

C-Band Transceiver

5700 series

Codan's 5700 series C-Band transceivers offer a wide range of distinctive advantages and enhanced features for satellite communications systems based in remote or challenging geographic regions.

Available in single or dual synthesiser options, standard or extended C-Band operation and 70 or 140 MHz IF configurations—and a range of power outputs—the 5700 provides industry leading technical performance.

KEY FEATURES

Durability

The 5700 series is designed and tested to meet its performance specifications in an ambient temperature range from -40°C to $+55^{\circ}\text{C}$ and up to 100% relative humidity, ensuring long-term survival in extreme conditions.

The thermal protection provided allows operation up to $+60^{\circ}\text{C}$ ambient. Field experience shows that MTBFs of greater than 100,000 hours can be expected.

RF performance

RF performance is superb, particularly: intermodulation performance, gain stability over temperature and flatness across the IF band.

The 5700 also boasts industry leading spurious and harmonics specifications while guaranteed RF performance ensures expensive system link margins do not have to be used to cope with RF transceiver variations. The 5700's high linearity and low spurious characteristics contribute to superior multi-carrier performance.

Output power options

Output ratings of 10, 20 and 40 watts are standard, while higher power options are also available.

Power consumption

Codan's C-Band transceivers all feature low power consumption and low temperature rise, ensuring internal components do not suffer undue stress.

Power supply

The 5700 features a 48 V DC floating input (37 V to 72 V range) with reverse polarity protection. This is ideal for battery backup and solar-powered systems. In addition, the 5700 may be supplied with an optional AC

power supply unit with field selectable 115/230 V operation.

The AC power supply unit is extremely robust and particularly suited for operation from poor quality AC supplies.

Internal protection

Internal protection against high temperature and short or open circuit RF output is standard. As well, input voltage detection ensures reliable shutdown and restart under brownout or blackout conditions.

External protection

All user access is via a transparent cover, which can be removed without exposing major internal electronics to the elements. Special sealant is used to ensure the sealing integrity of all connectors.

RF modules are fully sealed and pressure tested to 34 kPa (5 psi). Particle and moisture penetration is rated to IP68 and the units are submersible to 3 metres.



C-Band transceiver 5700 series
with optional power supply unit

ADVANCED FEATURES

Enhanced monitor and control

All operating functions can be controlled and monitored via the serial interface. The operating configuration is stored in EEPROM to ensure the setup parameters are restored in the event of a power failure.

Universal interface compatibility

The 5700 has universal interface compatibility capable of operating with dumb terminals, laptop/PC emulating terminals, hand-held terminals and personal

organisers without requiring proprietary software. The versatile configuration options support: contact closure, RS232, RS422 and RS485 (2 or 4 wire).

Two dedicated controllers are available from Codan:

- 5560 Hand-Held Controller, suitable for in the field installation setup
- 5570 Remote Controller, suitable for indoor rack mounting to provide permanent monitoring and control capabilities

Redundancy switching system

A redundancy switching system is available to provide an automatic changeover to a second transceiver to maximise link availability and minimise any disruption to service.

This system is fully outdoor mounted, but can be supplied with the 5587 Redundant System Monitor to provide indoor monitor and control.

MAJOR CONFIGURATION OPTIONS

| Frequency bands (MHz) | Transmit | Receive |
|-----------------------|-----------|-----------|
| 2 C-Band Extended | 5850–6425 | 3625–4200 |

Transmit/receive frequency control

- D Dual synthesiser
- S Single synthesiser

Bandwidth

- N Narrow band (40 MHz) field selectable 70 or 140 MHz IF
- W Wide band (80 MHz) 140 MHz IF

SSPA output

- N N-type connector output
- W WR-137 waveguide output
- M SSPA monitor port only available on 10 and 20 W

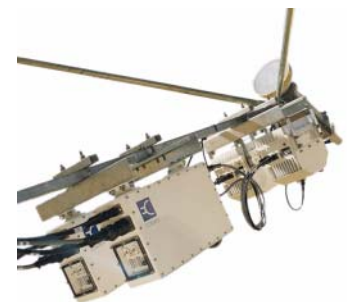
LNA

Options and accessories

- Hand-held Controller
- Remote Controller
- Redundancy Switching System



Redundancy Switching System



5700 transceivers antenna mounted in 1:1 configuration



5570 Remote Controller



5560 Hand-held Controller

Equipment descriptions and specifications are subject to change without notice or obligation

CODAN QUALITY AND SERVICE

All C-Band transceivers are built and tested in Codan's ISO9001 quality certified manufacturing facility, and undergo 100% burn in and performance monitoring over the temperature range specified.

Codan's fully trained staff and agents provide in-factory and in-country training services, and complete installation and on-site assistance. This service is backed up by a 24 hour customer service line and a warranty of three years on manufacturing, design or component defects.

CE0682 © CETECOM™

Head Office

Codan Limited
ABN 77 007 590 605
81 Graves Street
Newton SA 5074
AUSTRALIA
Telephone +61 8 8305 0311
Facsimile +61 8 8305 0411
www.codan.com.au

Asia Pacific

Codan Limited
81 Graves Street
Newton SA 5074
AUSTRALIA
Telephone +61 8 8305 0311
Facsimile +61 8 8305 0411
asiasales@codan.com.au

EMEA

Codan (UK) Ltd
Unit C4 Endeavour Place
Coxbridge Business Park
Farnham Surrey GU10 5EH
UNITED KINGDOM
Telephone +44 1252 717 272
Facsimile +44 1252 717 337
uksales@codan.com.au

Americas

Codan US, Inc.
8430 Kao Circle
Manassas VA 20110
USA
Telephone +1 703 361 2721
Facsimile +1 703 361 3812
ussales@codan.com.au

12-20069 Issue 9: 8/08

C-Band Transceiver

5700 series

SPECIFICATIONS

TRANSMIT SECTION

| | |
|---|--|
| IF input | |
| Frequency range | 70 ± 20 MHz/140 ± 20 MHz selectable |
| Narrow BW option | 140 ± 40 MHz |
| Wide BW option | |
| Impedance | 50/75 Ω selectable |
| Connector | N female |
| Return loss | 18 dB minimum @ 50 Ω |
| Gain specification | |
| Gain | 74 dB nominal |
| 10 W, 20 W and 40 W | |
| Attenuator range | 0 dB to 25 dB nominal |
| Attenuator step size | 1 dB nominal |
| Gain flatness | |
| Narrow BW option | ±1.0 dB maximum, 40 MHz |
| Wide BW option | ±2.0 dB maximum, 80 MHz |
| Gain stability | ±1.5 dB maximum, -40°C to +55°C |
| RF output | |
| Frequency range | 5.850 to 6.425 GHz |
| Band 2 (Extended) | |
| Connector | N female, or CPR137G (Band 2 only) |
| VSWR | 1.5:1 maximum |
| 10 W SSPA | |
| Output power (1 dB GCP) | +41.5 dBm (14 W) typical +40.0 dBm (10 W) minimum |
| Carrier to intermodulation ratio | -29 dBc, two carriers, each @ 6 dB OPBO from 1 dB GCP |
| 20 W SSPA | |
| Output power (1 dB GCP) | +44.0 dBm (25 W) typical +43.0 dBm (20 W) minimum |
| Carrier to intermodulation ratio | -27 dBc, two carriers, each @ 6 dB OPBO from 1 dB GCP |
| 40 W SSPA | |
| Output power (1 dB GCP) | +46.0 dBm (40 W) typical +45.7 dBm (37 W) minimum |
| Carrier to intermodulation ratio | -25 dBc, two carriers, each @ 6 dB OPBO from 1 dB GCP |
| Spurious output (including harmonics) | Meets EN301443 with 53 dBi antenna gain |
| Phase noise (SSB)* | |
| 100 Hz | -60 dBc/Hz maximum, -75 dBc/Hz typical |
| 1 kHz | -70 dBc/Hz maximum, -80 dBc/Hz typical |
| 10 kHz | -80 dBc/Hz maximum, -85 dBc/Hz typical |
| 100 kHz | -90 dBc/Hz maximum, -95 dBc/Hz typical |
| Synthesiser step size | 1 MHz |
| Frequency stability | |
| -40°C to +55°C | ±2 × 10 ⁻⁸ |
| Aging | ±1 × 10 ⁻⁷ /year |

RECEIVE SECTION (EXCLUDING LNA)

| | |
|-------------------------------|--|
| RF input | |
| Frequency range | 3.625–4.200 GHz |
| Band 2 (Extended) | |
| Impedance | 50 Ω |
| Connector | N female |
| VSWR | 1.4:1 maximum |
| Noise figure | 18 dB typical |
| DC output (switch selectable) | +15 V @ 75 to 250 mA |
| IF output | |
| Frequency range | 70 ± 20 MHz/140 ± 20 MHz selectable |
| Narrow BW option | 140 ± 40 MHz |
| Wide BW option | |
| Impedance | 50/75 Ω selectable |
| Connector | N female |
| Return loss | 18 dB minimum @ 50 Ω |
| Gain specification | |
| Gain | 45 dB nominal |
| Attenuator range | 0 dB to 30 dB nominal |
| Attenuator step size | 1 dB nominal |
| Gain flatness | |
| Narrow BW option | ±1.0 dB maximum, 40 MHz |
| Wide BW option | ±2.0 dB maximum, 80 MHz |
| Gain stability | +5.0/-4.0 dB maximum, -40°C to +55°C |
| Image rejection | 50 dB minimum |
| Spurious output | -65 dBm maximum |
| Phase noise (SSB)* | |
| 100 Hz | -60 dBc/Hz maximum, -75 dBc/Hz typical |
| 1 kHz | -70 dBc/Hz maximum, -80 dBc/Hz typical |
| 10 kHz | -80 dBc/Hz maximum, -85 dBc/Hz typical |
| 100 kHz | -90 dBc/Hz maximum, -95 dBc/Hz typical |
| Synthesiser step size | 1 MHz |
| Frequency stability | |
| -40°C to +55°C | ±2 × 10 ⁻⁸ |
| Aging | ±1 × 10 ⁻⁷ /year |

LOW NOISE AMPLIFIER

Indicative specifications; LNAs with lower noise temperatures are also available.

Input

| | |
|-------------------|---------------------|
| Interface | CPR229G |
| Noise temperature | 40 K typical @ 25°C |

Gain specification

| | |
|------|---------------|
| Gain | 50 dB minimum |
|------|---------------|

Output

| | |
|-----------|----------------|
| 1 dB GCP | +5 dBm minimum |
| Impedance | 50 Ω |
| Connector | N female |
| VSWR | 2:1 maximum |

TRANSMIT REJECT FILTER (OPTIONAL)

Indicative specifications; TRFs to cover bands 2, 3 and 4 are available.

| | |
|----------------|-----------------|
| Insertion loss | 0.05 dB maximum |
| Rejection | 55 dB minimum |

POWER

| | |
|---------------|--|
| Input voltage | 42 to 72 V DC (floating input) standard 115/230 V AC, ±15% with Power Supply Unit |
|---------------|--|

Power consumption

| DC | 10 W | 160 W maximum SSPA On |
|----|------|--|
| | 20 W | 200 W maximum SSPA On |
| | 40 W | 280 W maximum SSPA On 40 W maximum SSPA Off |
| AC | 10 W | 240 VA maximum SSPA On |
| | 20 W | 310 VA maximum SSPA On |
| | 40 W | 370 VA maximum SSPA On 80 VA maximum SSPA Off (all @ nominal AC voltage) |

MONITOR AND CONTROL

LNA interface

| | |
|-------------|--|
| DC output | +15 V @ 75 to 400 mA |
| Alarm input | Current monitoring as specified, and contact closure; O/C is fault condition |

Control panel facilities

Indicators: Standby, On, Warm-up, SSPA activated, Converter fault, LNA fault, SSPA fault, Temperature fault, Fan fault

Controls: Power control (off/standby/on), SSPA control (inhibit/remote/activate), Serial interface settings, LNA supply via Rx RF Input connector, Mains/Battery supply select

Remote monitor and control facilities

| | |
|-------------------------------|-----------------------|
| Serial interface standards | RS232, RS422 (RS485) |
| Protocol standards | ASCII, Packet (RS485) |
| Packet protocol address range | 0 to 127 |

Remote monitoring functions (serial interface): Standby, On, Warm-up, SSPA activated, Converter fault, LNA fault, SSPA fault, Temperature fault, Fan fault, SSPA inhibit control, SSPA activate control*, Transmit frequency*, Receive frequency*, Transmit attenuation*, Receive attenuation*, Cable compensation*, Reference oscillator override*, SSPA alarm enable*, LNA alarm enable*, Fan alarm enable*, Temperature compensation*, Address*, SSPA mode*, Converter lock, Packet protocol*, IF impedance*, IF frequency*, Power-up mode

Remote control functions (serial interface): Power control (standby/on), SSPA inhibit control, SSPA activate control*, Transmit frequency*, Receive frequency*, Transmit attenuation*, Receive attenuation*, Cable compensation*, Reference oscillator override*, SSPA alarm enable*, LNA alarm enable*, Fan alarm enable, Temperature compensation select*, Address range*, SSPA mode*, Packet protocol*, IF impedance*, IF frequency*, Power-up mode

All of the above serial interface functions are accessible via the Remote Controller 5570. The functions supported by the Hand-Held Controller 5560 are indicated by an (*)

Remote monitoring functions (contact closure): Standby, Warm-up, SSPA activated, Converter fault, LNA fault, SSPA fault, Temperature fault, Fan fault

Remote control functions (contact closure): Power control (standby/on), SSPA inhibit control, SSPA activate control

ENVIRONMENTAL

Converter module and SSPA module

| | |
|-------------------|--|
| Temperature | -40°C to +55°C |
| Relative humidity | 100% |
| Cooling | Converter—Convection 10 W, 20 W and 40 W—Forced air |
| Weatherproofing | Sealed to 34 kPa |

Power supply unit

| | |
|-------------------|----------------|
| Temperature | -40°C to +55°C |
| Relative humidity | 100% |
| Cooling | Convection |
| Weatherproofing | Sealed to IP65 |

PHYSICAL

All dimensions are measured over the connectors.

Size

| | |
|----------------------------------|--------------------------------|
| Converter module | 110 mm W x 410 mm D x 240 mm H |
| SSPA module, 10 W, 20 W and 40 W | |
| N-type output option | 165 mm W x 415 mm D x 215 mm H |
| Waveguide output option | 165 mm W x 420 mm D x 215 mm H |
| Power Supply Unit | 200 mm W x 160 mm D x 370 mm H |

Weight

| | |
|---------------------------------|-------|
| Converter module | 8 kg |
| SSPA module, 10 W, 20 W or 40 W | 9 kg |
| Power Supply Unit | 10 kg |

CE0682

CETECOM™

Specifications subject to change without notice or obligation

| Head Office | Asia Pacific | EMEA | Americas | 12-20070 Issue 11: 8/08 |
|--|--|---|---|-------------------------|
| Codan Limited ABN 77 007 590 605 81 Graves Street Newton SA 5074 AUSTRALIA Telephone +61 8 8305 0311 Facsimile +61 8 8305 0411 www.codan.com.au | Codan Limited 81 Graves Street Newton SA 5074 AUSTRALIA Telephone +61 8 8305 0311 Facsimile +61 8 8305 0411 asiasales@codan.com.au | Codan (UK) Ltd Unit C4 Endeavour Place Coxbridge Business Park Farnham Surrey GU10 5EH UNITED KINGDOM Telephone +44 1252 717 272 Facsimile +44 1252 717 337 uksales@codan.com.au | Codan US, Inc. 8430 Kao Circle Manassas VA 20110 USA Telephone +1 703 361 2721 Facsimile +1 703 361 3812 ussales@codan.com.au | |



CODAN

