

Datasheet: com.tom INDUSTRY

The com.tom INDUSTRY devices are ready-to-use gateways and edge cloud controllers for the rapid development of industrial IoT application specific solutions.

There are many variants of the com.tom gateway with various combinations of communication interfaces, communication protocols, industrial Ethernet and fieldbuses.

All gateway variants support:

- Ethernet
- Modbus TCP client/server
- Modbus RTU master/slave
- OPC-UA server (in Q4/2017)
- CODESYS network variables
- SNMP manager
- OpenVPN client
- com.tom PORTAL client
- WEB-PLC programming logic

The features below are supported by specific gateway variants:

- 4-port Ethernet switch
- UMTS modem (GPS optional)
- Wi-Fi + Bluetooth
- M-Bus
- PROFINET IO Device
- PROFIBUS DP Slave
- EtherNet/IP Adapter
- Digital inputs/outputs
- Analog inputs/outputs
- RTD (resistance thermometer) inputs

The devices include a local web server for parametrization, programming logic (WEB-PLC, visual programming editor) and alarm functions.

With the WEB-PLC editor and the integrated com.tom PORTAL communication these devices offer turnkey solutions for process data acquisition, process automation and remote service.



Technical data

IPC@CHIP®	SC145 Embedded Controller 32-bit processor with 528 MHz 128 MB RAM (DDR3) 64 MB flash disk
Real-time clock	Backed by a lithium rechargeable battery
Ethernet interface	1 x 10/100BaseT RJ45 connector Link and traffic LED indicators
Serial interface	1 x RS232/RS485 (selectable) Weidmüller BL 3.50/08 connector
USB interface	1 x USB 2.0 Micro USB (type B) connector OTG support (future use)
SD card interface	1 x microSD card SD / SDHC Push/push slot
CAN interface	1 x CAN Weidmüller BL 3.50/04 connector
Supply voltage	24 VDC (-15%/+15%) Weidmüller BL 3.50/03 connector

Technical data - Ethernet switch

Ethernet interface	4-port Ethernet switch 10/100BaseT RJ45 connectors Link and traffic LED indicators
GPJ port	Port ETH1.3/GPJ may be used to supply power and connectivity for a com.tom GRAPHIC device
Supply voltage (GPJ)	24 VDC (-15%/+15%) Weidmüller BL 3.50/03 connector Required only if a com.tom GRAPHIC device is connected to ETH1.3/GPJ
Active current (GPJ)	< 0.5 A

Technical data - UMTS modem

Frequencies GSM / GPRS / EDGE	Quad band: 850 / 900 / 1800 / 1900 MHz
Frequencies UMTS / HSPA+	Seven band: 800 / 850 / 900 / AWS 1700 / 1900 / 2100 MHz
SIM card	Full-size (1FF) Push/push slot on the back
Antenna interface	SMA female

Technical data - WLAN modem

Standards	IEEE 802.11 a/b/g/n Dual band (2.4 GHz, 5 GHz)
Modes	Wi-Fi client Wi-Fi access point (in Q4/2017)
Security	WPA/WPA2-PSK
Antenna interface	SMA female

Technical data - Digital I/O (DIO8)

Digital inputs	4 x sink 24 V DC, 5 mA (typ) TRUE: 15 V DC min FALSE: 5 V DC max no potential isolation
Digital outputs	4 x Transistor (high-side) 24 V DC, 500 mA (max) short-circuit and overload resistant no potential isolation
Connector	Weidmüller BL 3.50/10

Technical data - Digital I/O (DIO32)

Digital inputs	16 x sink 24 V DC, 5 mA (typ) TRUE: 15 V DC min FALSE: 5 V DC max no potential isolation
Digital outputs	16 x Transistor (high-side) 24 V DC, 500 mA (max) short-circuit and overload resistant no potential isolation
Connector	2 x Weidmüller BL 3.50/20

Technical data - Analog/Digital I/O (MIO16)

Digital inputs/outputs	8 x channels (input or output). When used as an output the signal can be read back via the input function. Inputs: 8 x sink (max) 24 V DC, 5 mA (typ) TRUE: 15 V DC min FALSE: 5 V DC max Outputs: 8 x Transistor (high-side) 24 V DC, 500 mA (max) short-circuit and overload resistant no potential isolation
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Analog inputs	8 channels (voltage or current) input type configurable per channel: 0 – 10 V / 4 – 20 mA (+/- 3%) no potential isolation
Connector	Weidmüller BL 3.50/20

Technical data - Analog/Digital/RTD I/O (MIO12)

Digital inputs/outputs	4 x channels (input or output). When used as an output the signal can be read back via the input function. Inputs: 4 x sink (max) 24 V DC, 5 mA (typ) TRUE: 15 V DC min FALSE: 5 V DC max Outputs: 4 x Transistor (high-side) 24 V DC, 500 mA (max) short-circuit and overload resistant no potential isolation
Analog inputs	4 channels (voltage or current) input type configurable per channel: 0 – 10 V / 4 – 20 mA (+/- 3%) no potential isolation
Analog outputs	2 channels 0 – 10 V, 10 mA (nom)
RTD inputs	2 x resistance thermometers (2-wire) PT100 / PT500 / PT1000
Connector	Weidmüller BL 3.50/20

Technical data - PROFINET (PN)

PROFINET interface	2-port PROFINET IRT switch 10/100BaseT Link and traffic LED indicators
Connector	2 x RJ45
Profiles	PROFINET I/O
LED indicators	Module status / network status

Technical data - PROFIBUS (PB)

PROFIBUS interface	PROFIBUS DP-V0 / DP-V1
Connector	D-Sub9
LED indicators	Module status / network status

Technical data - EtherNet/IP (EIP)

EtherNet/IP interface	2-port cut-through switch 10/100BaseT Link and traffic LED indicators
Connector	2 x RJ45
Profiles	Generic device
LED indicators	Module status / network status

Technical data - M-Bus (MBUS)

M-Bus interface	1 channel up to 64 devices max. distance 5 km, 300 bit/s, AWG15
Digital S0 inputs	2 channels 10 mA, max. frequency 50 Hz
Digital outputs	2 channels (transistor, high side) 24 V DC, max. 500 mA short-circuit and overload resistant no potential isolation
Connector	Weidmüller BL 3.50/10

Software

Operating System	IPC@CHIP® RTOS-LNX Real-time operating system
WEB-PLC editor and runtime	Visual programming editor running on the internal web server I/O mapping editor Up to 8192 I/O values Up to 1024 portal variables
WEB-PLC diagram	Up to 2048 function units, I/O values, portal variables and constants IPO cycle time: 10 to 1000 ms
WEB-PLC function units	Data type converters: Bool, Uint8, Sint8, Uint16, Sint16, Uint32, Sint32, Float32, Float64, String Binary: AND, OR, XOR Bits and bytes: Extract, Pack, Put Bit, Shift Register, Unpack Controllers: On/Off, P, Shade Messages: Send, Receive Numerical: Subtraction, Multiplication, Division,

Minimum, Maximum, Min Acc, Max Acc, Average, Counter, Compare, Signal Limiter, Signal Converter, Signal Smoother, Signal Tracker

Special:
First Cycle, OpenVPN, Portal Status

Storage, Selection, Edge Detection:
Demultiplexer, Multiplexer, RS Flipflop, T Flipflop, Trigger, Analog Trigger, Load Profile, State Machines

Timing:
Local Clock, UTC Clock, Stop Watch, TON, TOFF, TP, Timer, Compare Time, Time Switches

WEB-PLC additional functions

Event log:
System events are logged to a circular buffer in RAM with timestamp, message and event type

Simple Network Time Protocol (SNTP) synchronization of the system clock

OpenVPN client:
Integrate the com.tom device into a virtual private network

DHCP server:
Up to 100 clients, up to 20 static leases

NAT:
Route traffic between a local (internal) and a global (external) network, up to 1000 mappings, up to 50 static mappings

Firewall:
Filter incoming traffic, up to 1000 rules (including dynamic rules for outgoing traffic), up to 50 static rules

Messages:
Send and receive short messages (up to 10 templates respectively)

Modbus RTU master/slave:
Up to 128 devices and 4096 values (up to 8192 values including array members)

Modbus TCP client/server:
Up to 128 devices and 4096 values (up to 8192 values including array members)

CANopen slave:
Up to 1024 values (up to 4096 values including array members)

PROFIBUS DP slave:
Up to 48 modules, up to 244 values (per direction) with a total size of 244 bytes (per direction)

	<p>PROFINET IO device: Up to 128 modules, up to 1308 values (per direction) with a total size of 1308 bytes (per direction)</p> <p>EtherNet/IP adapter: Up to 128 groups, up to 1448 values (per direction) with a total size of 1448 bytes (per direction)</p> <p>M-Bus: Up to 64 devices and 4096 values</p> <p>CODESYS network variables: Up to 128 lists and 4096 values</p> <p>SNMP manager: Up to 128 agents and 4096 values Trap receiver</p> <p>COM server: According to RFC 2217</p> <p>Time switches: Up to 8 switches, crontab format</p> <p>MicroBrowser interface</p> <p>Remote or local update via com.tom PORTAL, local web server or microSD card</p> <p>Export: Export the diagram and/or the settings of the com.tom device as an update package</p>
com.tom PORTAL communication	<p>Transferred information:</p> <ul style="list-style-type: none">- Device information- Portal round trip times- Update URL, trigger and status- OpenVPN activation and status- Cell modem SIM id and RSSI- GPS coordinates- Event log messages- I/O values- Portal variables

Environmental data

Operating temperature (TA)	0°C to +55°C On request: -20°C to +60°C
Storage temperature	-20°C to +60°C
Operating and storage humidity	5% to 85% relative humidity, non-condensing
Protection class	IP20

Mechanical data

Sizes (W x L x H)	46 x 105 x 78 mm 65 x 105 x 78 mm
Material	Powder-coated steel sheet RAL 7021, dull finish
Mounting	DIN rail mounting

Compliance and Conformity

CE, R&TTE, RoHS/WEEE	
- EMC emission	IEC 61000-6-3
- EMC immunity	IEC 61000-6-2
- Low Voltage Directive	IEC 62368-1
- Protection Rating	IEC 60529: IP20
- R&TTE Directive	EN 301 489-1/-7, EN 301 511

Order information

CTI 100.W	00571144
CTI 100.UMTS.W	00571146
CTI 100.WLAN.W	00571178
CTI 140.W	00571145
CTI 140.UMTS.W	00571149
CTI 140.WLAN.W	00571179
CTI 100.DIO8.W	00571154
CTI 100.DIO8.UMTS.W	00571155
CTI 100.DIO8.WLAN.W	00571180
CTI 140.DIO8.W	00571181
CTI 140.DIO8.UMTS.W	00571182
CTI 140.DIO8.WLAN.W	00571183
CTI 100.DIO32.W	00571223
CTI 100.DIO32.UMTS.W	00571224
CTI 100.DIO32.WLAN.W	00571225
CTI 140.DIO32.W	00571226
CTI 140.DIO32.UMTS.W	00571227
CTI 140.DIO32.WLAN.W	00571228

CTI 100.MIO12.W	00571188
CTI 100.MIO12.UMTS.W	00571189
CTI 100.MIO12.WLAN.W	00571190
CTI 140.MIO12.W	00571191
CTI 140.MIO12.UMTS.W	00571192
CTI 140.MIO12.WLAN.W	00571193
CTI 100.MIO16.W	00571156
CTI 100.MIO16.UMTS.W	00571150
CTI 100.MIO16.WLAN.W	00571194
CTI 140.MIO16.W	00571195
CTI 140.MIO16.UMTS.W	00571196
CTI 140.MIO16.WLAN.W	00571197
CTI 100.MBUS.W	00571147
CTI 100.MBUS.UMTS.W	00571157
CTI 100.MBUS.WLAN.W	00571198
CTI 140.MBUS.W	00571199
CTI 140.MBUS.UMTS.W	00571200
CTI 140.MBUS.WLAN.W	00571201
CTI 100.PB.W	00571148
CTI 100.PB.UMTS.W	00571160
CTI 100.PB.WLAN.W	00571202
CTI 140.PB.W	00571203
CTI 140.PB.UMTS.W	00571204
CTI 140.PB.WLAN.W	00571205
CTI 100.PN.W	00571158
CTI 100.PN.UMTS.W	00571159
CTI 100.PN.WLAN.W	00571206
CTI 140.PN.W	00571207
CTI 140.PN.UMTS.W	00571208
CTI 140.PN.WLAN.W	00571209
CTI 100.EIP.W	00571151
CTI 100.EIP.UMTS.W	00571152
CTI 100.EIP.WLAN.W	00571184
CTI 140.EIP.W	00571185
CTI 140.EIP.UMTS.W	00571186
CTI 140.EIP.WLAN.W	00571187
