SC**20** 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[1]
1880mAh high-capacity battery[1]

TETRA RF PERFORMANCE

RF power:
MS power Class 3 (2.7W)[1], Class 3L (1.8W), & Class 4 (1W)[1]
MSPD power Class 3 (2.7W)[1], Class 3L (1.8W) & Class 4 (1W)[1]
DMO repeater power Class 3 (2.7W)[1], Class 3L (1.8W), & Class 4 (1W)[1]
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)[2]
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[3]
Storage temperature -40°C to +85°C[4]
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: ETS 300 019 5M3
Salt fog: MIL810E 509.4(I); duration 24hr salt[5]
Salt water: submersion, rated at 2m depth for 1hour[5]

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
LTE broadband module[6]
Man-Down alarm[7]
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/LTE[6]
Single- & multi-slot packet data
WAP support:
- WAP 2.0
- WAP browsing via TETRA
- WAP high-speed browsing via Wi-Fi/LTE[6]
- WAP shortcuts embedded in SDS for instant data access

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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[8]
- 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[7] option
- Automatic TMO/DMO selection
- Emergency through DM-repeater/DM-gateway
- Loud, distinct audio & visual indication
- Silent alarm call

Man-Down[7]:
- 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

On-board mapping capable[6]

Enhanced start-up & acquire through 'predictive ephemeris'

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[9]
- Smart card E2E encryption[9]
- Embedded E2E encryption[9]
- Enhanced security module (ESM)
- In-country E2E Encryption algorithm[9]
- Multiple E2E algorithm[9]
- 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

LTE support[6]

Accessory connections via rugged accessory connector (sRAC)[2]

Audio & data connection via bottom connector (sDAC)

MicroSDHC card slot (32GB max.)

Passive 125KHz RFID tag

sRAC – rugged side connector[2]:
- 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[10]
- 12- & 24-way battery-only chargers
- Two-way, battery-only, charger for vehicles

Antennas

Batteries:
- Standard capacity battery[1]
- High capacity battery[1]

Carrying accessories
- Stud & belt attachments[11]

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[1]
- High capacity battery[1]

Carrying accessories:
- Stud & belt attachments[11]
- 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

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IP65 weatherproof IP66 stormproof IP67 submersible IP68 submersible SDHC Bluetooth® RFID

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