

Development
Mode

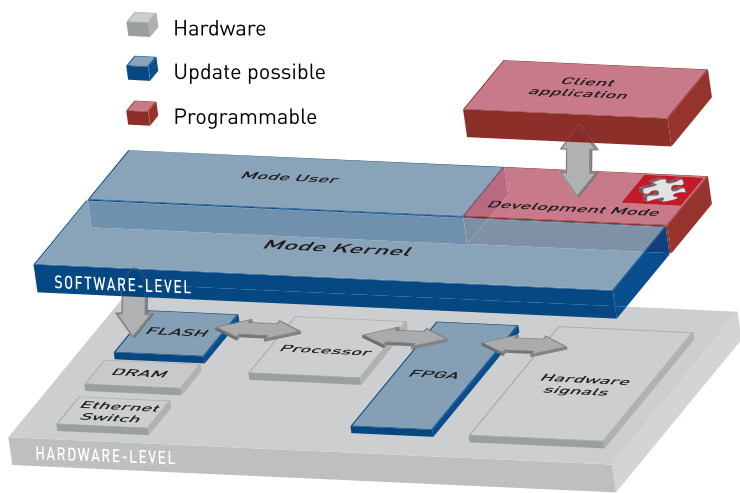
CUSTOMISED APPLICATIONS

- Relieving the load on the central system through onboard data processing
- Distributed embedded intelligence within your Ethernet network
- Stand-alone measurement and control applications

CUSTOMISED APPLICATIONS

More performance with self-developed applications!

With the intelligent Ethernet systems of the MSX-Exxxx series by ADDI-DATA, you can realise simple and complex measurement and control applications without the need for programming skills. With the Development Mode of the MSX-E systems, you can customise your application exactly to your needs. This enables you to increase the efficiency of your processes and to secure your investments!



What is the Development Mode?

The MSX-E systems are organised in **two levels**:

The hardware level, that contains among other things the functionality of the system and the FLASH memory where the Embedded Linux operating system is stored. When the system boots, the operating system is loaded by the ARM9 processor into the RAM and FPGA.

The software level consists of the User and the Kernel mode of the operating system. The Development Mode is a part of the User mode, in which customer applications can be loaded.

As the Development Mode exclusively accesses the functions in the User mode, the vital hardware and software functions of the MSX-E systems remain protected.

Easy to use

Using the Development Mode is easy: First write your program on a computer, then compile and upload it into the FLASH memory through the web server of the MSX-E systems.

With the Autostart function, the MSX-E systems start the saved applications after booting and execute them independently.

Customer applications written with the Development Mode can run either on one

or on several MSX-E systems.

Relieve the central system

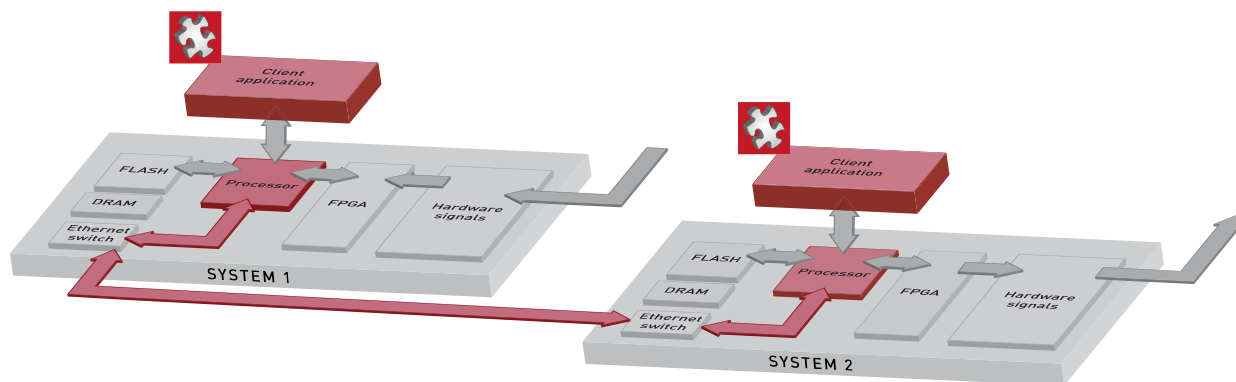
Tasks which you have always solved with the PC can now be realised directly with the Ethernet systems. Thanks to their onboard intelligence and the Development Mode, the systems can manage extended calculations. Acquired values can e.g. be immediately converted into physical values such as temperature, pressure or fill level and/or be filtered.

As soon as your application is saved

on the MSX-E systems, the load on the central system is relieved. Therefore, the system can be assigned other tasks.

Stand-alone operating

You can program the MSX-E systems to interact independently (stand-alone) or to communicate with other kinds of hardware within the standard Ethernet network (TCP/IP): PLC, computer, other MSX-E systems, etc.

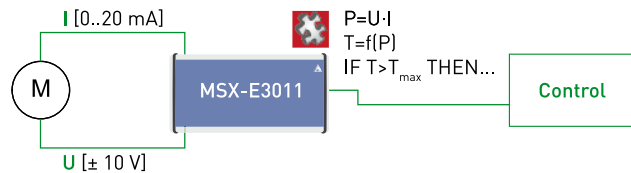


Customer applications written with the Development Mode can run either on one or on several MSX-E systems. The acquired values are calculated and processed directly onboard.

Application examples

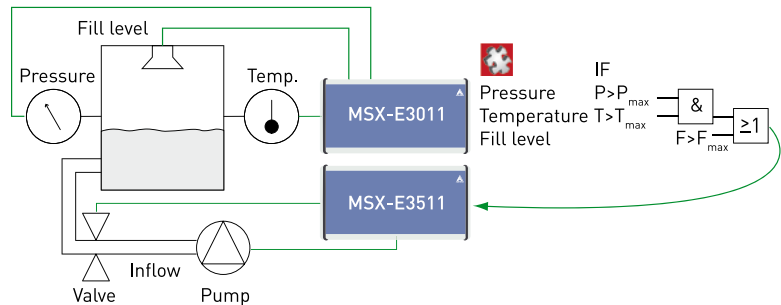
Relieving the controller – calculation and filtering of input values

The analog input system MSX-E3011 acquires voltage and current values of motors. The system calculates the electrical power P ($P = U \cdot I$) using each voltage and current pair of values. It calculates the temperature through a coefficient and then checks the corresponding temperature. If the temperature exceeds a defined critical value, the system issues a message to the central control unit.

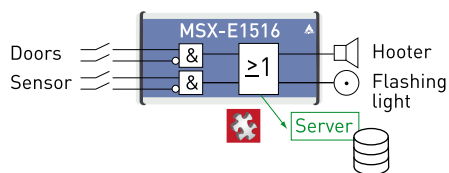


Stand-alone measurement system – Analog regulation

The MSX-E3011 is used to monitor tanks (temperature, pressure, fill level). If a limit value is exceeded, the MSX-E3011 sends a signal to the analog output system MSX-E3511. The MSX-E3511 switches off the connected frequency-regulated pump and closes the valves ($\pm 10 \text{ V}$).



Signal acquisition with database connection



The system MSX-E1516 monitors doors in a secured area. An event mask is defined which reacts to different combinations of the digital inputs. When doors are opened without authorisation, the system sets off an alarm (hooter and flashing light) through the digital outputs. The alarm signal is sent to the central server through Ethernet and stored in a database.

Working with the Development Mode

We have compiled a detailed instruction manual which describes how to write applications with the Development Mode. Find more information about it at www.addi-data.com, category Products/Embedded development.



Ready-to-use applications available!

We can provide you with examples that you can use directly for your applications or as templates for your own development.

Ask us!

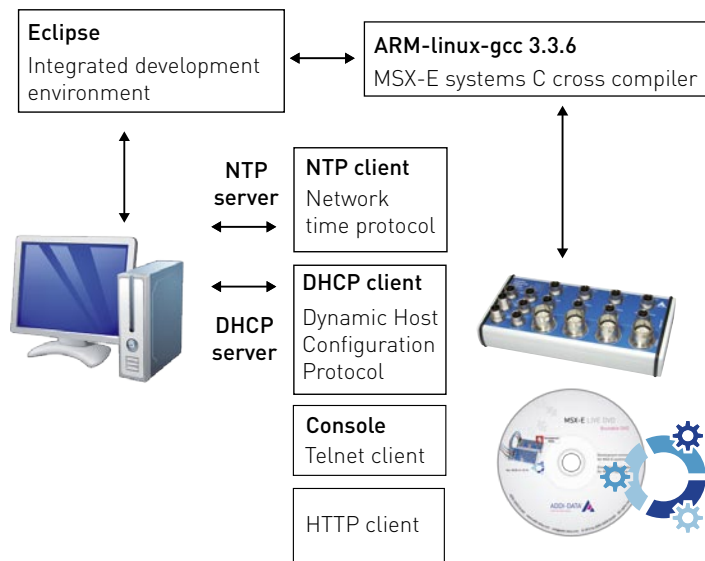
Build your own or have something built

Develop your own applications – with the right tools

To develop your measurement, control, and regulation applications quickly and easily, we provide you with a Live DVD with numerous free development tools.

The supplied tools include a cross compiler for ARM.

The Live DVD is based on the Eclipse development environment and the Kubuntu Distribution.



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