SC**21** SERIES
HAND-PORTABLES

DIMENSIONS

Height: 122.5mm (excluding antenna and rotary)
Width: 60mm (54mm)
Depth – standard battery: 27mm
Depth – high-capacity battery: 31.5mm

WEIGHT

With standard battery: 194g (excluding antenna)
With high-capacity battery: 220g (excluding antenna)

TETRA FREQUENCY BANDS

380-430MHz – SC2120
806-870MHz – SC2128[10]

POWER SUPPLY

7.4V (nominal) lithium polymer battery packs
Intelligent reporting batteries
1160mAh standard battery[7]
1880mAh high-capacity battery[7]

TETRA RF PERFORMANCE

RF power
380-430MHz – SC2120
- MS power Class 3 (2.7W)[7], Class 3L (1.8W), & Class 4 (1W)[7]
- MSPD power Class 3 (2.7W)[7], Class 3L (1.8W) & Class 4 (1W)[7]
- DMO repeater power Class 3 (2.7W)[7], Class 3L (1.8W), & Class 4 (1W)[7]

806-870MHz – SC2128[10]
- MS power Class 3 (2.5W)[7], Class 3L (1.8W), & Class 4 (1W)[7]
- MSPD power Class 3 (2.5W)[7], Class 3L (1.8W) & Class 4 (1W)[7]
- DMO repeater power Class 3 (2.5W)[7], Class 3L (1.8W), & Class 4 (1W)[7]

RF power customisable for:
- TMO/DMO/DM-repeater
- Adaptive power control
- Receiver class A & B

380-430MHz – SC2120
- Receiver static sensitivity -116dBm
- Receiver dynamic sensitivity -107dBm

806-870MHz – SC2128[10]
- Receiver static sensitivity -114dBm
- Receiver dynamic sensitivity -105dBm

AUDIO PERFORMANCE

Speaker audio power: 1W
Rugged accessory connector (sRAC)[8]
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[4]
Storage temperature -40°C to +85°C[1]
Dust & water protection to IP65:
- IP6x (dustproof)
- IPx5 (waterproof - heavy rain and pressurised water jet)[13]
- IPx4 (waterproof - heavy rain and sprayed water)
- 'Fit for purpose'; tested for full 8-hour shift in heavy rain

RFID PERFORMANCE

Internal tag: HITAG S2048, short range, 125 KHz, ISO11784 & ISO11785 compliant
User accessible storage: 2048 bits, passive technology pre-programmed (user editable):
- 32-bit unique identifier
- Serial number

- Hardware code
- TEI

PRODUCT OPTIONS

GPS, Glonass[6] & BeiDou2[6] support
Bluetooth
Wi-Fi broadband[6]
Man-Down alarm[3]
DM-Repeater Type-1A
Air Interface encryption
End-to-end encryption
Enhanced security module (ESM)
FIPS 140-2 level 3 validated[6]
End-to-end encryption smart card support
Wide range of languages supported
User-changeable coloured keymat bezel 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
- 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[6]
- 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[6]
Single- & multi-slot packet data
Circuit mode data

WAP support
- WAP 2.0
- WAP browsing via TETRA
- WAP high-speed browsing via Wi-Fi[6]
- WAP shortcuts embedded in SDS for faster data access
- WAP access OTA via TETRA or second data-bearer

Bluetooth support
- Bluetooth 2.1+EDR with secure pairing
- Bluetooth 4.0[6]
- Bluetooth Smart (BLE)[6]

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 access profile (GAP)
- Generic attributes profile (GATT)[6]
- Hardware-ready for the following Bluetooth capabilities:
  – Object push profile
  – Heart device (heart rate & temperature)
  – Battery service profile
  – Devices identity profile
  – Hands-free profile
  – MAP
  – HID
  – HoG

Going further in critical communications

Bluetooth trusted device, auto re-connect & master pairing
PEI access

USB 2.0 support
- Host support for interaction with body-worn accessories such as printers & scanners
- Slave support allows use of SC21 as a modem
- PEI access
- High-speed programming

Enhanced Short Data Applications (eSDAs)
- Supports all existing SC20 & STP SDA capabilities[11]
- 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[6] with Radio Manager2

Battery status at start-up
Missed event application
Major radio status change notification application

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[3] option
- Automatic TMO/DMO selection
- Emergency through DM-repeater/DM-gateway
- Loud, distinct audio & visual indication
- Silent alarm call

Man-Down[3]
- 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
Integral antenna plus active external antenna input option for use in sky-obscured vehicles
GPS-based compass
Enhanced start-up & acquire through 'predictive ephemeris'
Bluetooth location-system compliant
RFID tag equipped
Glonass and BeiDou2 support[6]

SECURITY SERVICES

TETRA
- Authentication
- Class 1, 2, 3 & 3G TETRA security
- Air Interface encryption TEA1/2/3/4[2]
- Smart card E2E encryption[2]
- Embedded E2E encryption[2]
- Enhanced security module (ESM)
- FIPS 140-2 level 3 validated[6]
- In-country E2E encryption algorithm[2]
- Multiple E2E algorithm[2]
- Temporary disable (stun)
- Permanent disable (kill)
- 600KEK crypto groups

Wi-Fi[6]
- 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[6]
Accessory connections via rugged accessory connector (sRAC)[8]
Audio & data connection via bottom connector (sDAC)
Passive 125KHz RFID tag

sRAC – rugged side connector[8]
- 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[6]
Radio Manager2 compatible
On-screen programming progress bar

COMPATIBLE SC20/STP ACCESSORIES

Chargers
- SC20 personal rapid charger
- SC20 vehicle rapid charger
- 1+1 desktop charger[9]
- 6+6 desktop charger/programmer[9]
- 12- & 24-way battery-only chargers
- Two-way, battery-only, DC charger for vehicles
- SC20/STP basic car kit with adapter[12]

- STP RAC-mount accessory compatibility
- All overt range
- All covert range
- All semi-covert range
- All public order range

Batteries
- Standard capacity battery[7]
- High-capacity battery[7]

Data leads
- USB host adapter for wired body-worn accessories
- USB slave data lead for programming & control of SC21/SC20 from a third-party device

SC21-ONLY ACCESSORIES

Carrying accessories
- Stud, belt & shirt pocket attachments
- Nylon holster
- Lightweight leather case

Car kits
- Clip-on lightweight car cradle[12]
- SC21/SC20/STP basic car kit[12]
- SC21 complete car kit with hands-free mic, PTT, external speaker & RF antenna pick up[12]

Antennas
- Overt range
- Covert range[12]

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1 – As defined in ETSI EN300 019-2-1 & EN300 019-2-2
2 – Availability is subject to export licence
3 – The Man-Down alarm should in no way be regarded as a substitute for compliance with appropriate risk assessment & other safety procedures & practices. To enable Man-Down a software licence is required
4 – Operating at temperature extremes may limit some aspects of operational performance
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 – Supported in a future software release
7 – New standard & high-capacity batteries, along with the high power Class 3 feature licence, are required to operate the SC21 in high power RF Class 3 mode and achieve the targeted IP sealing. SC20 standard (300-01174) & high-capacity (300-01175) batteries, along with the high power Class 3 feature licence, will also allow the SC21 to operate in high power RF Class 3 mode, but will reduce the IP sealing. Use of older STP standard & high-capacity batteries will limit SC21 operation to RF Class 3L and will reduce IP sealing.
8 – 100% compatible with Sepura STP9000 & STP8000 RAC-based accessories, as well as SC20 sRAC-based accessories
9 – SC20/STP 1+1 chargers (300-01930) are compatible with SC21, SC20 and STP series. SC20/STP 6+6 charger/programmers (300-00846) are compatible with SC21, SC20 and STP series for charging and SC21/SC20 for charging and programming
10 – Operational frequencies =806-825MHz TX; 851-870MHz TX and RX. Available Sept'17
11 – SDAs created for an STP must be reformatted for use with an SC20 or SC21
12 – Future: please contact Sepura Product Management to discuss your requirements
13 – With remote antenna bung fitted

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.