

KEY FEATURES AND BENEFITS

Mechanically and electrically compatible with original TRIMBLE Lassen series.

Product/Protocol continuity after TRIMBLE LTB/EOL

Avoid huge cost due for a complete redesign

Improve GPS performances on current design

Offer Multi-GNSS and Timing features (RES 360™ & ICM 360™)

Offer GNSS capabilities (Buffalo) to your product

For new design when SMD GPS are not appropriate

Designed and Manufactured in FRANCE

Lassen clone are compatible mechanically and electrically with famous TRIMBLE Lassen products. We use TRIMBLE advanced technology GPS/Multi-GNSS receivers for a powerful replacement. You are looking for Lassen SKII, Lassen LP, Lassen iQ/SQ replacement boards with improved capabilities, test our clones.

DESIGN FOR QUICK IMPLEMENTATION

Naelcom modules NLC-SKII, NLC-LP, NLC-iQ are user configurable, dual I/O serial ports mean flexibility and fast integration, reliable performances over -40°C to +85°C extended temperature range.

By using our clones you will make the good choice for businesses continuity, updating current installation with latest powerful TRIMBLE GPS/Multi-GNSS receivers.

DEMONSTRATED PERFORMANCE

Industry is looking for easy to use interface to achieve their goal. With the NLC-xxx we just offer the missing brick to develop new opportunities and continue businesses.

By using TRIMBLE top quality modules, our boards achieve tracking sensitivity -160dBm, fast TTFF (cold start):38 second, aGPS, SBAS (WAAS, EGNOS, MSAS) capable, update rate up to 5Hz (CONDOR),

MULTI PURPOSE

The Naelcom NLC-SKII, NLC-LP, NLC-iQ boards line support multi TRIMBLE receivers in order to give an answer for each customer need: Copernicus II for TSIP/TAIP/NMEA compatibility, Condor C1919C for 5Hz capability, RES SMT 360 and RES SMT 360 for accurate 1PPS (15ns), 10MHz output (ICM360) for Timing features (TRAIM, Self-Survey).

SAVE MONEY

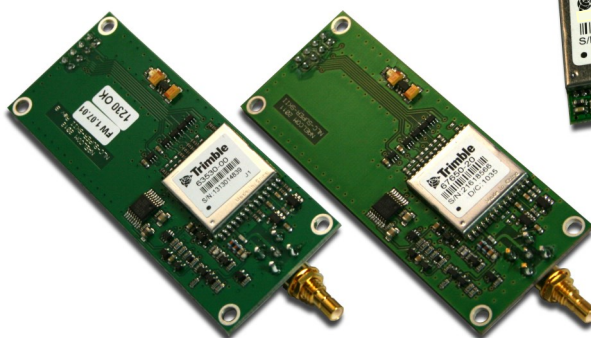
Hardware redesign is a huge cost, NAELCOM offers possibility to reduce it by offering compatible boards. Only small software modifications may be required due to baud rate, parity, packets lengths and configuration, due to different GPS modules used on TRIMBLE original Lassen and clones.



NLC-LP-CP2



NLC-iQ-CP2-3P260



NLC-SKII-CP2-V2.0 - NLC-SKII-RSMT360 - NLC-SKII-C+



NLC-iQ-RSMT-360

NAELCOM NLC CLONE SERIES : SKII, iQ, LP FORM FACTOR

PHYSICAL AND ELECTRICAL CHARACTERISTICS

NLC-SKII-CP2-V2.0 (GPS receiver COPERNICUS® II):

Size. 82.6 mm x 31.2 mm x 10.2 mm
Weight. 50 grams
Connectors. RF: SMB; I/O: 8-pin (2x4), 2.54 mm header
Prime Power. 5VDC, $\pm 5\%$
Power consumption (board only). 65mA
Back-up power. +2.7 to +5V DC
Back-up consumption. 7 μ A @ +3.0V

Interface characteristics

Serial ports/1PPS. 5.0V CMOS, TTL compatible
Supported protocols. TSIP@38400,8, None, 1 (parity not configurable)
NMEA 0183 V3.0@4800,8, None, 1 (parity not configurable)
TAIP@4800,8, None, 1 (parity not configurable)

NLC-SKII-xx PCB supports also TRIMBLE BUFFALO (GNSS, NMEA 1Hz), CONDOR C1919C (NMEA, 5Hz), RES SMT 360™ & ICM SMT 360™ (Timing features).

NLC-LP-CP2 (GPS receiver COPERNICUS® II):

Size. 66.167 mm x 31.750 mm x 12 mm
Weight. 40 grams
Connectors. RF: MCX; I/O: 8-pin (2x4), 2 mm header
Prime Power. +3.3 VDC, ± 0.3 V
Power consumption (board only). 58mA
Back-up power. +2.7 to +3.6V DC
Back-up consumption. 7 μ A @ +3.0V
Does not support pin 1 : Signal Control Power mode control interface

Interface characteristics

Serial ports/1PPS. 3.0V CMOS, TTL compatible
Supported protocols. TSIP@38400,8, None, 1 (parity not configurable)
NMEA 0183 V3.0@4800,8, None, 1 (parity not configurable)
TAIP@4800,8, None, 1 (parity not configurable)

Data connector Pinout :

NLC-LP-xx PCB supports also TRIMBLE BUFFALO (GNSS, NMEA 1Hz) and CONDOR C1919C (NMEA, 5Hz).

NLC-iQ-CP2 (GPS receiver COPERNICUS® II):

Size. 26 mm x 26 mm x 9 mm
Weight. 12 grams
Connectors. RF: H.FL; I/O: 8-pin (2x4), 1.27 mm header
Prime Power. +3.0 VDC, ± 0.3 V⁽¹⁾
Power consumption (board only) 49mA
Back-up power. +2.7 to +3.3V DC
Back-up consumption. 7 μ A @ +3.0V⁽²⁾⁽³⁾

Interface characteristics

Serial ports/1PPS. 3.0 V CMOS, TTL compatible
Supported protocols. TSIP@38400,8, None, 1 (parity not configurable)
NMEA@4800,8, None, 1 (parity not configurable)
TAIP@4800,8, None, 1 (parity not configurable)

NLC-SUPER-iQ PCB supports also TRIMBLE BUFFALO, CONDOR C1919C (NMEA, 5Hz), Resolution SMTx (GPS Timing TSIP) and Resolution SMT GG (GNSS, Timing TSIP).

Mounting option : Simple Straight Pin, Double Straight Pin.

(1) VCC absolute maximum limit is 3.6V (3)Vback-up absolute maximum limit is 3.6V
(2) VBack-up shall be at least 0.3V less than VCC

ENVIRONMENTAL CHARACTERISTICS (ALL SERIES)

Temperature

Operating -40 °C to +85 °C
Storage temperature -55 °C to +100 °C
Operating Humidity 5% to 95% R.H. non-condensing, at +60 °C

PERFORMANCES

TRIMBLE GPS COPERNICUS® II :

Accuracy (24 hr static)
Horizontal. <2.5 m 50%, <5 m 90%
SBAS. <2.0 m 50%, <4 m 90%
Altitude. <5 m 50%, <8 m 90%
SBAS. <2.0 m 50%, <4 m 90%
Velocity. 0.06 m/sec
Static PPS ± 60 ns RMS
PPS (Stationary Mode "indoor" @ -145dBm). ± 350 ns RMS

Acquisition (Autonomous, -130dBm, 50%)

Reacquisition 2 s
Hot Start 3 s
Hot Start without battery backup 8 s*
Warm Start 35 s
Cold Start 38 s

Sensitivity (unaided)

Tracking -160 dBm
Acquisition -148** dBm
Receiver Dynamics 2G

* Ephemeris not older than 4 hours.

**For hot start with ephemeris otherwise -144 dBm

ORDERING INFORMATION

| P/N | TRIMBLE Module | GPS/GNSS | Application |
|-------------------|-------------------------------|------------------|-----------------|
| NLC-SKII-CP2-V2.0 | Copernicus II | GPS | Position/Timing |
| NLC-SKII-C+ | Condor C1919C | GPS | Position/Timing |
| NLC-SKII-RSMT360 | RES SMT 360™ | Multi-GNSS | Timing Mode |
| NLC-SKII-ICM360 | ICM SMT 360™ | Multi-GNSS+10MHZ | Position/Timing |
| NLC-LP-CP2 | Copernicus II | GPS | Position/Timing |
| NLC-LP-C+ | Condor C1919C | GPS | Position/Timing |
| NLC-iQ-CP2-3P260 | Copernicus II | GPS | Position/Timing |
| NLC-iQ-RSMT360 | RES SMT 360™ | Multi-GNSS | Timing Mode |

All -CP2 versions are available on stock, other versions on request.

CUSTOM VERSION :

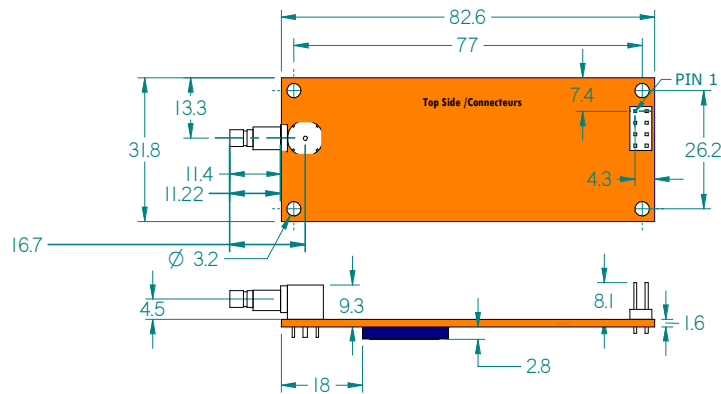
On request ⁽¹⁾ NAELCOM offer possibility to customize your product, we are offering special connector or coating.

⁽¹⁾ Depends model, please contact us.

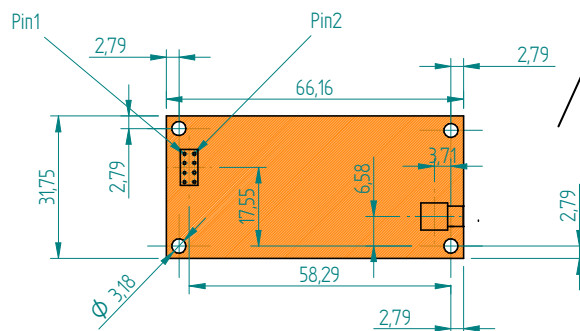
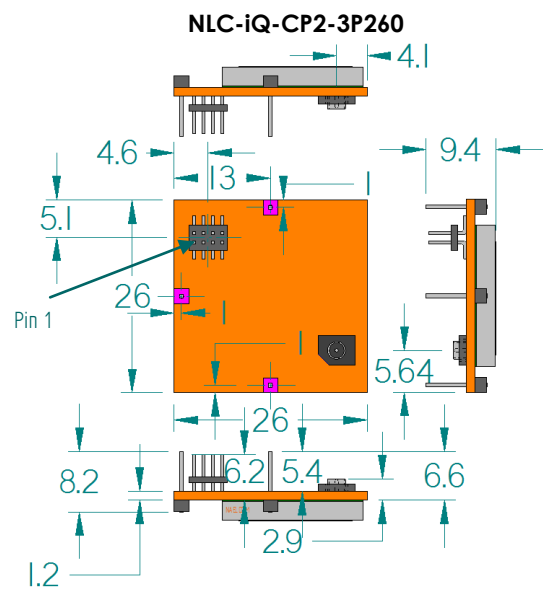
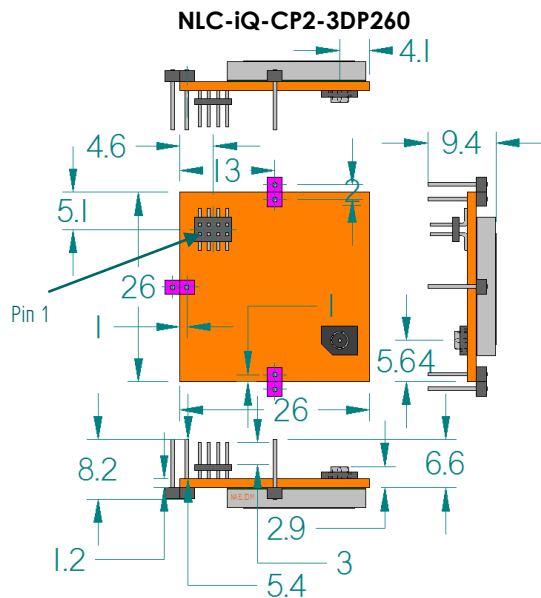
Specifications subject to change without notice.

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NLC-SKII-XX



NLC-LP-XX

DATA CONNECTOR PINOUT

| BOARD | PIN 1 | PIN 2 | PIN 3 | PIN 4 | PIN 5 | PIN 6 | PIN 7 | PIN 8 |
|-------------------|--------|-------|-------|-------|-------|-------|-------|-------|
| NLC-SKII-CP2-V2.0 | TXDB | VCC | TXDA | VBat | RXDA | PPS | RXDB | GND |
| NLC-LP-CP2 | NC (1) | VCC | TXDA | VBat | RXDA | PPS | RXDB | GND |
| NLC-iQ-CP2 | TXDA | GND | RXDA | PPS | TXDB | RXDB | VCC | VBAT |

(1) Pin 1 of NLC-LP-CP2 is not connected by default, Copernicus II does not support « Signal Control Power mode control interface » from Lassen LP. TXDB can be connected on PIN 1, on demand.

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