Ethernet system for serial interfaces
4 ports for RS232, RS422, RS485 or 20 mA CL

MSX-E7511

4 serial interfaces

RS232, RS422, RS485, 20 mA Current Loop

128-byte FIFO buffer for each port

16C950 compatible UART
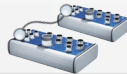
Optical isolation

Onboard evaluation of user data

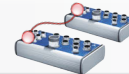|				
Integrated Ethernet switch	+ 85 °C* / - 40 °C	IP 65	ARM®9 Technology	Cascadable, can be synchronised in the µs range / On request: Compare logic for synchro trigger signal

*Operating temperature

RoHS 2002/95/EC

on request

More information on www.addi-data.com

Features

- 24 V digital trigger input
- ARM®9 32-bit processor
- 64 MB onboard SDRAM for storing data
- Robust standardized metal housing
- Power Save Mode: Reduced power consumption when no acquisition runs

Safety features
- Status LEDs for fast error diagnostics
- Optical isolation • Input filters

Serial interfaces
- 4 serial interfaces
- RS232, RS422, RS485 and TTY (20 mA Current Loop)
- The port modes can be mixed
- The channels are optically isolated from each other

Interfaces

- Fast 24 V trigger input
- Ethernet switch with 2 ports
- Synchronisation/trigger In/Out
- Line in for 24 V supply and cascading

Communication interfaces
- Web server (configuration and monitoring)
- Command server SOAP for transferring commands
- Data server (TCP/IP or UDP socket) for sending acquisition data
- Event server (TCP/IP socket) for sending system events (Diagnostics such as temperature, short-circuits ...)
- Command server Modbus TCP and Modbus (UDP) for sending commands

Synchronisation/time stamp

Time stamp

Several MSX-E systems can be synchronised with one another in the µs range through a synchro connection. This allows to start a synchronous data acquisition, to generate trigger events and to synchronise the time on several MSX-E systems. Furthermore, the systems have a time stamp that logs the point in time at which the data was acquired by the system.

Without synchro: $TS_{Ax} \neq TS_{Bx}$
With synchro: $TS_{Ax} = TS_{Bx}$
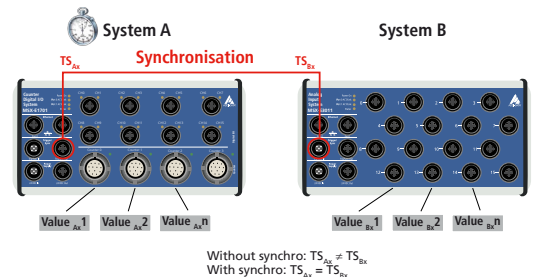
The combination of synchronisation and time stamp (TS) allows the clear allocation of signals that were captured by several systems.

ADDI-DATA®
SPIRIT OF EXCELLENCE
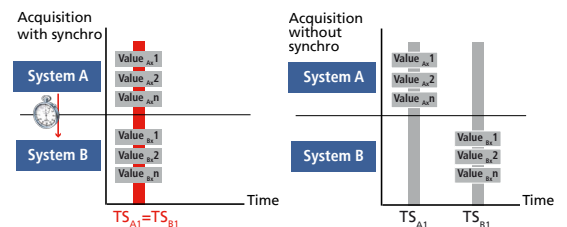
Onboard programming / stand-alone operation

Development mode

With the Development mode of the MSX-E systems you can customise your measurement, control and regulation applications to fit your requirements. The programs run directly on the MSX-E systems, which has two advantages: external PCs are relieved and you can process data freely according to your requirements. This helps you to improve the efficiency of your processes and to secure your investments.

Flexibility through firmware and software adaptation

Thanks to the flexibility of the MSX-E product range, the MSX-E7511 system can be easily extended via firmware, e. g. to install additional protocols on the serial interfaces.
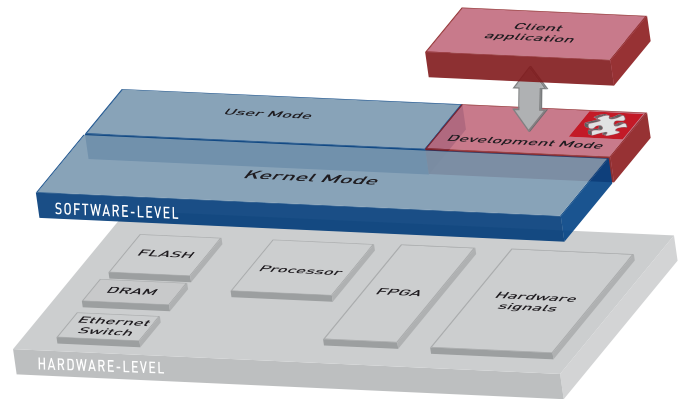
Fields of application

The MSX-E7511 Ethernet system features 4 serial interfaces.
Depending on the version, the interface standards are RS232, RS422, RS485 and TTY (20 mA Current Loop).
Any application can be programmed either through a firmware adaptation or using the Development mode.

Data collector

Via the RS485 interface, the Modbus RTU protocol can be used. For example, temperature sensors featuring an integrated Modbus RTU interface can be read and the complete protocol interpretation can be made on the MSX-E7511 system.
It is thus possible to filter the actual user data - in this case temperature data - and to transmit only this data or to store it in a database.

Onboard calculation

As the system can be programmed, it is possible to effect calculations with the different ports.
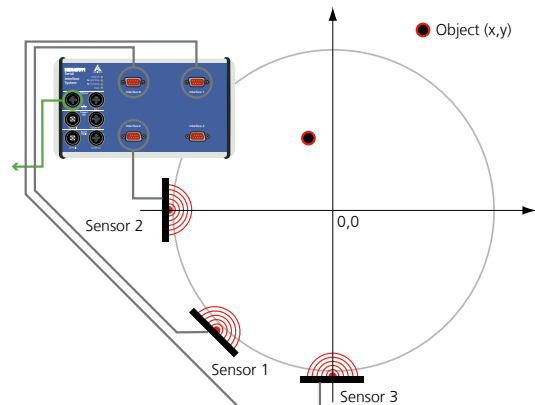**Example:**
Using a radar sensor, the position of an object is to be displayed.
The sensors indicate the distance via RS422.
Three sensors are used:
• Sensor 1 as a reference to control whether there is an object or not.
• Sensor 2 and 3 for establishing the position of the object.

On the MSX-E7511 system, the interface data is read and interpreted.
The position of the object is obtained through calculation of the values of sensor 2 and 3 (e.g. as x/y value). Sensor 1 is used to validate the result.
The MSX-E7511 system transmits then only the position data to the Client.

Selft-sufficient unit

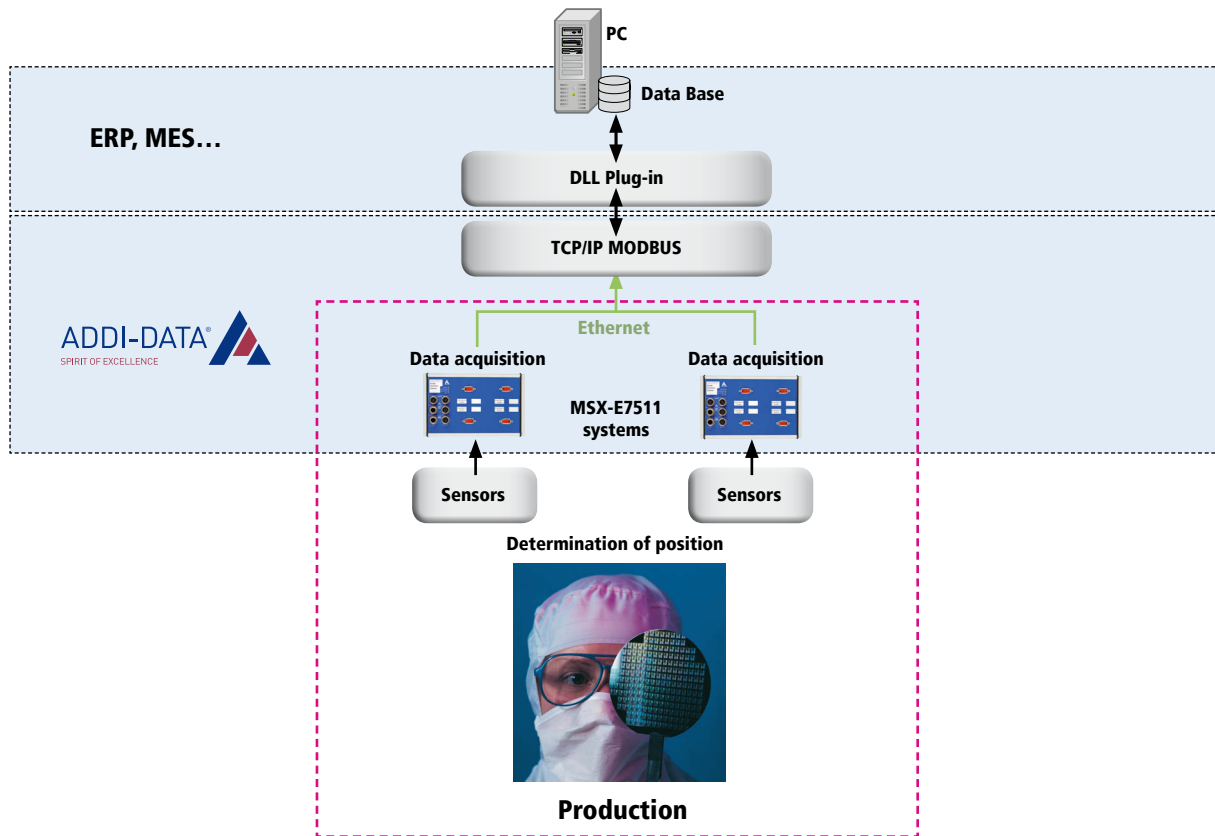Using further systems from the MSX-E product range, the MSX-E7511 system can also be used as a self-sufficient unit.
Example:
Components are acquired via a scanner (RS232). The MSX-E7511 system reads the barcode and sends the corresponding commands for the processing of the components to a MSX-E1516 Ethernet digital I/O system (handling) and a printer (marking).
There is thus no need for an additional PLC or PC.

ConfigTools

The **ConfigTools** program allows an easy administration of the MSX-E systems. These are automatically detected in the network. **ConfigTools** consists of common and specific functions.
In addition, with **ConfigTools**, the complete configuration of a MSX-E system can be saved and transferred to another system of the same type (clone function).

ConfigTools is included in the delivery.

ConfigTools functions for MSX-E7511:
- Change of IP address
- Display of web interface
- Firmware update
- Save/load system configuration

Very easy use through the „ConfigTools" program; The MSX-E system is automatically detected in the network.

Features

Status LEDs

4 serial interfaces, RS232, RS422, RS485, 20 mA CL 9-pin D-Sub male connector

2 x Ethernet
2 x Trigger/Synchronisation IN/OUT
2 x voltage supply, 24 V IN/OUT, optically isolated

Simplified block diagram

Cascading

Combination possibilities:
- Several MSX-E of the same type: acquisition of a large number of channels
- Different types of MSX-E systems: combination of different functions

Ethernet **(CMX-7x)**
Trigger/Synchro **(CMX-5x)**
Power **(CMX-3x)**

ADDI-DATA connection technology

Phone: +49 7229 1847-0   info@addi-data.com
Fax: +49 7229 1847-222   www.addi-data.com

ADDI-DATA
SPIRIT OF EXCELLENCE

ERP, MES…

PC

Data Base

DLL Plug-in

TCP/IP MODBUS

ADDI-DATA ®
SPIRIT OF EXCELLENCE

Ethernet

Data acquisition   Data acquisition

MSX-E7511 systems

Sensors   Sensors

Determination of position

Production

Specifications

Serial interfaces

Number of ports:	4
Mode:	RS232, RS422, RS485, 20 mA Current Loop (active, passive) with optical isolation
Configuration:	at ordering
Optical isolation:	1000 V
Transmission mode:	Asynchronous, full or half duplex
Addressing:	Automatic
Memory:	128-byte FIFO memory for sender and receiver
Transfer rate:	Programmable up to 115.2 kBaud Any Baud rate up to 1 MBaud on request
Protocol:	5-, 6-,7- or 8-bit character 1,1½ or 2 stop bits
Parity:	Even, odd, none, mark, space
Connectors:	4 x 9-pin D-Sub male connector

Voltage supply, Ethernet, Trigger, Synchro

The specifications for the voltage supply, Ethernet, Trigger, Synchronisation and Electromagnetic Compatibility apply to all MSX-E systems. See page 31.

System features

Interface:	Ethernet acc. to specification IEEE802.3
Dimensions:	220 mm x 140 mm x 50 mm
Weight:	620 g
Degree of protection:	IP 65
Current consumption:	150 mA ± 10 % typ. in idle/power save
Operating temperature:	-40 °C to +85 °C

Ordering information

MSX-E7511
Ethernet system for serial interfaces, 4 ports for RS232, RS422, RS485 or 20 mA CL. Incl. technical description, software drivers and ConfigTools.

Versions
MSX-E7511-XXXX

    A: RS232, optically isolated
    B: RS422, optically isolated
    C: RS485, optically isolated
    D: 20mA CL
Example: **MSX-E7511-AACC**
    Port 1 = RS232, Port 2 = RS232, Port 3 = RS485, Port 4 = RS485

Connection cables
For serial interfaces
Open cable end, 9-pin D-Sub female connector
ST073-RS232 (A): RS232 cable
ST073-RS422 (B): RS422 cable
ST073-RS485 (C): RS485 cable
ST073-CL (D): 20mA CL cable

Voltage supply
CMX-2x: Shielded cable, M12 5-pin female connector/open end, IP 65
CMX-3x: For cascading, shielded cable, M12 5-pin female connector/male connector IP 65
Trigger/Synchro
CMX-4x: Shielded cable, M12 5-pin female connector/open end, IP 65
CMX-5x: For cascading, shielded cable, M12 5-pin female connector/male connector IP 65
Ethernet
CMX-6x: CAT5E cable, M12 D-coded male connector/RJ45 connector
CMX-7x: For cascading, CAT5E cable, 2 x M12 D-coded male connector

Options
S7 Modbus TCP Client Library for S7: Easy use of the Ethernet systems MSX-E with PLCs
MSX-E 5V-Trigger: Level change of the trigger inputs and outputs to 5 V
MX-Rail (please specify when ordering!), **MX-Screw**