

NEW netMOTION

Turning real-time Ethernet into physical motion

Electric motors, in wide use across the industry, perform essential tasks in countless of applications, including factory and process automation, assembly and packaging, industrial robotics, and more. Although, typical chip solutions for motion and motor control systems often lack real-time Ethernet connectivity, leading to two-chip solutions at PCB level with higher BOM costs. As illustrated in Figure 1, for network-enabled field device applications, embedded system designers often face the question of which communications strategy to invest in. The ideal solution with multiprotocol capabilities can open up new application segments to serve different market sectors and geographies.

Hilscher's netX family has achieved significant heritage over the years, taking out the mystery of industrial communications with the provision of pre-certified software stacks for all major protocol standards, successfully in use in higher volume drive applications as a communication co-processor. With the release of the netX 90, the newest addition to the netX family, Hilscher introduced a new dual Cortex®-M4 SoC architecture that is composed of a communication processor subsystem and application processor host system with built-in motor control features to create a single chip solution for motion and drive applications with network connectivity optimized for design and space.

The netX 90 is a highly integrated, power-efficient design and a fitting choice for more stringent applications in harsh industrial environments with extended temperatures, offering a deterministic, low-latency, network-synchronized solution for FOC-based motor control system designs with either halls, encoder or resolver position feedback for 3-phase PMSM and BLDC motors. Both types of motors are widely used in the industry for various kinds of use cases. PMSM solutions are common in industrial applications with precise movements such as servo drives, hydraulics, pneumatics, and more.

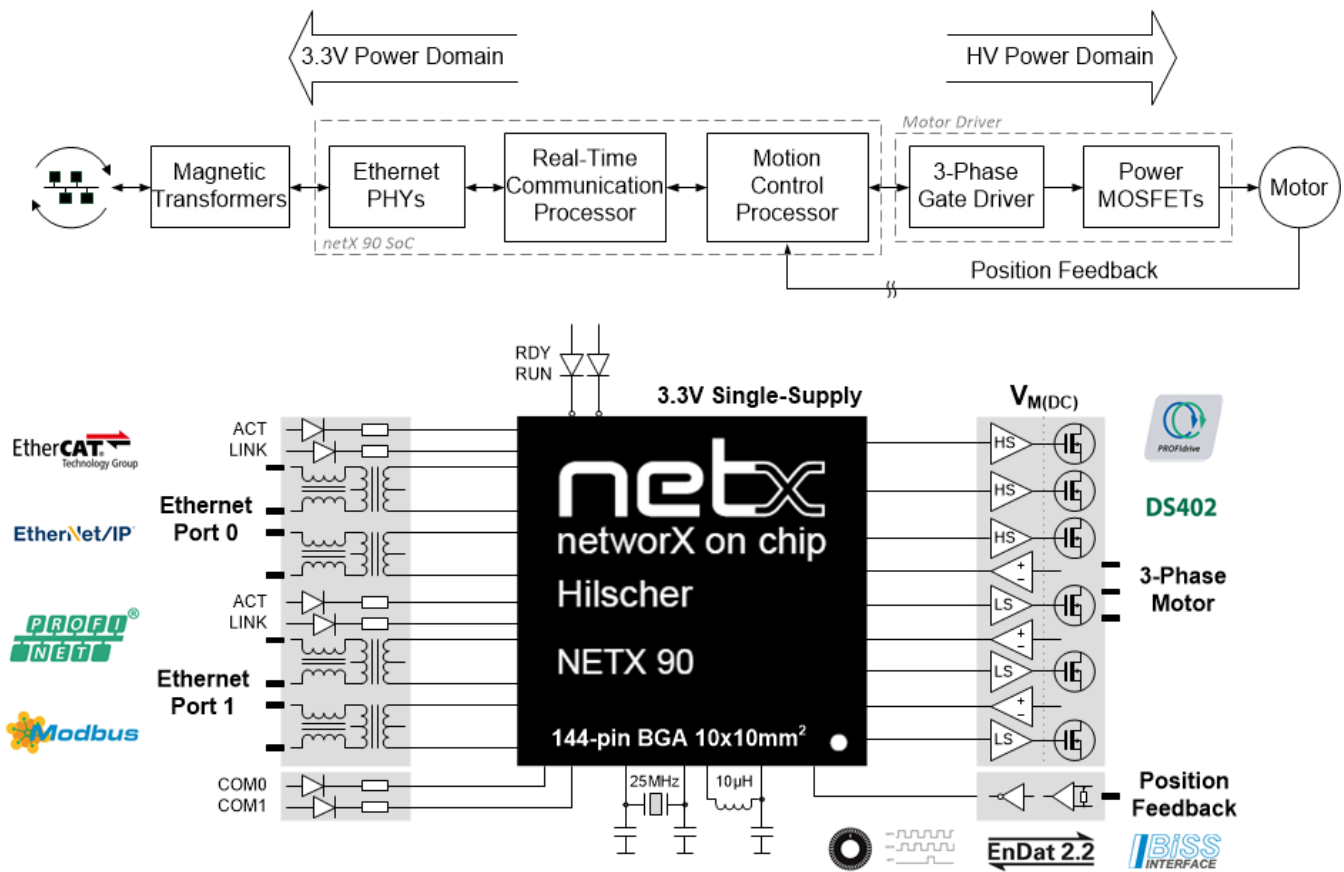
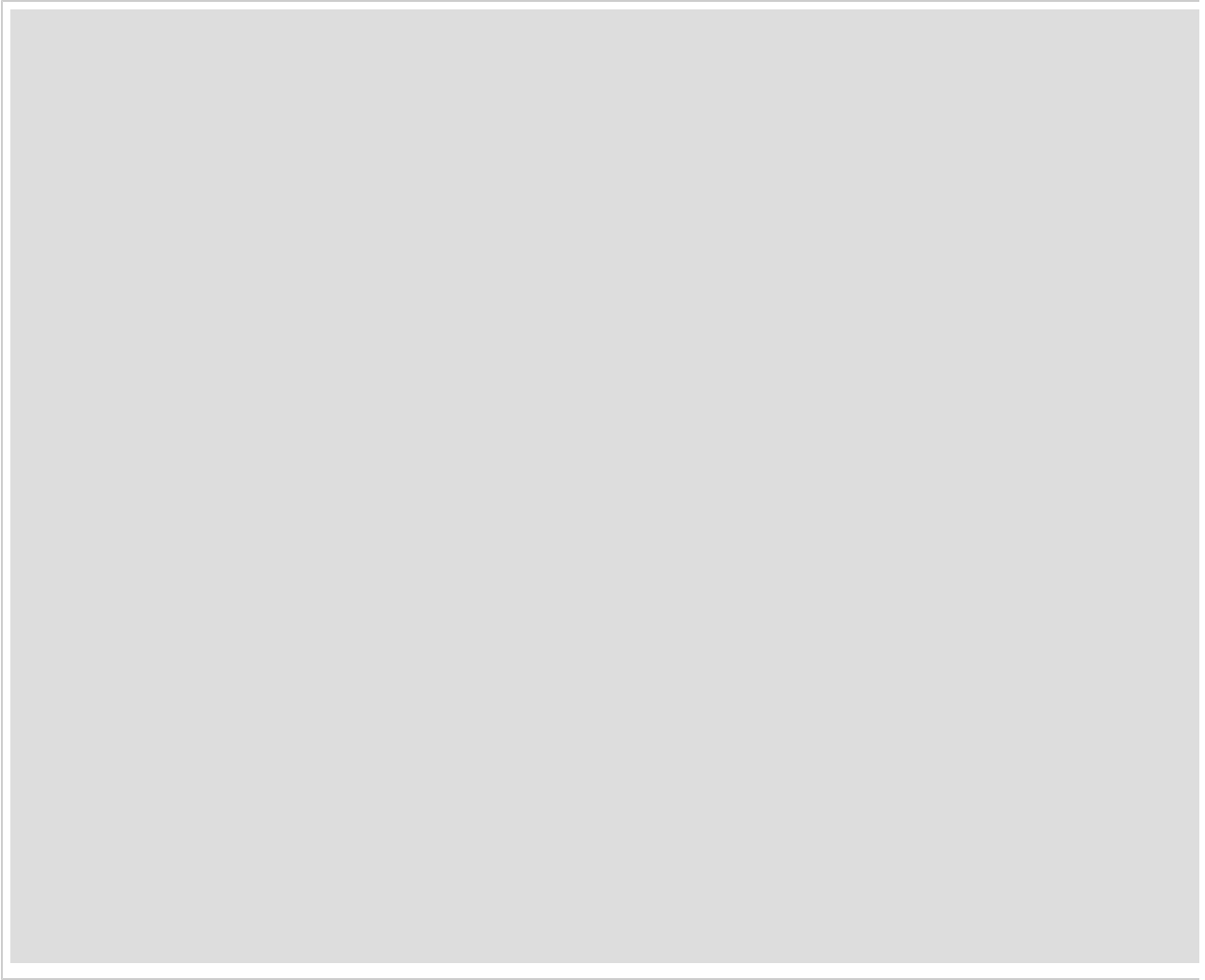


Figure 1: Multiprotocol communication SoC with built-in motor control for motion and drive applications

The software-defined product approach enables a generic PCB hardware design for the network interface and motor driver stage. The software defines which type of motor, position feedback, and application profile is supported, similar to the different real-time Ethernet communication protocol stacks. External memory considered as a PCB assembly option allows upgrading Hilscher's standard on-chip flash communication firmware, consisting of protocol stack and basic web server for software updates, to a highly extended communication firmware version, additionally with IIoT connectivity, built-in security, and custom web services. The host interface of the netX 90, with the same dual-ported memory mechanism and layout, provides a scalable and extendable application design solution, enabling a common standard network interface for both companion chip and single chip use cases.



Explore our unique solution with the netX 90 real-time communication and motor control development kit.

Subpages
<ul style="list-style-type: none">• netX 90 in Motion<ul style="list-style-type: none">• Motion Pulse-Width Modulation (MPWM)• Motion Analog-to-Digital Converter (MADC)• Motion Encoder (MENC) Interface• EnDat 2.2 Interface for Encoders• BiSS Interface for Encoders• Enhanced GPIOs with Timer• Development Kit<ul style="list-style-type: none">• How to get started with netMOTION• Board application setup PMSM• Software application note FOC

If you would like to learn more about the netX 90, please contact your local [sales representative](#) and [visit our video tutorials site](#).