**netRapid 90**

Ready-to-solder netX 90 Design – fully tested and preloaded

- Ultra compact multiprotocol solution - in 15 x 32 mm halflsize netRapid format
- Scalable embedded platform in different memory options - including Cortex M4 application processor
- Can be preloaded with customer application - in Hilscher automated production process even in lot size 1
- Energy efficient design with low power dissipation - for extended temperature range up to +85°C
- For all Industrial Ethernet, Fieldbus and IIoT standards - supported in one hardware design

**Communication**

- Ethernet
- CANopen
- IIoT

**Application**

- Motion
- Encoder
- Sensors
- IP67 / IO

**Diagram:**

- Security
- Diagnostic
- Internet of Things
- Multiprotocol
- Communication
- Scalable Memory Options
- Application

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SCALABLE EMBEDDED PLATFORM – netRAPHID 90

Companion or Standalone Solution
- Scalable embedded platform with different flash and SDRAM memory options
- Companion solution with 50MHz SPI host interface for communication only
- Standalone solution using the two integrated ARM® Cortex®-M4 processor cores of netX 90 to separate communication from application tasks
- Rich set of on-chip peripherals for Motion, Encoder, Sensors or IO-Link applications (I2C, SPI, UART, CAN, ADC, BiSS, EnDat, IO-Link)

Preloaded in lot size 1
- netRAPID 90 will fully be tested, preloaded and packed in trays via an autonomous robot cell
- During the automated production process the communication stack as well as the customer application can be loaded
- Device manufacturers can receive netRAPID 90 preloaded with their specific content – ready-to-use and even in lot size 1

Industrial Ethernet, Fieldbus and IIoT protocols
- Supports all leading Real-Time Ethernet Slave, Fieldbus Slave and designated IIoT protocols in one hardware design
- Including standard IT functions, like Integrated WebServer, raw Ethernet or TCP socket interface
- Different Software packages for different use cases and memory options are offered
  - Basic communication functionality using netX 90 internal memory
  - Full featured communication functionality using external memory on netRAPID 90

Common software application interface
- Based on Hilscher’s Platform strategy a common software API to the application is offered
- Access from either an external host or the netX 90 integrated ARM® Cortex M4 application processor
- Three separate channel for cyclic/acyclic Real-Time Ethernet data, TCP socket / raw Ethernet interface and IIoT data via OPC UA or MQTT are offered

Three good reasons to choose netRAPID 90
1. Ready-to-use netX 90 design
   - Fully tested netX 90 design ensures a fast time to market without development risk
   - Rapid prototyping without time-consuming iteration process in the development phase
   - No demanding BGA production and qualification process

2. Reduced design and production costs
   - PCB complexity is encapsulated in netRAPID 90 and does not affect the baseboard design
   - Can be preloaded with customer specific content, which reduces production effort and costs
   - No time consuming and costly part obsolescence management

3. Modular & scalable platform
   - Different memory options for different applications in a single baseboard design
   - Well prepared for new emerging technologies like security or OPC UA @ TSN*
<table>
<thead>
<tr>
<th>Technical Data</th>
<th>Technical Data</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Operating Temperature</strong></td>
<td><strong>Contacting / Pinout</strong></td>
</tr>
<tr>
<td>-20°C ... +85°C (without airflow)</td>
<td>54 solder contacts 1 mm with 1,5 mm grid</td>
</tr>
<tr>
<td><strong>Supply Voltage</strong></td>
<td><strong>LED</strong></td>
</tr>
<tr>
<td>+3.3 V</td>
<td>SYS-System (RUN/RDY), COM-Status 0/1 (COM 0/1), Ethernet-Status Link, Activity (LINK RX/TX)</td>
</tr>
<tr>
<td><strong>Dimensions (L x W x H)</strong></td>
<td><strong>Emission</strong></td>
</tr>
<tr>
<td>32 x 15 x 4 mm</td>
<td>EN 55011</td>
</tr>
<tr>
<td><strong>Communication Interface</strong></td>
<td><strong>Immunity</strong></td>
</tr>
<tr>
<td>EtherCAT, EtherNet/IP, PROFINET, 2x Ethernet 100 BASE-TX, OPC UA, MQTT</td>
<td>EN 61000-4-3</td>
</tr>
<tr>
<td><strong>Host Interface</strong></td>
<td>DIN EN 61000-4-6</td>
</tr>
<tr>
<td>50 MHz SPI-Slave</td>
<td>Surge - IEC 61000-4-5</td>
</tr>
<tr>
<td><strong>Diagnostic Interface</strong></td>
<td>Burst - IEC 61000-4-4</td>
</tr>
<tr>
<td>Ethernet, UART Rx/D/Tx</td>
<td>ESD - IEC 61000-4-2</td>
</tr>
</tbody>
</table>

Note: All technical data may be changed without further notice.

### Article Overview

**NRPEB H90**
7600.320 | Evaluation board equipped with 1x NRP H90-RE/F8D8

**NRP H90-RE/F8D8 (SAMPLE)**
7693.102 | Box with 2x NRP H90-RE/F8D8 samples, No software loaded

**NRP H90-RE (BOX)***
7691.100 | Box with 10x NRP H90-RE using Internal Flash and RAM only, No software loaded

**NRP H90-RE (BOX)/PNS /ECS /EIS * **
7691.100/PNS | Box with 10x NRP H90-RE using Internal Flash and RAM only, Preloaded with protocol stack

**NRP H90-RE/F8D8 (BOX)**
7691.102 | Box with 10x NRP H90-RE/F8D8 equipped with 8 MB SQI Flash and 8 MB SDRAM, No software loaded

**NRP H90-RE/F8D8 (BOX)/PNS /ECS /EIS **
7691.102/PNS | Box with 10x NRP H90-RE/F8D8 equipped with 8 MB SQI Flash and 8 MB SDRAM, Preloaded with protocol stack

**NRP H90-RE (TRAY) * **
7692.100 | Tray with 56x NRP H90-RE using Internal Flash and RAM only, No software loaded

**NRP H90-RE (TRAY)/PNS /ECS /EIS **
7692.100/PNS | Tray with 56x NRP H90-RE using Internal Flash and RAM only, Preloaded with protocol stack

**NRP H90-RE/F8D8 (TRAY)**
7692.102 | Tray with 56x NRP H90-RE/F8D8 equipped with 8 MB SQI Flash and 8 MB SDRAM, No software loaded

**NRP H90-RE/F8D8 (TRAY)/PNS /ECS /EIS **
7692.102/PNS | Tray with 56x NRP H90-RE/F8D8 equipped with 8 MB SQI Flash and 8 MB SDRAM, Preloaded with protocol stack

* planned

Hilscher News:

![Development board for netRapid 90*](image)

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