



SEA cRIO Modules

Additional Functions for National Instruments CompactRIO™

Communication Modules : GXXX 3G MOBILE/GPS/GPSIB/GSM
GXXX MOBILE/WLAN/ZigBee®

Interface Modules : LIN/ LIN-K-Line / EnDat / ARINC 429

Communication Modules

GXXX 3G MOBILE

- cRIO GXXX 3G MOBILE HSPA
ord. no.: 60000037
- cRIO GXXX 3G MOBILE HSDPA SB*)
ord. no.: 60000050
- cRIO GXXX 3G MOBILE HSDPA
NTT*)
ord. no.: 60000060
- cRIO GXXX 3G MOBILE CDMA SP**)
ord. no.: 60000036
- cRIO GXXX 3G MOBILE CDMA VE**)
ord. no.: 60000056



- SEA cRIO GXXX 3G MOBILE modules with GPS and GSM for:
- advanced communication functions in 3rd Generation technology
 - high precision GEO positioning and time synchronization
 - mobile or stand alone applications requiring remote access and position information

- mobile data transfer via networks: GPRS/EDGE/UMTS/HSDPA/HSUPA
- multi band technology 850, 900, 1800, 1900, 2100 MHz (for USA 800/1900 MHz)
- SIM card reader with SIM lock mechanism
- receiving and sending SMS messages
- data transfer rates between 384 kbit/s up to 7,2 Mbit/s
- operational temperature range: -30 °C...+60 °C

*) Japan version: SB=Softbank SIM lock, NTT = NTT DoCoMo SIM lock
**) US version: SP=SPRINT, VE=Verizon SIM lock available on request

GPS / GPSIB MOBILE

- GPS
ord. no.: 60000001
- GPSIB
ord. no.: 60000003



- SEA cRIO GPS MOBILE modules with GPS- and radio clock function for:
- GPS position tracking and speed-sensing
 - high precision timing
 - time stamp

- data rate time telegram: up to 4 Hz
- IRIG-B output connector (GPSIB)
- programmable sync output connector on front panel (PPS)
- sync routing to backplane
- operational temperature range: -40 °C...+80 °C

GSM / GXXX MOBILE

- GSM
ord. no.: 60000002
- GXXX
ord. no.: 60000000



- SEA cRIO GSM MOBILE modules for:
- worldwide remote control and access to CompactRIO systems
 - data logging

- mobile data exchange via GSM networks (850, 900, 1800, 1900 MHz) with GPRS and EDGE class 12 protocol
- send and receive SMS
- operational temperature range: -30 °C...+65 °C



- SEA GXXX MOBILE modules for:
- mobile or stand alone applications requiring remote access and position information
 - high precision time synchronization

- integrated GPS, GSM function
- GSM frequencies: 850, 900, 1800, 1900 MHz
- data rate time telegram: up to 4 Hz
- programmable sync output connector to front panel (PPS)
- operational temperature range: -30 °C...+65 °C

WLAN | Wi-Fi

- WLAN
ord. no.: 60000009
- WLAN JP*
ord. no.: 60000035



- SEA cRIO WLAN modules for:
- wireless short range, high data rate applications in industrial control and measurement
 - data logging applications
 - connection of other network devices

- 3/4-port 10/100 Mbit/s Ethernet switch with Ethernet-to-wireless bridging function
- data rate acc. to IEEE 802.11 b/g up to 54 Mbit
- 2 free ports for connection of external Ethernet devices
- secure data data transmission: AES with 128,192,256 bit and WPA/PSK with 128 bit
- access to all TCP/IP functions with LabVIEW RT
- operational temperature range: -40 °C...+60 °C



ZigBee® Networking

- Zigbee 10
ord. no.: 6000010
- Zigbee 20
ord. no.: 6000020
- Zigbee 100
ord. no.: 60000100
- Zigbee 200
ord. no.: 60000200
- Zigbee 1000
ord. no.: 60001000



SEA CRIO ZIGBEE NETWORKING for:

- wireless communication between CompactRIO systems:
- small networks**
 - ZigBee 10: low range, approx. 30-100 m
- ZigBee 100: middle range, approx. 100-1500 m
- complex cluster networks**
 - ZigBee 20: low range, approx. 40-120 m
 - ZigBee 200: middle range, approx. 100 -1600 m

- wide range networks**:
- ZigBee 1000: wide range, approx. 300-24000 m
- data rate between 10 kbit/s and 250 kbit/s
- variable operating distance
- address, read, and write functions to individual nodes
- operational temperature range: -40 °C...+70 °C



ZigBee® is a trademark of the ZigBee Alliance, Inc

Interface Modules

LIN / K-Line

- LIN
ord. no.: 6000004



SEA CRIO LIN modules with two LIN ports for:

- serial communication with LIN devices
- simulation/stimulation
- Hardware-In-the-Loop (HIL) tests
- LIN data logging

- 2-port galvanically isolated LIN bus interface for LIN V 2.0
- additional K-Line port for the ISO 9141 protocol (functional)
- each port configurable for LIN master or slave mode
- LIN read and write functions
- modification of timing and framing parameters
- operational temperature range: -40 °C...+85 °C

EnDat

- EnDat
ord. no.: 6000006



SEA CRIO ENDAT modules with 3 EnDat ports for:

- communication with EnDat position encoders
- digital drive systems and feedback loop with position encoders
- transmission of user parameters and position values with high accuracy (28/40 bit)



- 3 independent EnDat master ports with M12 connectors
- galvanically isolated from the CompactRIO backplane
- precise timing controlled by integrated FPGA technology
- position synchronization of up to 3 axis within the module
- provided sensor supply 5.25 V / 350 mA per axis
- Operation temperature range: -40 °C...+70 °C

ARINC 429-81

- ARINC
ord.-nr.:6000065



SEA cRIO ARINC 429-81 module for the ARINC bus system for commercial aircrafts

- serial field bus communication
- low-speed and high speed communication with data rates between 10,5 and 125 kps via 1-to-n connections

- 8 receive channels of ARINC 429 telegrams and 1 send channel
- galvanic isolation of the backplane
- both CompactRIO - as well as in PXI systems usable

Displays

- cRIO Display Module Kit 10
ord.-nr.:61000055



- 1,7" high resolution graphic display
- sound output

- software Kit with LabVIEW driver VI's and examples
- directly connected to CompactRIO controller
- wide operating voltage of 7...30 Volts

- cRIO Display Module Kit 20
ord.-nr.:61000069



- 3,2" high resolution graphic display
- touchscreen

- compact size
- digital in- and outputs
- additional digital switch inputs for user interaction

Software Toolkits

cRIO Sync

- ord. no.: 6000038

CRIO SYNCHRONIZATION TOOLKIT***

- time base for synchronized measurements of distributed CompactRIO systems with high precision (up to 100 ns)

cRIO RST

- ord. no.: 6400003 (≤3 units)
- ord. no.: 6400010 (≤10 units)
- ord. no.: 6400025 (≤25 units)

CRIO REMOTE SERVER TOOLKIT RST***

- world wide remote control and access to CompactRIO systems

* Japanese version

** not all modules can be used in all countries; the range is dependent on the environment

*** The toolkits may only be used in combination with the S.E.A. cRIO modules.



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SEA cRIO modules are also available for the NI Single-Board RIO platform.

All modules include LabVIEW driver software for LabVIEW-RT and -FPGA as well as documentation manuals for software and hardware. For further information please refer to: www.sea-gmbh.com