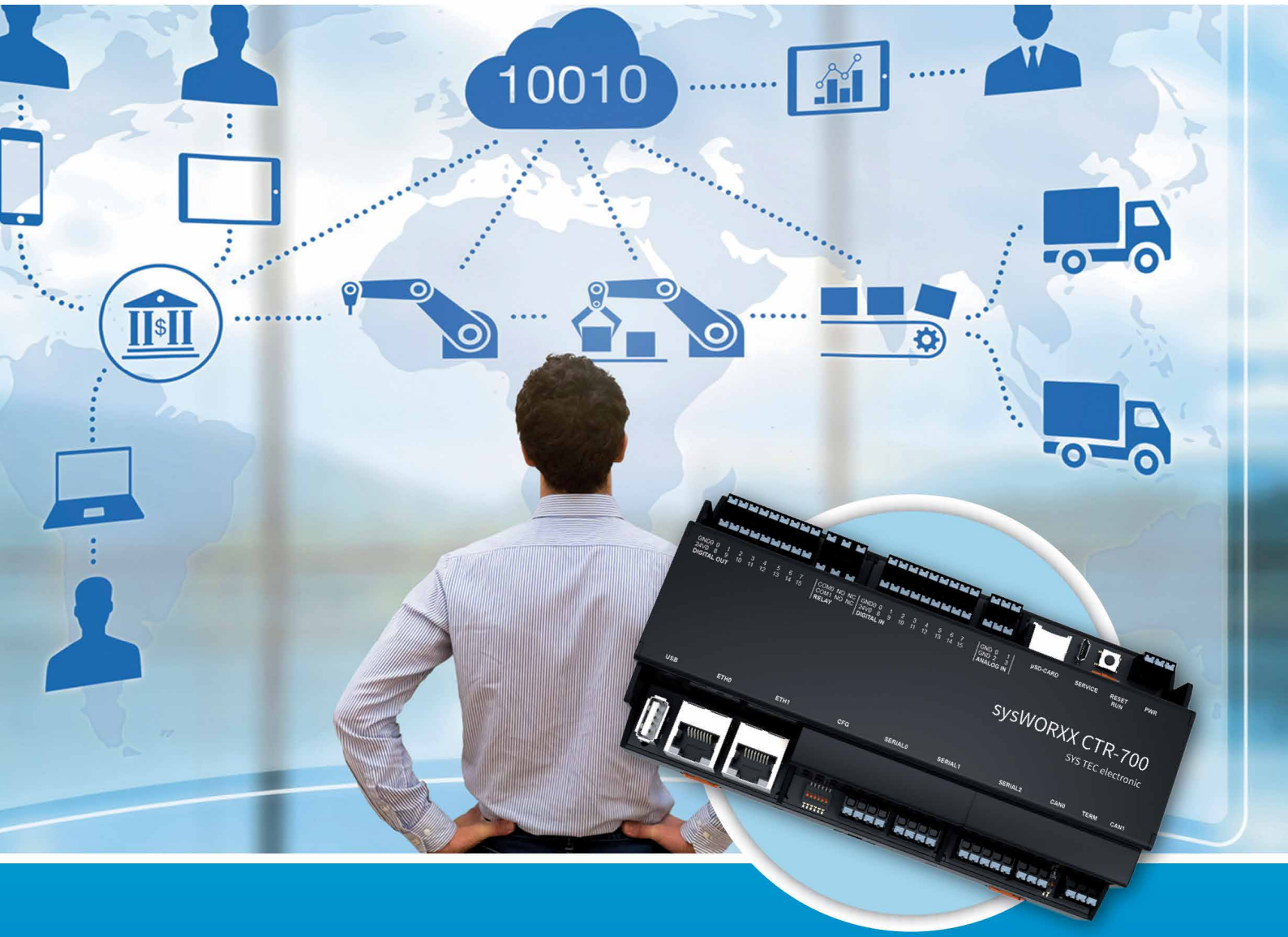
SYS TEC ELECTRONIC



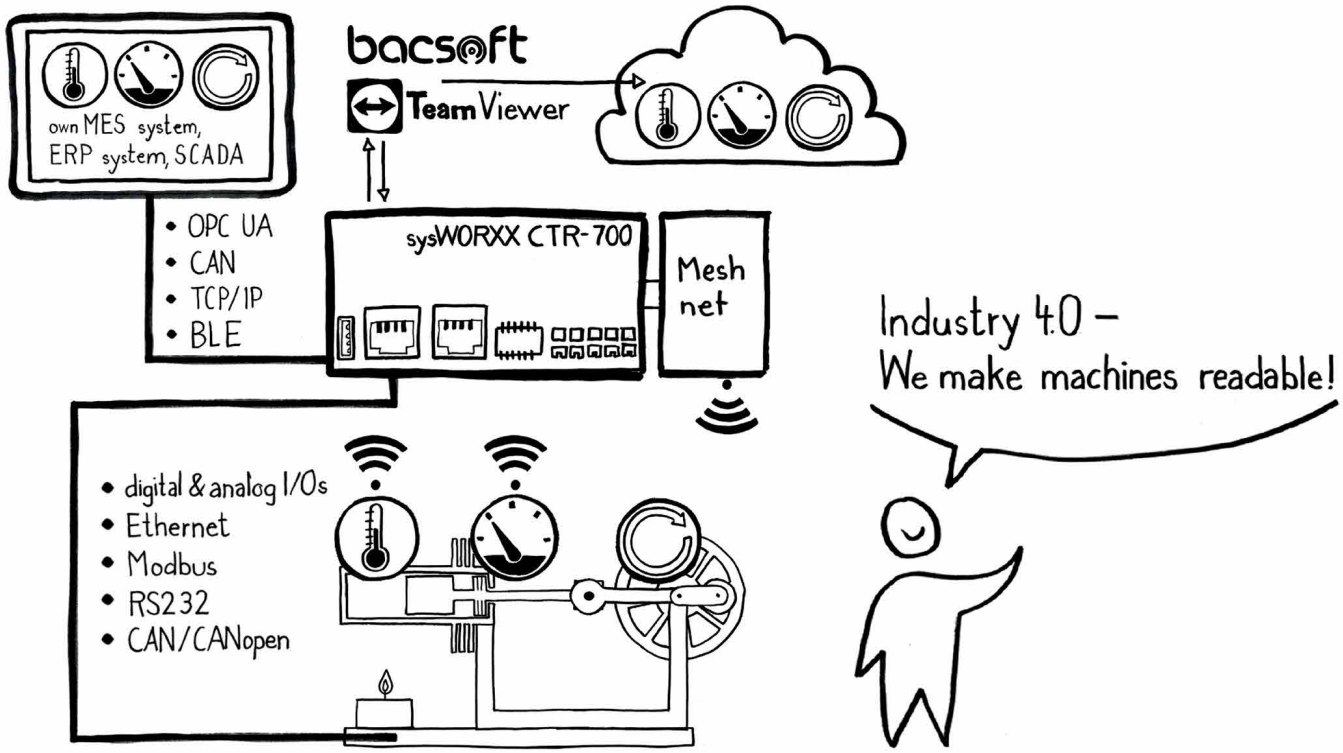
LIVE MONITORING & PREDICTIVE MAINTENANCE

Fields of application: energy management, asset/personnel tracking, production monitoring

sysWORXX CTR-700

a combination of a freely programmable edge controller & IoT gateway with direct mesh network connectivity

WE MAKE MACHINES READABLE!



Wired and wireless sensors
(e.g. mesh networks)

Fieldbus sensors

- CAN/CANopen
- Modbus
- Ethernet
- RS232/RS485

1100101
110010111001
5B1 h
1010 100100
01100010
6E5 h
1000111000111
1010
8G3 h

Sensor Raw Data
(digital & analogue I/Os, Ethernet, Modbus, RS232, CAN/CANopen)

Siemens S7

sysWORXX CTR-700

JSON {
type: "temperature",
value: 22.5,
unit: "°C"
}

JSON {
type: "humidity",
value: 84,
unit: "%RH"
}

JSON {
type: "acceleration",
value: { x: 0.2,
y: 1.2,
z: 2.0 }
unit: "g"
}

Cloud Local

MQTT, OPC UA, {Rest}, CAN, TCP/IP, BLE

in-house MES system, ERP system, SCADA

· Node-RED · C#
· Java · IEC 61131-3
· C/C++ · Python

Edge Computing:
· M2M communication · Pushing to Cloud
· Local Persistence

PRODUCTION MONITORING

Live monitoring & control of machinery/plant data

SOFTWARE DETAILS sysWORXX CTR-700

SYSTEM SOFTWARE

▶ Operating system	Linux / Debian
▶ PLC runtime	OpenPCS – IEC 61131-3
▶ Wiring editor	Node-RED
▶ Other programming languages	C#, C / C++, Java, Python

COMMUNICATION PROTOCOLS

▶ IoT data protocols	OPC UA, MQTT, TCP/IP
▶ Fieldbus protocols	CANopen, CAN Layer 2, Modbus & more
▶ Mesh network	Wirepas via Extension Module

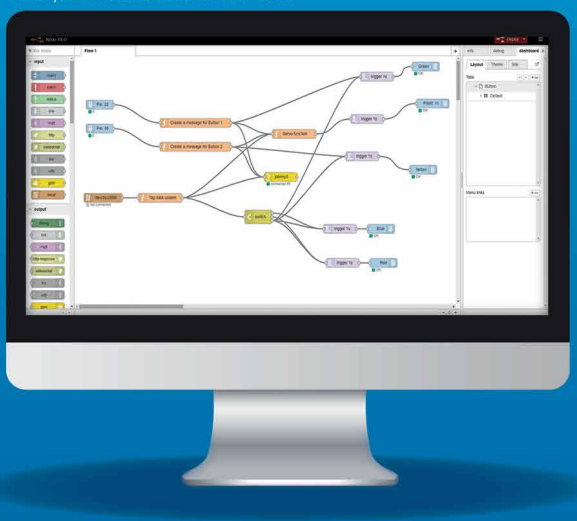
VISUALISATION

▶ PLC default	SpiderControl / IniNet *(commercial license)*
▶ Alternative visualisation	Node-RED *(free license)*

REMOTE ACCESS

▶ System services	SSH / Telnet, SFTP / FTP, HTTPD

Example of visualisation in Node-RED



ENERGY MANAGEMENT

Intelligent meters & reduction/smoothing of electrical load peaks

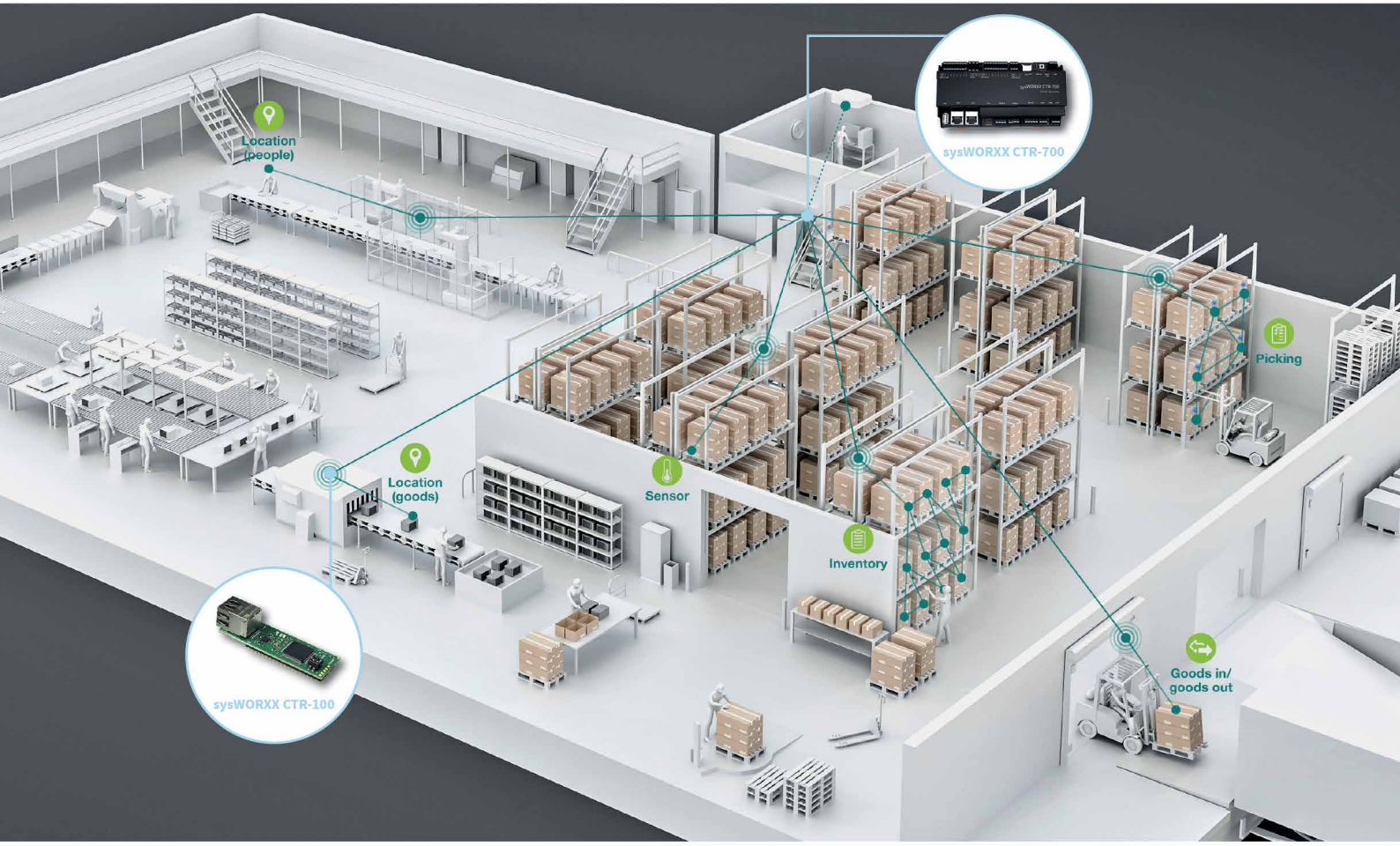
BENEFITS sysWORXX CTR-700

- Combined edge controller & IoT gateway
- Edge controller: local pre-processing of data from various fieldbuses & wireless networks
- IoT gateway: data forwarding to the cloud and HMIs
- Freely programmable in the following languages:
  - IEC 61131-3 *(OpenPCS)*
  - Java
  - C#
  - Node-RED
  - Python
  - C/C++
- Various different digital & analogue interfaces
  - Direct connection of sensors and actuators
  - See hardware details
- Direct connectivity to mesh network module
  - Transmission via Wirepas wireless technology
- Can also be fitted with wireless modems from a wide range of manufacturers
- Suitable for DIN top-hat rail mounting
- Strict separation of enterprise IT & shop floor OT

wireless extension module sysWORXX SRN-GW1

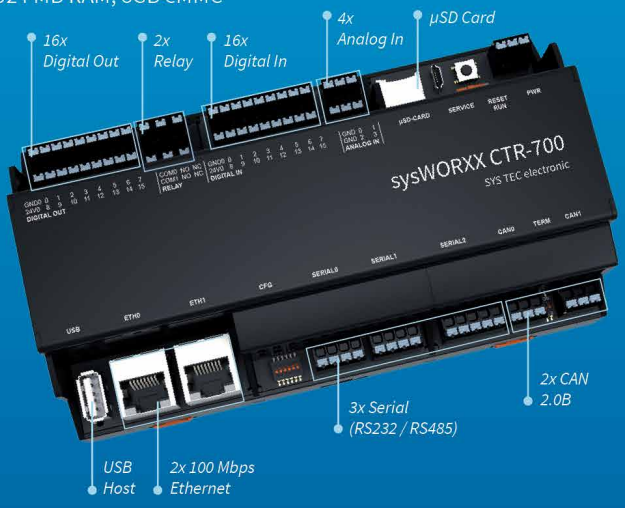
GOODS TRACKING

Increased efficiency through monitoring in industry/production



HARDWARE DETAILS sysWORXX CTR-700

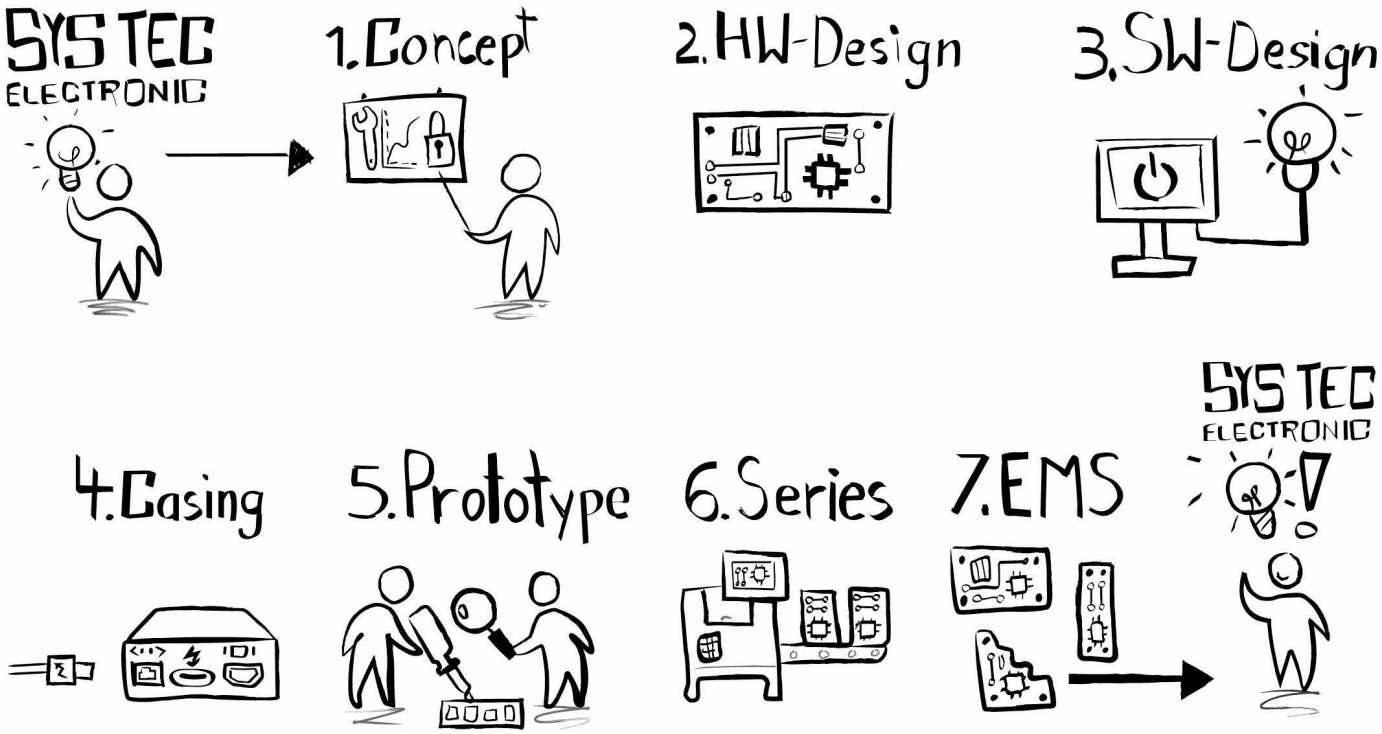
- Suitable for DIN top-hat rail mounting
- NXP i.MX 7 / Dual Cortex-A7
- 1024 MB RAM, 8GB eMMC



Power supply 24V/ 1,5A	SPT-THR 1,5mm² / 3pol
Service (console)	USB 2.0-Micro Type B
Ethernet 0	RJ45
Ethernet 1	RJ45
USB-Host	USB 2.0 Type B
µSD-Card	µSD card holder
CAN 0	SPT-THR 1,5mm² / 3pol
CAN 1	SPT-THR 1,5mm² / 3pol
Serial interface 0 · RS232 · RS485 (MODBUS)	SPT-THR 1,5mm² / 4pol
Serial interface 1 · RS232 · RS485 (MODBUS)	SPT-THR 1,5mm² / 4pol
Serial interface 2 · RS232 · RS485 (MODBUS)	SPT-THR 1,5mm² / 5pol
Backplane bus · UART · SPI	SPT-THR 1,5mm² / 18pol VCC / GND / signals
4 analogue inputs · 0...20mA / 4...20mA · 0...10V	SPT-THR 1,5mm² / 6pol 2GND / 4Ch.
16 digital inputs · 1 as CNT configurable · 1 as A/B-Encoder configurable	SPT-THR 1,5mm² / 18pol 24V / GND / 16Ch.
16 digital outputs · 2 as PWM configurable	SPT-THR 1,5mm² / 18pol 24V / GND / 16Ch.
2 relays · Changeover contact	SPT-THR 1,5mm² / 6pol COM / NO / NC

block diagram sysWORXX CTR-700

FROM YOUR IDEA TO SERIAL PRODUCTION



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