# D52 ANT SoC
## MODULE SERIES

DYNASTREAM®
INNOVATIONS

*Cutting edge Nordic Semiconductor SoC enables dual protocol capabilities to fast-track time-to-market in sport & fitness and broader IoT applications.*

Based on Nordic Semiconductor's nRF5832 SoC, the D52 ANT SoC Module series offers dual protocol ANT and Bluetooth Low Energy concurrent operation in a compact form factor suitable for wearables. Featuring a built in antenna, as well as on board clock crystals for highly accurate and ultra low power concurrent operation of ANT and BLE wireless protocols, D52 modules give developers the opportunity to create products with enhanced capabilities.

A complete 2.4GHz RF solution, the D52 module series allows developers to achieve faster time-to-market for applications such as wearable technology, sport and fitness monitoring, commercial and home IoT, battery powered sensors, high node count networks and more. To further accelerate time-to-market, all modules carry radio certifications for global regions including North America, Europe, Australia, New Zealand, Japan and Korea when operating with ANT and BLE, and have been qualified by the Bluetooth SIG.  D52Q models are optionally available with an onboard accelerometer.

The D52 starter kit contains everything needed to begin developing with D52 modules, the nRF52832 SoC, and ANT or BLE.

**D52 Starter Kit**
D52DK1



**D52Q M6 Development Module**
D52QD2M6IA-A

**D52M M8 Form Factor**
D52MD2M8IA

**D52Q M4 Form Factor**
D52QD2M4IA, D52QD2M4IA-A

DYNASTREAM.COM/D52
SALES@DYNASTREAM.COM

## MODULE HARDWARE

- Integrated printed antenna
- On-board 32MHz and 20ppm 32.768 kHz crystal clocks
- Supply Voltage range:
  - 1.7V to 3.6V (D52QD2M4IA)
  - 1.71V to 3.6V (D52QD2M4IA-A)
- Operating temperature: Industrial (-40°C to +85°C)
- Up to 30 GPIOs (D52QD2M4IA), 24 GPIOs (D52QD2M4IA-A, D52CD2M8IA)
- Programmable output/channel from -20dBm to 4dBm
- RoHS compliant
- Layout compatible options with N5 M4, AP2, C7

- Excellent receiver sensitivity
  - -93dBm ANT mode (D52Q)
  - -96dBm BLE mode (D52Q)
- 1dBm resolution RSSI
- Total 512kB flash, 64kB RAM
- SPI, I2C and UART interface
- Onboard 3-axis MEMS accelerometer (D52QD2M4IA-A)
- 2 programmable interrupt pins
- Radio regulatory approval for major markets
- BLUETOOTH SIG qualification
- Pre-loaded with S210 ANT SoftDevice and Network Processor application

## ANT® OPERATION
**(when loaded with S212 or S332 SoftDevice)**

- 79 selectable RF channels (2402 to 2480 MHz)
- Simple to complex network topologies: peer-to-peer, star, tree, star-to-star and more
- Broadcast, acknowledged, and burst data communication modes
- Built-in device search and pairing
- Built-in interference handling and radio coexistence management with application radio disable requests and application flash write/erase requests
- Enhanced ANT features
  - Supports up to 15 logical channels each with configurable channel periods (5.2ms - 2s)

- Advanced burst data transfer modes (up to 60kbps)
- Optional channel encryption mode (AES-128)
- Supports up to 8 public, private and/or managed networks
- Advanced power management features to optimize application power consumption including Event Filtering & Selective data updates
- Asynchronous transmit channel
- Fast channel initiation

## MODELS

| | PART NUMBER | DESCRIPTION | ORDERING/PACKAGE INFO* | PART STATUS |
|---|---|---|---|---|
| | D52QD2M4IA | 20x20mm, 30GPIOs, 8 analog inputs | TRAY: 20pc in 4x5 tray REEL: 800pc on 13" tape and reel | Active |
| | PART NUMBER | DESCRIPTION | ORDERING/PACKAGE INFO* | PART STATUS |
| | D52QD2M4IA-A | 20x20mm, 24GPIOs, 5 analog inputs; onboard 3-axis MEMS accelerometer | TRAY: 20pc in 4x5 tray REEL: 800pc on 13" tape and reel | Active |
| | PART NUMBER | DESCRIPTION | ORDERING/PACKAGE INFO* | PART STATUS |
| | D52MD2M8IA | 14.0x9.8x2.0mm, 24GPIOs, 8 analog inputs | TRAY: 40pc in 8x5 tray REEL: 1500pc on 13" tape and reel | Active |
| | PART NUMBER | DESCRIPTION | ORDERING/PACKAGE INFO* | PART STATUS |
| | D52D2M6IA-A | Mounted on a carrier board for starter kit & development use | TRAY: 10 pc on 150x165mm tray | Active |

*Dynastream D52 ANT SoC series modules are available in tray and tape and reel packaging
CONTACT SALES@DYNASTREAM.COM FOR PRICING AND MORE INFORMATION

## BLUETOOTH® OPERATION*
**(when loaded with the S332 SoftDevice)**

- Bluetooth 4. 2 compliant low energy single mode protocol stack suitable for Bluetooth low energy products
- Concurrent Central, Observer, Peripheral, and Broadcaster roles with up to:
  - Multiple connections as a central
  - One connection as a peripheral
  - Observe & Broadcaster

- Link layer
- L2CAP, ATT, and SM protocols
- GATT and GAP APIs
- GATT Client and Server

* Bluetooth only mode when loaded with the S132 SoftDevice