INSYS icom

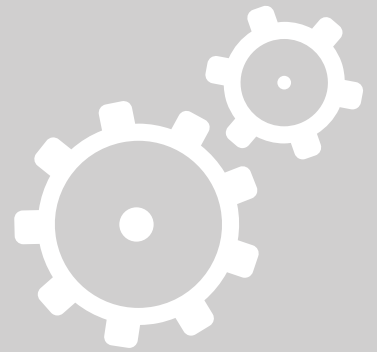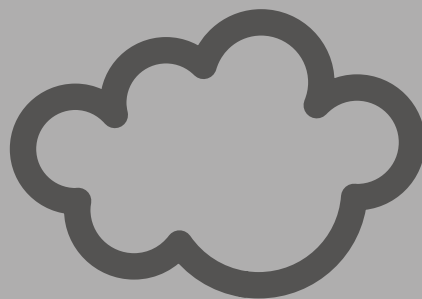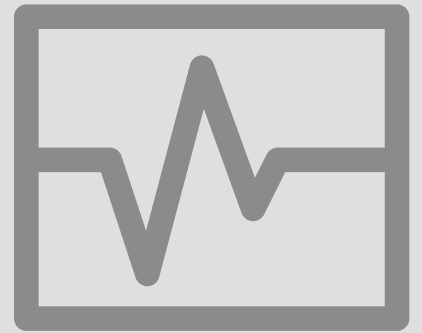# Professional Data Communication

Product and Solution Overview 2017

Your Leading Technology Partner for Professional Data Communication

INSYS icom

INSYS icom is proven technology partner in professional data communication for M2M (Machine to Machine) and IoT (Internet of Things) since 1992. The product portfolio allows customers to connect their applications where and when ever this is necessary – reliable, user-friendly and secure.

INSYS icom offers all necessary components like modems and routers, connectivity, SIM and VPN services and apps for this to connect to control centers, clouds, web services and other destinations. Besides these standard products, INSYS icom is an experienced partner for customer-specific projects.

The complete knowledge for hardware, software and applications is in-house, accompanied by a professional support team and close partnerships with leading technology, service and sales partners.

INSYS aero

INSYS aero provides solutions for the aviation industry. Whether inside the aircraft or from and to ground. The INSYS aero portfolio contains wireless access points, content servers, data loaders, 3G/4G/WiFi/LAN gateways and a universal data converter platform for connectivity applications in planes and helicopters and realises customer-specific solutions as well. Certifiable according to the appropriate aviation industry requirements and usable for fields with high quality demands without any restrictions.

INSYS locks

INSYS locks provides solutions for banks and trade, components for securing safes as well as alarm and dial-up devices. The current portfolio comprises intelligent access control systems and solutions for rental locker monitoring besides high-quality lock systems. National and international customers of industry, trade and banks rely on components and complete security systems from INSYS locks.

INSYS test

INSYS test provides solutions for manufacturing, operation and service of test equipment and life-time simulation systems. As full-range supplier, INSYS test does not only supply high-quality test equipment, analysis and test systems for the automotive industry, but also appropriate test adapters and individually tailored wiring harnesses.

Content

INSYS Smart IoT Platform
The flexible ecosystem for your M2M and IoT applications

Field and Customer Application

IP-capable and analogue devices like controls, sensors, actors, web cams, etc.

Application Connector

Hardware and software for connecting field and customer applications, e.g. protocol converters

Device Apps & Device Services

Apps and services for INSYS Smart Devices

INSYS Smart Device

Professional routers with integrated computing power

Conne & Sec Serv

VPN and SIM s as applications secure co

The Internet of Things (IoT) drives new business models in industry. In order to be able to transform ideas in sales at short notice, the technology behind must be easy and flexible to use.

The INSYS Smart IoT platform is a flexible, highly pre-integrated end-to-end ecosystem and contains all necessary communication elements to gather, process and provide data from distributed applications quick and easy. The open IoT communication solution allows both, edge and cloud computing, as well as combinations of both besides data transfer. Your ideas can be implemented with low effort and realised quickly if required. Benefit from our flexible, adaptive and scalable one-stop solution and rely on industrial quality made in Germany!

Excellent!

Professional routers with
integrated computing power

ectivity
curity
vices

INSYS
Smart
Device

Destination
Connector

Cloud services for visualisation
and other tasks, connection to
MES, ERP, SCADA, etc.

Cloud Apps
& Cloud
Services

Destination

services as well
s for stable and
nnections

Messages via SMS and
e-mail, SNMP, connections
to clouds, control centers,
etc.

Storing, processing and
presenting of captured data

Your Benefits

- Sophisticated M2M and IoT communication solution
- High pre-integration of hardware, software and services
- Flexible, adjustable and scalable system
- Supports approaches for edge and cloud computing

Your additional benefit

- Brief time to market
- Quick return on investment
- Cost and risk reduction also for non-durable business models

Professional Data Communication
Our Three Core Attributes

Reliable

Stability mechanisms
- Connection monitoring and automated re-establishment, regular tasks
- Redundancy, for example using a second SIM card, alternative VPNs, etc.
- Permanent monitoring of all critical system components (watchdog)

High-quality hardware
- Robust, long-lasting and suitable for industrial use by design
- Well-proven under extreme conditions, e.g. in a challenging EMC environment

Easy to Use

Configuration
- Web-based, consistent user interface with integrated online help
- Alternative configuration via CLI , SSH, Telnet or text file

Management
- Daily automatic update (ftp, http), optional inclusive firmware and sandbox image
- Central configuration management with standard protocols
- Web-based VPN and device management platform

Secure

Data security
- Password protection and Radius authentication, OpenVPN, IPsec, GRE
- Configuration accesses and interfaces can be enabled and disabled individually
- Stateful firewall with MAC address filter, no back doors

Tamper protection
- Resetting to default settings deletes all settings and passwords
- Messages via SNMP, e-mail or SMS upon unexpected events

	MRX3 LAN	MRX3 LTE	MRX5 LAN	MRX5 LTE
External interfaces				
LTE (4G)	-	X	-	X
UMTS/HSPA (3G)	-	X	-	X
GSM/GPRS (2G)	-	X	-	X
EDGE (2G)	-	X	-	X
LAN external	max. 5	max. 5	max. 5	max. 5
VDSL2	-	-	-	-
ADSL/2/2+	-	-	-	-
SDSL/SHDSL	-	-	-	-
WiFi	-	-	-	-
Local interfaces				
LAN	max. 8	max. 8	max. 16	max. 16
Serial RS232	max. 1	max. 1	max. 3	max. 3
Serial RS485 / Modbus	max. 1	max. 1	max. 3	max. 3
Digital inputs	max. 4	max. 4	max. 8	max. 8
Digital outputs (relays)	max. 2	max. 2	max. 6	max. 6
IT integration and security				
Stateful firewall	X	X	X	X
VPN	X	X	X	X
INSYS VPN service*	X	X	X	X
INSYS top features				
E-mail message dispatch	X	X	X	X
SMS message dispatch	-	X	-	X
SNMP traps	-	-	-	-
2. SIM card (optional)	-	X	-	X
WAN redundancy	X	X	X	X
Integrated Linux environment	X	X	X	X
Web configuration	X	X	X	X
CLI and ASCII configuration	X	X	X	X
Temperature range				
min. temperature °C	-30	-30	-30	-30
max. temperature °C	+65	+65	+65	+65
ext. temp. range °C**	-	-	-	-
Page	8	8	8	8

	MRcard SI	MRcard PL	MRcard ES	MRcard DS NEW from Q3 2017
External interfaces				
LTE (4G)	-	X	-	-
UMTS/HSPA (3G)	-	X	-	-
GSM/GPRS (2G)	-	X	-	-
EDGE (2G)	-	X	-	-
LAN external	-	-	-	-
VDSL2				X
ADSL/2/2+	-	-	-	X
SDSL/SHDSL	-	-	-	-
WiFi	-	-	-	-
Local interfaces				
LAN	-	-	4	-
Serial RS232	1	-	-	-
Serial RS485 / Modbus	1	-	-	-
Digital inputs	2	2	-	2
Digital outputs (relays)	2	-	-	-
Maximum number per MRX variant				
MRX3 LAN	1	1	1	1
MRX3 LTE	1	1	1	1
MRX5 LAN	3	2	3	1
MRX5 LTE	3	2	3	1
Page	9	9	9	9

more MRcards in preparation

*   INSYS VPN service (page 28)
** Valid under restricted conditions. Refer to www.insys-icom.com/restricted for more information

Routers (Smart Devices), Bridges

	Cellular radio								
	MRO-L200/-L210 (NEW)	MoRoS HSPA	MoRoS GPRS	EBW-L100	EBW-H100	EBW-WH100	IMON-G100	IMON-G200	IMON-U300/-U310
External interfaces									
LTE (4G)	X	-	-	X	-	-	-	-	-
UMTS/HSPA (3G)	X	X	-	X	X	X	-	-	X
GSM/GPRS (2G)	X	X	X	X	X	X	X	X	X
EDGE (2G)	X	X	X	X	X	X	-	-	X
LAN external	max. 5	1	1	-	-	-	-	-	-
PSTN (analogue 56k)	-	-	-	-	-	-	-	-	-
ISDN	-	-	-	-	-	-	-	-	-
ADSL/2/2+	-	-	-	-	-	-	-	-	-
SDSL/SHDSL	-	-	-	-	-	-	-	-	-
WiFi (client/access point)	-	-	-	-	-	X/X	-	-	-
Local interfaces									
LAN	max. 5	4+1	4+1	2	2	2	1	1	1
Serial RS232	1	1	1	-	-	-	1	1	1
Serial RS485 / Modbus	-	-	-	-	-	-	-	1	1
Digital inputs	2	2	2	-	-	-	2	2	2
Digital outputs (relays)	1	2	2	-	-	-	2	2	2
I^{2}C	-	-	-	-	-	-	-	-	-
Siemens LOGO!™	-	-	-	-	-	-	1	-	-
IT integration and security									
Stateful firewall	X	X	X	X	X	X	X	X	X
VPN	X	X	X	X	X	X	X	X	X
SNMP	X	X	X	X	X	X	X	X	X
Quick start for INSYS VPN*	X	X	X	X	X	X	X	X	X
INSYS top features									
E-mail message dispatch	X	X	X	X	X	X	X	X	X
SMS message dispatch	X	X	X	X	X	X	X	X	X
SNMP traps	X	X	X	X	X	X	X	X	X
2. SIM card	-	X	X	-	-	-	-	-	-
WAN redundancy	X	X	X	-	-	X	-	-	-
Integrated Linux environment	X	X	X	-	-	-	X	X	X
Web configuration	X	X	X	X	X	X	X	X	X
CLI and ASCII configuration	X	X	X	X	X	X	X	X	X
Monitoring App	-	X	X	X	X	X	X	X	X
Temperature range									
min. temperature °C	-30	-30	-30	-30	-30	-30	-30	-30	-30
max. temperature °C	+70	+55	+55	+60	+60	+60	+70	+70	+70
ext. temp. range °C**	+75	+60	+60	+75	+75	+75	+80	+80	+80
Page	11	13	13	15	15	15	17	17	17

R = ready: extendible e.g. via I²C   * INSYS VPN service (page 28)
** Valid under restricted conditions. Refer to www.insys-icom.com/restricted for more information

	LAN			ADSL	SDSL	WiFi	PSTN/ISDN	
	MoRoS LAN	EBW-E100	RSM-E100	MoRoS ADSL A, B, B/J	INSYS SDSL	EBW-W100	MoRoS Modem	MoRoS ISDN
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	1	1	3	-	-	-	1	1
	-	-	-	-	-	-	X	-
	-	-	-	-	-	-	-	X
	-	-	-	X	-	-	-	-
	-	-	-	-	X	-	-	-
	-	-	-	-	-	X/X	-	-
	4	1	5	4	1	2	4+1	4+1
	1	-	-	1	1	-	1	1
	-	-	-	-	-	-	-	-
	2	-	-	2	-	-	2	2
	2	-	-	2	-	-	2	2
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	-	-
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	-	-	-	-	-	-	-	-
	-	X	X	X	X	X	X	X
	-	-	-	-	-	-	-	-
	-	-	-	-	-	-	X	X
	X	-	-	X	X	-	X	X
	X	X	X	X	X	X	X	X
	X	X	X	X	X	X	X	X
	X	X	-	X	-	X	X	X
	-30	-30	-20	-20	-20	-30	-20	-20
	+75	+70	+55	+55	+55	+70	+55	+55
	+85	+85	+55	+55	+55	+85	+55	+55
	13	15	18	13	20	15	13	13

MRX
Fully-modular Router

Flexible. Powerful. Future-proof.

An MRX provides you with latest communication technology, high computing power and flexibility in all respects. The fully-modular concept allows you to react to new requirements at any time. You'll benefit from an optimum cost/performance ratio and long service life.

The MRX is available in the two basic variants LAN and LTE as well as two housing widths with three or five slots.

Integrated Linux environment with LXC container technology
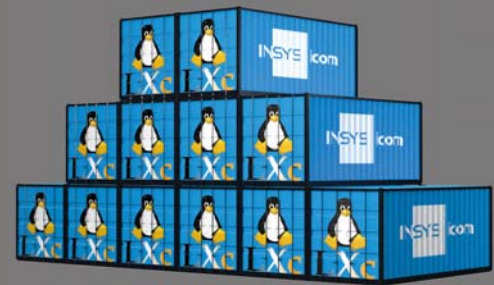
MRX3/5 LTE

- Ethernet module with 5 LAN ports
- LTE module with integrated power supply
- 2 digital inputs (1x PLC-capable)
- 1 or 3 free slots for MRcards

Article no.:
MRX3 LTE: 10016583
MRX5 LTE: 10017037

MRX3/5 LAN

- Ethernet module with 5 LAN ports
- Power module
- 2 digital inputs (1x PLC-capable)
- 1 or 3 free slots for MRcards

Article no.:
MRX3 LAN: 10016582
MRX5 LAN: 10017036

- Integrated Linux environment (LXC container technology, page 30)
- Network segmentation by port partition in up to 5 IP networks
- Firewall in VPN tunnel e.g. for delimiting remote accesses
- Several VPN tunnels can be used in parallel (virtual routers)
- Flexible administration with profile manager and user roles
- High performance for broadband networks and fast VPN data rate
- IT security: VPN, stateful and MAC firewall, configurable messages upon security events, Linux-based operating system
- Configuration via web interface, CLI, SSH, Telnet or text file, intuitive quick start wizard for quick commissioning
- Quick start for INSYS VPN Service (pages 28)

MRcard DS

NEW from Q3 2017

This module includes:

- VDSL2
- ADSL/2/2+
- 2 digital inputs (1x PLC-capable)

Article no.:
Annex A: 10019434
Annex J/B: 10019435

100% Flexibility for Your Application

What ever the future might hold, you'll always be on the safe side with MRcards. Extend your MR with selected modules or simply replace them if required. You'll have the state of the art at your fingertips - all whilst maintaining cost-effectiveness.

Needless to say that further MRcards can also be developed individually upon customer request. This will make your MR one of a kind.

MRcard SI

This module includes:

- USB 2.0
- RS232, RS485
- 2 digital inputs
- 2 digital outputs (relays)

Article no.: 10016585

MRcard PL

This module includes:

- LTE
- UMTS/HSPA
- GPRS/EDGE
- 2 digital inputs
  (1x PLC-capable)

Article no.: 10017035

MRcard ES

This module includes:

- 4 port switch
  (10/100 MBit)

Article no.: 10016584

MRO
All-in-one Router

The New Compact Power Pack for M2M and IoT Applications

Latest technology and high performance combined in a compact housing characterise the professional MRO routers. Besides its 5-port switch, an RS232 interface as well as digital inputs and outputs are available.

With the integrated icom SmartBox, a Linux environment based on container technology, the router provides an operating system-independent platform, for example for local storage and processing of data or executing further programs and scripts (edge computing).

Like all routers of INSYS icom, the MRO devices are also characterised by high system stability, longevity and consistent user guidance. VPN, a stateful firewall and many other security features like event-based messages provide for security for example.

Integrated Linux environment with LXC container technology
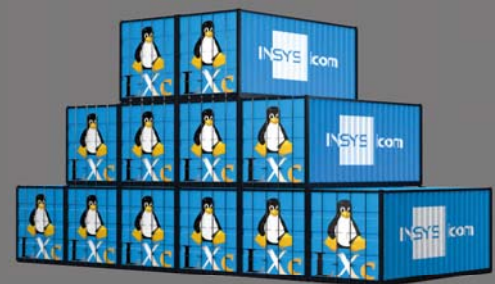
- Integrated Linux environment (LXC) for edge computing (icom SmartBox)
- Several VPN tunnels can be used in parallel
- Firewall in tunnel
- Segmentation in several local IP networks
- Flexible administration with profile manager
- Extended event-based control (e.g. profiles, connections, redundancy)
- Access control via user roles
- Quick start for INSYS VPN Service (page 28)

NEW

MRO-L200
Cellular LTE Router

- LTE, UMTS/HSPA, GPRS/EDGE
- 2 antenna connections (MIMO)
- 5-port switch 10/100BT
- 1x serial RS232/V.24/V.28
- 2 digital inputs
- 1 digital output

Article no.:
MRO-L200: 10019400
MRO-L210 (US version): 10019403

MoRoS
All-round Router

The All-rounders for Highest Flexibility

A MoRoS is characterised by a large variety of possibilities that exceed pure routing by far.

MoRoS devices consist of a modem, a router and a switch, provide a RS232 interface, digital inputs/outputs and feature an integrated Linux environment for user-specific applications (INSYS Sandbox). All devices in the range also include 2 inputs, 2 outputs and an integrated Linux sandbox for user-specific applications and are configured via a simple intuitive web interface.

There is also a proper MoRoS for wire-bound wideband applications and cellular communication. These devices bypass the non-availability problem in many networks due to provider blocking using its VPN functionality. They also provide a maximum of IT security with the MAC firewall.

They are the perfect solution for remote access, remote maintenance and monitoring when access to a customer network is not possible or permitted.
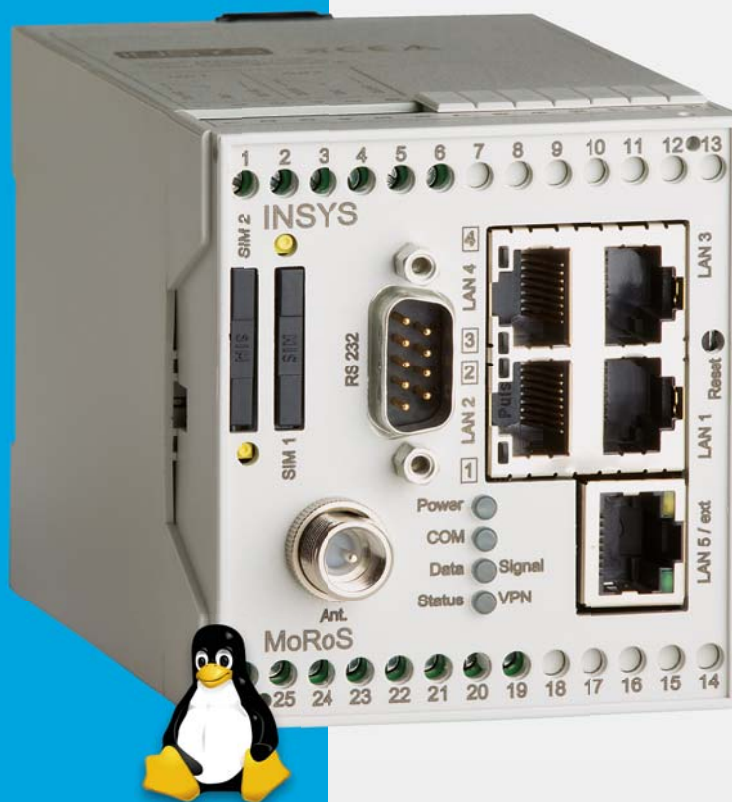
- Modem, router and switch in one device
- Comprehensive functionality and various interfaces
- IT security: VPN, stateful and MAC firewall, configurable messages upon security events, Linux-based operating system
- Integrated Linux environment – INSYS Sandbox (page 30)
- Configuration via web interface, CLI, SSH, Telnet or text file
- Quick start for INSYS VPN Service (pages 28)
- Monitoring App for monitoring analogue and digital devices and periphery as well as data transfer to cloud services, (mobile) devices and other customised infrastructures for visualisation, storage and further processing (page 32)

MoRoS HSPA

Cellular HSPA router

- UMTS/HSPA, GPRS/EDGE
- 4+1 port switch 10/100BT
- 1x serial RS232/V.24/V.28
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- 2 SIM card slots
- Integrated Linux environment (INSYS Sandbox, page 30)

Article no.: 10000212

MoRoS GPRS

Cellular GPRS router

- GPRS/EDGE
- 4+1 port switch 10/100BT
- 1x serial RS232/V.24/V.28
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- 2 SIM card slots
- Integrated Linux environment (INSYS Sandbox, page 30)

Article no.: 10000205

MoRoS LAN

LAN-to-LAN router

- 1x LAN external
- 4-port switch 10/100BT
- 1x serial RS232/V.24/V.28
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Integrated Linux environment (INSYS Sandbox, page 30)

Article no.: 10000208

MoRoS ADSL

ADSL/2/2+ router

- 4-port switch 10/100BT
- 1x serial RS232/V.24/V.28
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Integrated Linux environment (INSYS Sandbox, page 30)

Article no.:
Annex A variant: 10014487
Annex B variant: 10000216
Annex J/B variant: 10016203

MoRoS Modem

Phone line router

- Dial-up line (PSTN)
- 4+1 port switch 10/100BT
- 1x serial RS232/V.24/V.28
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Integrated Linux environment (INSYS Sandbox, page 30)

Article no.: 1000199

MoRoS ISDN

Phone line router

- Dial-up line (ISDN)
- 4+1 port switch 10/100BT
- 1x serial RS232/V.24/V.28
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Integrated Linux environment (INSYS Sandbox, page 30)

Article no.: 1000202

EBW
Basic Router

The Routers for Standard Applications

EBW routers are wideband routers for cellular radio and local network with intelligent connection management for autonomous operation. VPN functionality (e.g. via INSYS VPN service) allows secure, unlimited access via cellular and company networks (LAN/WiFi). In addition, a stateful firewall and a MAC filter provide a maximum of security.

- Modem, router and switch in one device (except EBW-E100)
- Perfect for standard routing applications
- Optimum price/performance ratio
- IT security: VPN, stateful and MAC firewall, configurable messages upon security events, Linux-based operating system
- Integrated Linux environment – INSYS Sandbox (page 30)
- Configuration via web interface, CLI, SSH, Telnet or text file
- Quick start for INSYS VPN Service (page 28)
- Monitoring App for monitoring analogue and digital devices and periphery as well as data transfer to cloud services, (mobile) devices and other customised infrastructures for visualisation, storage and further processing (page 32)

EBW-H100

Cellular HSPA router

- UMTS/HSPA, GPRS/EDGE
- 2-port switch 10/100BT

Article no.: 10014545

EBW-L100

Cellular LTE router

- LTE, UMTS/HSPA, GPRS/EDGE
- 2-port switch 10/100BT

Article no.: 10016058

EBW-E100

LAN-to-LAN router

- 1x LAN external 10/100BT
- 1x LAN internal 10/100BT

Article no.: 10014546

EBW-W100

WiFi router

- WiFi client or WiFi access point
- 2-port switch 10/100BT

Article no.: 10015750

EBW-WH100

WiFi/HSPA router

- WiFi client or WiFi access point
- UMTS/HSPA, GPRS/EDGE router
- 2-port switch 10/100BT

Article no.: 10015751

IMON
Entry-level Router

Monitoring, Alarming, Remote Maintenance

IMON devices are industrial GPRS routers with comprehensive monitoring functions. They monitor controls and other periphery for example via Modbus as well as inputs, timers, flags and incoming SMS. In addition, they send user-defined messages via SMS or e-mail and switch outputs. The configuration options are virtually unlimited. The integrated Linux environment (INSYS Sandbox) makes them open for user-specific applications. IMON devices provide a maximum of IT security thanks to VPN functionality and a stateful firewall.

- GPRS router, ideal for condition monitoring
- Monitoring App: intelligent monitoring of analogue and digital devices and periphery, IOs, timers, flags etc. as well as data transfer to cloud services, (mobile) devices and other customised infrastructures for visualisation, storage and further processing (page 32)
- IT security: VPN, stateful and MAC firewall, configurable messages upon security events, Linux-based operating system
- Integrated Linux environment – INSYS Sandbox (page 30)
- Configuration via web interface, CLI, SSH, Telnet or text file
- Quick start for INSYS VPN Service (page 28)
- Slim design for installation in junction box

IMON-G200

- GPRS router
- 1x serial RS485
- 1x serial RS232
- 1x Ethernet 10/100BT
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Integrated Linux environment
  – INSYS Sandbox (page 30)

Article no.: 10015558

IMON-U300
IMON-U310

- UMTS router
- 2x serial (RS485, RS232)
- 1x Ethernet 10/100BT
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Incl. Monitoring App licenses
  for Siemens LOGO!™ and
  Modbus TCP/RTU devices
- Also available as North
  American variant (U310)
- Integrated Linux environment
  – INSYS Sandbox (page 30)

IMON-U300: 10017939
IMON-U310: 10017940

IMON-G100

- GPRS router
- 1x serial LOGO!™
- 1x serial RS232
- 1x Ethernet 10/100BT
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Integrated Linux environment
  – INSYS Sandbox (page 30)

Article no.: 10014445

IMON-G100 KIT

- GPRS router IMON-G100
- Connection cable for Siemens
  LOGO!™ (up to 0BA6)
- Magnetic base antenna
- Note:
  LOGO!™ control not
  included

Article no.: 10014791

RSM
LAN-to-LAN Special Router

Ideal for Standard Machines with SINUMERIK 840D sl

The RSM-E100 is a LAN-to-LAN multi-port router that acts as intelligent intermediary between company, plant and service networks. It provides useful support in cases where almost similar machines for example with a SINUMERIK 840D sl must be set-up for different customers and modified customer-specific. These can be accessed and thus configured in a few steps only with the standard IP settings of the control from a company network.

RSM-E100

- LAN-to-LAN router with 8-multi-port switch (3x WAN, 5x local)
- Ideal for machines and systems with SINUMERIK 840D sl
- Operation of the control components with standard IP settings
- IT security: VPN, stateful and MAC firewall, configurable messages upon security events, Linux-based operating system
- Comfortable access to the individual components of the control using host names
- Can be used as secure remote maintenance router
- Quick start for INSYS VPN Service (page 28)

Article no.: 10015387

	Cellular radio				PSTN/ISDN		LAN	ADSL
	INSYS GPRS serial	INSYS GSM small	i-modul GPRS serial	i-modul GPRS basic	INSYS Modem 56k s.	i-modul Modem 56k	INSYS Ethernet	INSYS ADSL
External interfaces								
UMTS/HSPA (3G)	-	-	-	-	-	-	-	-
GSM/GPRS (2G)	X	X	X	X	-	-	-	-
EDGE (2G)	X	X	X	X	-	-	-	-
LAN external	-	-	-	-	-	-	X	-
PSTN	-	-	-	-	X	X	-	-
ISDN	-	-	-	-	-	-	-	-
ADSL/2/2+	-	-	-	-	-	-	-	X
Powerline	-	-	-	-	-	-	-	-
Unpowered private lines	-	-	-	-	-	-	-	-
Local interfaces								
LAN	-	-	-	-	-	-	-	1
Serial RS232	1	1	1	1	1	1	1	-
Serial USB	-	-	-	1	-	-	-	-
Digital inputs	2	-	2	-	-	2	2	-
Digital outputs (relays)	2	-	2	-	-	2	2	-
I^2C	-	-	-	-	-	-	-	-
INSYS top features								
Message dispatch	X	X	X	X	X	X	-	-
Password protection	X	-	X	-	X	X	-	-
Callback function	X	-	X	-	X	X	-	-
I/O tunnelling	X	-	X	-	-	-	X	-
DNS support	X	-	X	-	-	-	X	-
Remote configuration	X	-	X	-	X	X	X	-
Virtual COM port driver	X	-	X	-	-	-	X	-
HSComm* configuration	X	X	-	-	X	-	X	-
AT command configuration	X	X	X	X	X	X	X	-
Temperature range								
min. temperature °C	-20	-20	-20	-20	0	0	0	0
max. temperature °C	+55	+55	+65	+65	+55	+70	+55	+55
Variants	-	-	-	-	USB instead of RS232	-	-	Annex A/M/L, B or B/J
Page	23	23	24	24	21	25	22	20

R = ready: extendible e.g. via I^2C * proprietary INSYS configuration software

INSYS
ADSL, SDSL

ADSL/SDSL

Local applications can be connected to the wideband Internet with an INSYS ADSL modem.

INSYS SDSL modems use private lines. They are suitable for extending a network across larger distances and can also be used as leased line replacement. However, INSYS SDSL is more than a modem. It can be used as router and bridge, provides VPN and a firewall as well as an integrated Linux environment (INSYS Sandbox).

INSYS ADSL

- ■ ADSL/2/2+ modem
- ■ 1x Ethernet 10/100BT
- ■ ADSL dying gasp

Article no.:
Annex A variant: 10000113
Annex B variant: 10000112
Annex J/B variant: 10017123

INSYS SDSL

- ■ SDSL/SHDSL router and bridge
- ■ 1x serial RS232/V.24/V.28
- ■ 1x Ethernet 10/100BT
- ■ Integrated Linux environment – INSYS Sandbox (page 30)

Article no.: 10000114

Modem, ISDN

Modem technology is a proven solution for remote maintenance and monitoring of plant and machinery for many years. The data rate means it is more than suitable for many applications. Modems are tried and trusted and can be accessed around the world.

INSYS
Modem 56k small

- Dial-up line (PSTN)
- 1x serial RS232/V.24/V.28
- Slim design

Variant:
- USB interface

Article no.:
Standard modem: 10000089
USB variant: 10000090

21

INSYS
Ethernet

Ethernet

Ethernet converters allow the connection of machines and plants with serial connections to a LAN network.

INSYS Ethernet

■ Serial Ethernet converter
■ 1x serial RS232/V.24/V.28
■ 2 digital inputs (PLC-capable)
■ 2 digital outputs (relays)

Article no.: 10000107

INSYS
Cellular Radio

GSM, GPRS

INSYS GSM small is a space-saving cellular radio terminal for use in switch cabinets. It is fully controlled by the connected PCs or PLC/RTU.

The INSYS GPRS serial provides the application with a serial interface like a regular modem to transfer data transparent through the cellular radio network.

INSYS GSM small

- Cellular GPRS terminal
- 1x serial RS232/V.24/V.28
- Slim design

Article no.: 10000093

INSYS GPRS serial

- Cellular GPRS modem
- 1x serial RS232/V.24/V.28
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Transparency for serial data (modem emulation)
- Callback

Article no.: 10000101

23

i-modul
Cellular Radio

Proven Technology for Integration

The i-modul series comprises pin- and size-compatible embedded com-
munication modules for integration in applications. The product portfolio
ranges from analogue modems via ISDN and cellular radio up to Ethernet
products.

i-modul
GPRS basic

■ Cellular radio (quad-band)
■ 1x serial RS232 (TTL)
  Configuration via AT command
■ USB 2.0 interface
■ Audio for GPRS variant

Article no.: 10000032

i-modul
GPRS serial

■ Serial cellular radio gateway
  (quad-band)
■ 1x serial RS232 (TTL)
■ 2 digital inputs (PLC-capable)
■ 2 digital outputs (relays)
■ Modem emulation
■ Configuration via AT command

Article no.: 10000031

i-modul
Modem 56k

- Dial-up line (PSTN)
- 1x serial RS232 (TTL)
- 2 digital inputs (PLC-capable)
- 2 digital outputs (relays)
- Configuration via AT command
- Alarm and security functions

Article no.: 10000016

Evaluation Boards

We offer an appropriate evaluation board for our embedded modules. You can test functionality and benefit of the modules for your application without much effort with these. Plug in the module and connect it to your application using the fed out interfaces; quicker and easier as everything else.

Evaluation Board 4.0

- Supports all i-modul devices

Article no.: 10000058

Tested Accessories
Antennas and Connection Cables

We offer a selection of different cellular radio and WiFi antennas for professional use. The use of patch or wall antennas is recommended in case of an installation inside a shielded building or switch cabinet.

Magnetic base or right angle antennas are used with devices that are installed in an environment where the reception is pretty good already. Of course, we also have suitable extension and adapter cables.

- Cellular radio antennas for GSM, UMTS and LTE networks
- WiFi antennas
- Standard connections FME and SMA
- Adapter for embedded modules

- Connection cable for a direct connection of a Siemens LOGO!™ up to 0BA6 to our IMON-G100 fault monitor

M2M SIM Services
Cards, Plans, Management Portal

Many M2M and IoT applications communicate via cellular radio. We offer professional M2M SIM services with pre-defined or customer-specific rates that our customers don't have to deal with the "Connectivity" subject in detail as well.

Benefit from fair clearing and many additional services. The monthly cancellation allows for example to activate a SIM card in case of an "accident" via the SIM management portal and "put it to sleep" again afterwards. That's how M2M connectivity works today!

Features

- Router, VPN and SIM services out of one hand
- Premium SIM cards for M2M and IoT applications
- Multi-roaming in Germany, Europe or world-wide
- No contract period, can be cancelled monthly
- Can be activated and deactivated at any time
- Including SIM management portal
- Flexible pooling on request

Further Information and Plans

www.insys-icom.com/M2M-SIM
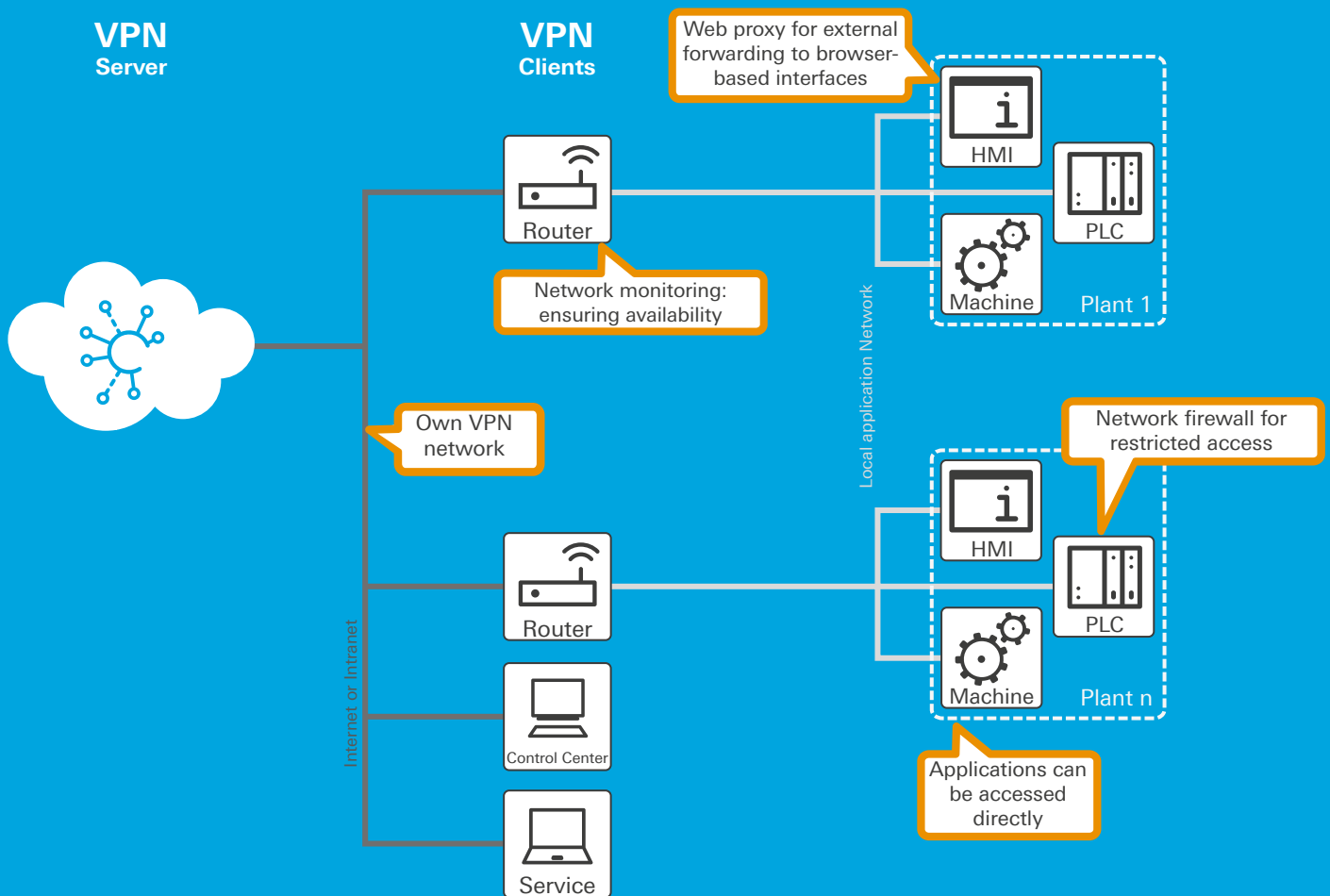
M2M VPN Services
Easy. Secure. VPN.

Make your own personal VPN. You'll integrate PCs, routers and locally connected network devices (e.g. controls, measuring devices, web cams) via an easy to use online portal. Your routers and devices can be accessed across all networks and addressed at any time with this. This even applies to standard machines with identical addresses.

Configuration files and security certificates will be generated and renewed automatically. Devices of INSYS icom obtain all necessary information automatically using a secure quick start.

Arrange the devices in groups and control the communication within and between these groups using simple rules.

You'll always know the condition of your network with the monitoring function. The firewall in the tunnel allows another limitation of the access rights to IP addresses and ports if required.

And now the best: You'll have your VPN under complete control with the INSYS VPN services - with minimum investment cost. It couldn't be simpler and more comfortable!

VPN Server

VPN Clients

Web proxy for external forwarding to browser-based interfaces

HMI

PLC

Machine   Plant 1

Router

Network monitoring: ensuring availability

Local application Network

Own VPN network

Network firewall for restricted access

HMI

PLC

Machine   Plant n

Router

Internet or Intranet

Control Center

Applications can be accessed directly

Service

Professional VPN Services
for M2M and IoT Applications

- Service with highest-possible safety and scalability
- Direct routing up to the individual control, web cam, etc.
- Free selection of IP addresses
- Easy group formation and connection control
- Automatic configuration of INSYS icom routers
- Automatic generation, management and exchange of certificates
- Web proxy: External access to browser-based interface in VPN
- Network firewall: Limitation of access right to IP addresses and ports, perfect complement to group formation and connection control
- Network monitoring: Automatic check of availability of IP devices, VPN tunnels and web servers with alarm messages

INSYS VPN classic

Use the INSYS VPN services with **two free annual licenses,** with actual functional scope. Both licences are not bound to the purchase of further licences with costs and extend their validity upon expiry of the year automatically.

Test now: Of course, you can still test the INSYS VPN services with four licences and all functions for four weeks free and without any obligation. Subsequently, you decide for yourself, whether and how you want to continue to use our VPN services.

It's so easy:

Enter in the portal under *connectivity.insys-icom.de* another INSYS icom router.

Enter your customer name and the device code in the device quick start. Everything else will be done by the router itself.

Maximum Security

- Use of OpenVPN with SSL/TLS
- Authentication via X.509 certificates
- Encryption with Blowfish 128 Bit
- Bi-directional authentication
- Generation of individual keys for each VPN connection
- Regular automated certificate exchange
- Clients can be activated/deactivated immediately and at any time
- Encrypted configuration via HTTPS (SSL/TLS)
- Direct transmission of the payload, no storage

Supported devices:

INSYS VPN services are suitable for all OpenVPN-capable routers and devices. We support all routers of INSYS icom in particular.

Further Information

www.insys-icom.de/VPN-services

Edge Computing
Integrated Linux Environments

The presentation, analysis and processing of gathered data is very important for many users besides a connection to various periphery like controls, sensors, relays or web cams. The Smart Devices of INSYS icom and their integrated Linux environments allow to store and process data directly at the place of origin. Needless to say that a transmission to (mobile) terminal devices, customer-specific infrastructures or cloud services like Cumulocity, M2MGO or Telekom Cloud of Things as well as a connection to IoT platforms like Microsoft Azure or IBM Bluemix is also possible.

Applications
- Recording and processing of data
- Monitoring and alarming
- Visualisation via web interface
- Conversion of proprietary protocols to IP standards
- Dynamic configuration modifications
- and many more...

icom SmartBox
for all Smart Devices with icom OS

The icom SmartBox is the new generation of integrated Linux environments on our routers (Smart Devices). It is completely independent of router firmware and configuration Thanks to Linux container technology (LXC), different apps can be programmed and executed completely independent of each other. The individual containers can directly be accessed via an own IP and MAC address. A communication between the individual containers (e.g. via APIs) is also possible. Moreover, each container can be encrypted.

Features
- Parallel operation of apps
- Completely independent of router firmware and configuration
- Own IP and MAC address per Linux Container
- Encryption possible
- 256 MB RAM (192 MB of it for apps), more than 2 GB permanent file system

INSYS Sandbox
for all Smart Devices with INSYS OS

The Linux sandbox is a virtual Linux environment that can be programmed separately from the firmware; it can be compared to a virtual machine. It can be used to program and run user-specific applications on the device.

Features
- Freely programmable
- No effect on functionality and security of the industrial router
- Up to 64 MB RAM, 150 MB permanent file system

Further Information

www.insys-icom.de/edge-computing

Realise applications for icom SmartBox and INSYS Sandbox. Select from many functions for secure connectivity/networking or your application data. You can save additional peripheral devices with our integrated Linux environments in many cases. Examples for function blocks:

- Visualisation
- Control
- Data processing
- Messaging
- Monitoring
- Data logging and storage
- Gateway function

- IT security monitoring
- Connectivity monitoring
- Connection management
- DHCP server
- DNS server
- Radius authentication
- AES-256 ciphering

We offer many application and development containers for the icom SmartBox besides free demo images for the INSYS Sandbox. You can use them directly or as basis for own developments. We also provide all important information and tools for creating own LXC containers from scratch for developers under Github (https://github.com/insys-icom) with the project "M3_Container" in addition. We or our certified development partners are always ready to help with words and deeds for this. Examples for application and development containers

- Node-RED
- MQTT broker
- Modbus-MQTT gateway
- Nagios

- Default container
  (contained in icom OS)
- Debian environment

Further Information

www.insys-icom.de/knowledge/
edge-computing

Monitoring App
Condition Monitoring, Alarming, Cloud Feed and Visualisation

The INSYS icom Monitoring App allows an easy and efficient monitoring of controls and other digital and analogue devices with a wide variety of protocols. In addition, the inputs of the IMON routers will also be monitored. Measured values, events and alarms can be transmitted to (mobile) devices, customised infrastructures and cloud services.

Elements to be monitored, desired actions and involved persons can easily be added separately and combined using logic operations. Individual monitoring operations can be linked in series. This also allows escalating alarms amongst others.

Features

- Extension packages for Siemens LOGO!™, S7 and Modbus TCP/RTU
- Allows to use the Smart Devices as publisher and subscriber in MQTT networks
- Combined use with the integrated Linux environments possible
- Dispatch of measured values, events and alarms via SMS, e-mail or cloud feed
- Secure access to monitored device
- Simultaneous monitoring of several devices
- No intervention in the program of the monitored device
- Free updates
- Intuitive operation via web interface

Further Information
www.insys-icom.com/monitoring-app

From the Idea to the Know-how Transfer

Our in-depth experience in the area of industrial data communications makes us a highly professional partner since 1992 - from the idea up to manufacturing and beyond.

Our support team works in close cooperation with the development department and supports you competent and quickly with all questions of application and configuration. We are happy to share our knowledge with you. Standard training and training tailored to your individual needs provide a quick and comprehensive know-how transfer.

Our services

- Idea and concept
- Development
- Prototyping
- Certification
- Production
- Service and training

That's why we are Your Perfect Development and Manufacturing Partner

- High own portion of value added
- Wide, modular structured standard portfolio
- Many years of market and application knowledge
- Development and service under our roof
- Complete know-how transfer
- Wide training range

This is What we Also Have Ready for you

- All current drivers, Configuration Guides and manuals
- Extensive knowledge base including FAQ section
- Forums and information events
- Regular customer newsletter via e-mail and twitter

Customer-specific Tailoring

You want to get completely tailored solutions? Then, our new service is perfect for you. We take over the assembly and wiring including data transmission device, control, etc. in one professional junction box in accordance with you. Contact us!

Pilot Project IMON-G200 SC
Fault Monitor with Power-down Mode

An IMON-G200 SC suspends its operations and the applications behind it to achieve minimum energy consumption. The application wakes up in configurable periods and performs its work.

- Power-Down mode with intelligent wake-up scenarios
- Interfaces can be switched off
- Enabling/disabling of downstream components/system parts
- Energy-efficient hardware design, high degrees of efficiency
- Early fault detection and avoidance of damages by configurable alarm messages (also with escalation)
- Monitoring of power supply, temperature and own operating parameters

The Project
Monitoring of an impounding reservoir

How to monitor the level of an impounding reservoir in the center of the Alps without a power supply and direct access to it? With an **energy self-sufficient complete solution**!

How does it work?
With efficient hardware and intelligent software. Our fault monitor IMON-G200 SC (Sleep Control) provides a so-called Power-Down mode. It wakes up in configurable intervals and wakes up a VEGA level sensor at the same time that measures the reservoir level. The gathered value will be sent to a web portal or an e-mail address via cellular radio.
The complete solution is so efficient that a small solar panel that buffers the energy produced in a battery is sufficient.
By the way: Further applications like a temperature probe for example can also be connected to the IMON-G200 SC.
The fault monitor also provides a service button that can be used by a service technician to interrupt the Power-Down mode if required. We call this **GREEN EFFICIENCY**!

Interested in a **GREEN EFFICIENCY** solution from INSYS icom? Contact us!
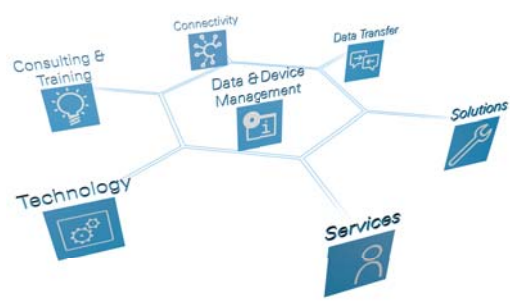
Use the Know-how of Professional M2M Experts

- Get to your desired solution quickly
- Save time and money in the selection and realisation process
- Invest future-proof by using technically perfect matched products and platforms

Don't hesitate to contact us:
www.excellence-in-m2m.de

...simply be partner!

Applications in the M2M field are usually based on various components.

- Secure data transmission paths (IT security)
- Premium M2M SIM cards and their management
- Efficient data hubs
- Significant visualisations
- Stable integration into your infrastructure

You'll find concentrated expert and user knowledge of the M2M field in our expertise network "Excellence in M2M". The combination of the products and services provides efficient, individual solutions with additional value for you.
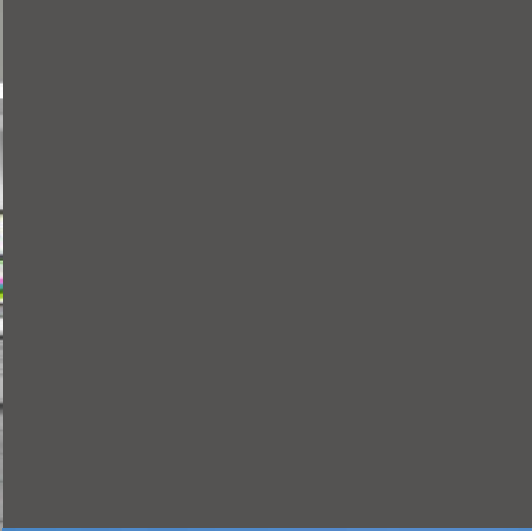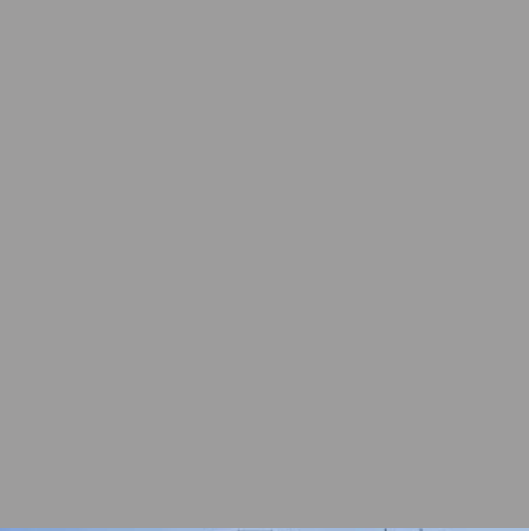
Your authorised INSYS icom distributor: