

# 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

380-430MHz – SC2020  
403-470MHz – SC2024

## 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)
  - IPx6 (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: ETS 300 019 5M3  
Salt fog: MIL-STD-810E 509.4-1; 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

GPS with future Glonass & BeiDou2 support  
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 DGNA
  - 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

## SECOND DATA-BEARER CAPABILITY

Wi-Fi:  
• IEEE standard: 802.11b, 802.11g & 802.11n  
• Frequencies: 2.4GHz band  
• Authentication & encryption: WPA2-PSK, WPA2-Enterprise authentication (radius) with AES encryption

## 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

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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.

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- 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
- Bluetooth v4.x

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)
- 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<sup>\*</sup> option
- Automatic TMO/DMO selection
- Emergency through DM-repeater/DM-gateway
- Loud, distinct audio & visual indication
- Silent alarm call

Man-Down<sup>\*</sup>:

- 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



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<sup>\*</sup>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.