accessible storage: 2048 bits, passive technology pre-programmed (user editable):

- 32-bit unique identifier
- Serial number
- Hardware code
- TEI

## PRODUCT OPTIONS

GNSS 4 support (GPS, BeiDou2, Glonass, Galileo) from SC2.0

Bluetooth/Wi-Fi broadband module

Man-Down alarm<sup>7</sup>

DM-Repeater Type-1A

Air Interface encryption

End-to-end encryption

Enhanced security module (ESM)

End-to-end encryption smart card support

Wide range of languages supported

Micro SDHC card up to 32GB

User-changeable coloured bar for easy identification

## DISPLAY & USER INTERFACE

Screen:

- 37 x 49mm active LCD area
- High-resolution display QVGA (320 x 240 pixels)
- Sunlight-visible Transflective TFT display, 262K colours

Menu:

- Intuitively-enhanced user interface
- 'Favourite feature' shortcut & event notification bar, with missed call indicator LED
- Choice of three user interface presentation styles (compatibility, grid & list modes)
- Customisable top-level screen content
- Customisable SmartMenus supporting 100s of intuitively arranged soft keys
- Quick change menu for rapid & intuitive selection of talkgroups, status & user profile
- Custom zoom/normal, large & very large mode text
- 'Twist & zoom' portrait image viewer
- Night mode to reduce low-light glare in vehicles
- Invert display for easy viewing whilst lapel- or belt-mounted
- Customisable privacy screen image
- Customisable user profiles e.g. 'covert', 'quiet', 'in a meeting' & 'loud'

Controls:

- Dual-language alpha-numeric keypad option
- Four-way navigation keys
- Three context keys for intuitive menu interaction
- Three configurable feature-activation side keys: blind-find & glove-friendly
- 12 configurable keypad feature activation keys
- Manual & automatic keypad lock
- Hard-capped keys
- Large, easy reach, blind find, glove-friendly PTT
- Blind-find emergency key
- Single rotary

Haptics:

- Vibrate on call/message
- Haptic technology for enhanced key tactility when used with gloves

## TALKGROUP MANAGEMENT

- 9900 talkgroups including TMO & DMO
- 50 DGNAs
- 5000 folders
- Five multi-level structure
- Quick groups/quick folder
- Home group
- Group toggle
- Talkgroup stack toggle

Talkgroup selection:

- Single or user-defined scan list (UDSL)
- 20 UDSL each with 10 talkgroups

Folder selection:

- 4987 folder scan list of 22 scanned talkgroups each
- Each folder scan list with 75 talkgroups
- 10 editable folder scan lists
- Background talkgroups in folder scan list

## NETWORK

Multiple home networks

Up to 30 configurable networks

Simple & mutual authentication

Aliasing with Radio User Assignment (RUA)

- Radio user-initiated log-on/log-off process
- Dispatcher-initiated log-on/log-off process

Preferred location area

Fixed location area

## PHONEBOOK

- 2000 contact names
- Up to six numbers per contact (to a max. of 6000 stored numbers)
- 64 contact folders including favourite folder

## VOICE SERVICES

Individual/group/broadcast call

Half-duplex (individual & group)

Route pre-emptive half-duplex call to internal loudspeaker

Half-duplex audio toggle

Full-duplex calls (to MS & PABX/PSTN)

Full-duplex auto-answer

Independent volume control

Speed, one-touch & direct dialling

Call priority

Calling/talking party identification

DTMF/MSISDN/abbreviated dialling

Ambience listening

Privacy & whisper modes

Group focus

Transmit inhibit with on/off status messaging

Call history

Multiple alert tones

## DMO SERVICES

DMO individual & group call

DMO emergency & intelligent emergency call

DM-repeater inter-working call

DM-gateway inter-working call

Channel-only talkgroup

DM-Gateway talkgroup pair

## DATA SERVICES & APPLICATIONS

Dual-data-bearer support:

- TETRA & broadband Wi-Fi<sup>6</sup>

Single- & multi-slot packet data

WAP support:

- WAP 2.0
- WAP browsing via TETRA
- WAP high-speed browsing via Wi-Fi<sup>6</sup>
- WAP shortcuts embedded in S for instant data access

- WAP access OTA via TETRA or second data bearer

WAP onboard:

- Micro SDHC-based WAP sites for instant access to intelligence, images, maps & text
- Data maintained by Radio Manager2

Bluetooth module:

- Bluetooth v2.1+EDR

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- Bluetooth v4.2
- Bluetooth audio:
  - Headset profile (HSP)
  - PTT extension to HSP support
- Bluetooth data services:
  - Serial Port Profile (SPP) for data connectivity with body-worn printers/scanners
  - Dial-up networking (DUN)
  - Discovery mode
  - Generic attributes profile (GATT)
  - Hardware-ready for:
    - Object push profile
    - Heart device (heart rate & temperature)
    - Battery service profile
    - Devices identity profile
    - MAP
    - HID
    - HoG
- Bluetooth trusted device, auto re-connect
- PEI access
- USB 2.0 support:
  - Host support for interaction with body-worn accessories such as printers & scanners
  - Slave support allows use of SC20 as a modem
  - PEI access
  - High-speed programming
- Enhanced Short Data Applications (eSDAs):
  - Supports all existing SDA capabilities from STP<sup>7</sup>
  - Supports data accessories such as body-worn printers & scanners via Bluetooth or USB
  - Supports online database access & interaction with returned data
- Messaging:
  - SDS messaging (in TMO & DMO)
  - Picture Messaging via SDS or packet data
  - Concatenated SDS messaging
  - Auto-capitalisation in SDS text entry
  - Status messaging (in TMO & DMO)
  - 350 predefined status messages (up to 140 Unicode characters)
- Unicode
  - Up to 30 quick status messages
- Callout & paging:
  - TETRA simple callout/full callout/paging alert
- AT commands:
  - ETSI & enhanced commands
  - via PEI serial port profile over Bluetooth & USB
  - Voice call control supported
- Over the air control & programming:
  - Status-triggered functions
  - Group management via Sepura Public Profile (SPP)
  - Reprogramming over Wi-Fi with Radio Manager2
- Battery status at start-up
- Missed event application
- Major radio status change notification application
- User-expandable up to 32GB via Micro SDHC card

## SAFETY FEATURES & APPLICATIONS

- Emergency call:
- Pre-emptive priority
  - Hands-free live mic operation
  - Emergency voice call & alerting to current or defined talkgroup
  - Emergency status/SDS/location report to defined control user/group
  - Full-duplex or half-duplex emergency calls
  - Manual activation via red emergency key
  - Automatic activation via Man-Down\*\* option
  - Automatic TMO/DMO selection
  - Emergency through DM-repeater/DM-gateway
  - Loud, distinct audio & visual indication
  - Silent alarm call
- Man-Down\*\*:
- Immobility detection
  - Unusual inclination detection
  - Customisable alerting (see Emergency Call Capability)
- Lone-Worker feature
- Blind-find emergency button
- Wake-on-Alarm allows user to switch on radio & signal an emergency in one action

## LOCATION-BASED SERVICES

- GPS integrated option -194dBw (-164dBm) tracking sensitivity
- Over-The-Air GPS reporting:
- ETSI location standard reporting (LIP)
  - NMEA & Sepura compact messaging
- Max. simultaneous satellite track = 24
- GPS-based compass
- On-board mapping capable<sup>6</sup>
- Enhanced start-up & acquire through 'predictive ephemeris'
- RFID tag equipped
- Glonass and BeiDou2 support<sup>6</sup>

## SECURITY SERVICES

- TETRA:
- Authentication
  - Class 1, 2,3 & 3G TETRA security
  - Air Interface encryption TEA1/2/3/4<sup>8</sup>
  - Smart card E2E encryption<sup>8</sup>
  - Embedded E2E encryption<sup>8</sup>
  - Enhanced security module (ESM)
  - In-country E2E Encryption algorithm<sup>8</sup>
  - Multiple E2E algorithm<sup>8</sup>
  - Temporary disable (stun)
  - Permanent disable (kill)
  - 600KEK crypto groups
- Wi-Fi:
- WPA2-PSK, WPA2-Enterprise authentication (radius) with AES encryption

## DM-REPEATER SERVICES (LICENCE REQUIRED)

- DMO voice repeated
- Status & SDS repeated
- Group status & SDS repeated
- Type 1A efficient operation over one RF channel
- Presence signal support
- Emergency call
- Monitoring & participation in calls

## CONNECTIVITY

- TETRA voice & data
- Bluetooth support for voice & data
- USB support for data
- PEI data via USB or Bluetooth
- Wi-Fi support
- Accessory connections via rugged accessory connector (sRAC)<sup>2</sup>
- Audio & data connection via bottom connector (sDAC)
- MicroSDHC card slot (32GB max.)
- Passive 125KHz RFID tag
- sRAC – rugged side connector<sup>2</sup>:
- Rapid tool-less fitting & removal
  - Unique anti-overtighten design
  - Salt-resistant seal
- sDAC – bottom connector:
- Rapid tool-less quarter-turn twist-lock fitting & removal
  - Connector Protector salt protection

## PROGRAMMING CAPABILITY

- High-speed programming via USB slave cable
- Six-way USB gang programming supported in 6+6 programmer/charger
- Background 'over the air' programming via Wi-Fi
- Radio Manager2 compatible
- Micro SDHC contents manageable via Radio Manager2
- On-screen programming progress bar

## COMPATIBLE STP ACCESSORIES

- Chargers:
- 1+1 desktop charger<sup>9</sup>
  - 12- & 24-way battery-only chargers
  - Two-way, battery-only, charger for vehicles
- Antennas

## Batteries:

- Standard capacity battery<sup>1</sup>
- High capacity battery<sup>1</sup>

## Carrying accessories

- Stud & belt attachments<sup>10</sup>

## STP RAC-mount accessory compatibility

- All overt range
- All covert range
- All semi-covert range
- All public order range

## SC20 ACCESSORIES

### Chargers:

- Personal rapid charger
- Vehicle rapid charger
- 6+6 desktop charger/programmer (USB connection)

### Batteries:

- Standard capacity battery<sup>1</sup>
- High capacity battery<sup>1</sup>

### Carrying accessories:

- Stud & belt attachments<sup>10</sup>
- Carry cases & holsters

### Car kits:

- Basic car cradle

### Data leads:

- USB host adapter for wired body worn accessories
- USB slave data lead for programming & control of SC20 from a third-party device

1 – New standard (300-01852) & high-capacity (300-01853) batteries, along with the high power Class 3 feature licence, are required to operate the SC20 in high power RF Class 3 mode. Use of older STP batteries will limit SC20 operation to RF Class 3L

2 – Compatible with Sepura STP9000 & STP8000 RAC-based accessories

3 – Operating at temperature extremes may limit some aspects of operational performance

4 – As defined in ETSI EN300 019-2-1 & EN300 019-2-2

5 – Connector Protector must be enabled in customisation. An antenna, a battery & a Sepura accessory or sRAC cover must be fitted. Rinse in fresh water to prevent salt crystal build-up

6 – Future: please contact Sepura Product Management to discuss your requirements

7 – SDAs must be reformatted for use with an SC20

8 – Availability is subject to export licence

9 – STP 1+1 chargers shipped since mid-2013 are compatible

10 – Existing STP belt clips may adversely affect broadband performance. SC20 belt clips are recommended



0068\_0622\_V18\_English

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## Going further in critical communications

Sepura's policy is to continually improve its products and services. The features and facilities described in this document were correct at publication, but are subject to change without notice.

\*\*Whilst every effort is made to ensure the reliability of the Man Down Alarm ("MDA"), the nature of the technology and the circumstances of use are such that Sepura cannot warrant that it will operate effectively in all circumstances and users should not entrust their safety to the MDA. The MDA should in no way be regarded as a substitute for compliance with appropriate risk assessment and other safety procedures. As such, and specifically in respect of the MDA, all warranties, conditions or other terms implied by statute or common law are excluded. For the avoidance of doubt, no term is to be implied as to the fitness for purpose or satisfactory quality of the MDA.