

Industrial Cellular Routers & Gateways

ICR-4434

High-Speed 4G Router & Powerful Edge Computing Gateway



Features

- LTE Advanced Cat.12 Global Cellular Connectivity
- Download Speed Up to 600 Mbps
- Quad-core CPU with 1 GB RAM
- 2x SIM, TPM 2.0
- 5x Gigabit Ethernet (Optional 4x PoE+ PSE)
- SFP Connector for SFP modules up to 10 Gbps
- GNSS Receiver, Micro SD Card
- RS232, RS485, CAN BUS, 2x DI, 2x DO, USB Host
- Robust metal cover with wall and DIN mount options
- Wide operational temperature range
- Optional Dual-Band WiFi

Project based customization:

Chip SIM (MFF2), SSD disc, Dual Concurrent WiFi AP, Bluetooth

Introduction



The ICR-4434 is a High-Speed 4G Router & Powerful Edge Computing Gateway focused on the global market. The LTE-A Cat.12 worldwide connectivity with 3G fallback is an ideal choice for high demand data transfer in IoT/M2M applications. Due to the high-speed data transfer of up to 600 Mbps (download) and up to 150 Mbps (upload) this router is an ideal solution for specialized M2M devices and IIoT. It serves well also for the wireless connection of traffic and security camera systems, individual computers, LAN networks, Industrial systems, and various self-service terminals.

The new router platform "v4" provides intelligence at the network edge with an extremely powerful Cortex A72 CPU at 1200 MHz, 4 GB eMMC memory, 4 MB flash memory, and 1024 MB RAM. The focus on high security underlines using TPM 2.0, and Tamper Button that ensure safe use in critical infrastructure systems.

The ICR-4434 is powered by the ICR-OS Linux operating system that provides a wide range of enhanced networking features. A secure Web interface allows users to configure and manage routers from remote locations. The router supports multiple configuration profiles, automatic firmware updates, etc. The router can be used as a powerful edge computing gateway because of the support of many ways of software customization. Users may insert Linux scripts and add new features by additional applications called Router Apps (User Modules).

There is an existing free library of Router Apps or the user may create own app using Advantech SDK. The gateway can easily run applications like Node-RED or Docker that open the way to a multi-container world.







The ICR-4434 is designed and manufactured for use in tough environmental conditions. Specifications include a wide operating temperature ranges from -40 to +75 °C. It accepts input voltage range from 9 V DC to 48 V DC and is equipped with sleep mode for reducing electrical consumption.

As a standard, ICR-4434 is equipped with five Ethernet 10/100/1000 Mbps (1x independent and 4x switch), SFP cage (independent port), one USB host 2.0, microSD reader, serial lines RS232 and RS485, CAN Bus, two binary inputs, and two binary outputs. This router contains two SIMs readers, which are placed on the rear side of the device. ICR-4400 has two mPCIe connectors that can be used for two WiFi modules. The router is supplied in a robust metal casing for a wall mount (DIN mount is optional).

ICR-4434 is easy to manage using WebAccess/DMP, full-featured cloud-based management, provisioning, and monitoring tool for mass deployment. The WebAccess/VPN is a perfect way how to create secure virtual private networks on the Internet.



WebAccess/DMP WebAccess/VPN

Model no. - Order Codes	REGION	5x Gigabit Ethernet	4x PoE PSE+	SFP cage (up to 10 Gbps)	RS232 RS485 CAN BUS I/O	GNSS	1x ANT 1x DIV	2x SIM	WiFi 802ac	Operating Temperature
 ICR-4434	GLOBAL*	✓		✓	✓	✓	✓	✓	NONE	-40 to +75 °C
 ICR-4434S	GLOBAL*	✓	✓	✓	✓	✓	✓	✓	NONE	-40 to +75 °C
 ICR-4434W	GLOBAL*	✓		✓	✓	✓	✓	✓	3x3 MIMO	-40 to +75 °C
 ICR-4434WS	GLOBAL*	✓	✓	✓	✓	✓	✓	✓	3x3 MIMO	-40 to +75 °C
 ICR-4434W1	GLOBAL*	✓		✓	✓	✓	✓	✓	3x3 MIMO	-40 to +60 °C
 ICR-4434W1S	GLOBAL*	✓	✓	✓	✓	✓	✓	✓	3x3 MIMO	-40 to +60 °C

* - Router is compatible with cellular networks in the indicated region. Importer/operator needs to check locale legislation (standards, national Telecom approvals etc.) and compare with standards available for product if possible to operate the router in target region legally.

Specifications

System	
CPU	Quad-Core ARM Cortex-A72, 1200 MHz
Memory	RAM - 1024 MB eMMC - 4096 MB (838 MB for Router Apps, 512 MB for customer data)
Watchdog	HW Watchdog
RTC	Battery backup RTC
TPM	Trusted Platform Module (TPM) 2.0
Interfaces	
Ethernet	5× Ethernet (4+1), RJ45, 10/100/1000 Mbps *Optional 4× PoE PSE, IEEE 802.3at-2009 (PoE+) and IEEE 802.3af-2003 (PoE) (PoE use is limited – see the ICR-4461 user manual)
SFP Cage	1× SFP cage (up to 10 Gbps)
Serial Lines	1× RS232 (Tx, Rx, GND, RTS, CTS) 1× RS485 (A(-), B(+), GND) 1× CAN (CAN_H, CAN_L) (14-pin terminal block)
I / O	2× Digital Input (3 mA consumption) 2× Digital Output (Open Drain, 48 V / 500 mA) (14-pin terminal block)
USB	1× USB 2.0 Host Connector
MicroSD Card	1× Micro SD Card Slot
Reset Button	Reboot / Factory reset
LED Indicators	System, 3-level signal strength, Data activity, SIM1/SIM2 status, 3G/4G technology, 2× Input, 2× Output, User, ETH

GNSS	
Antenna	1× SMA connector, active (50 mA), passive
Systems	GPS, GLONASS, BeiDou, Galileo, QZSS, SBAS
Protocol	NMEA
Ac Time-to-First-Fix	Cold 25 s, Warm 10 s

Environmental	
Power Supply	9 – 48 V DC (2-pin terminal block)
Consumption	Without WiFi Idle 4.6 W / Average 5.7 W / Peak 13 W With WiFi Idle 5.8 W / Average 7.2 W / Peak 15 W PoE PSE without WiFi Idle 4.8 W / Average 5.7 W / Peak 128 W PoE PSE with WiFi Idle 6.3 W / Average 7.2 W / Peak 130 W
Sleep Mode	Yes, 24 mW, 310 mW for PoE PSE
Operating Temperature	-40 to +75 °C -40 to +60 °C - ICR-4434W1, ICR-4434W1S
Storage Temperature	-40 to +85 °C
Humidity	0 to 95 %
IP Cover	IP30
Physical Characteristics	
Dimensions	47 × 109 × 195 mm
Enclosure	Robust Metal Case, Grounding Screw
Mounting	Wall Mounting, DIN Rail (optional)
Weight	1275 g

WiFi - optional (ICR-4434W, ICR-4434WS, ICR-4434W1, ICR-4434W1S)	
Antenna	3× R-SMA connectors, 3×3 MIMO
Standards	IEEE802.11 ac/a/b/g/n 2.4 GHz / 5 GHz
Data Rate	Up to 600 Mbps @ 2.4 GHz Up to 1300 Mbps @ 5 GHz
Security	WEP, WPA, WPA2, WPA3, 802.1X
Modes	Access Point (unlimited clients), Station, Multirole STA & AP

Cellular Interface	
SIM Slots	2× SIM (Mini SIMs – 2FF) *1× Chip SIM (MFF2)
Antennas	2× SMA connector (1× Main, 1× Diversity)
LTE Parameters	Supported LTE-FDD frequency bands: B1/B2/B3/B4/B5/B7/B8/B9/B12/B13/B14/B17/B18/B19/B20/B21/B25/B26/B28/B29/B30/B32/B66 Supported LTE-TDD frequency bands: B38/39/B40/B41 Transfer rate: 600 Mbps (DL), 150 Mbps (UL)
HSPA+/UMTS Parameters	Supported frequency bands: B1/B2/B3/B4/B5/B8/B19 Transfer rate: 42 Mbps (DL), 5.76 Mbps (UL)

* Project-based customization

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ICR-4434

Software	
Operating System	ICR-OS (Linux based)
SW Customization	Router App (User Modules)*
Application Development	Open Linux, *Python, BASH, C/C++, *Node-RED, *Docker
Networking Features and Protocols	DHCP, NAT/PAT, SSH, VRRP, PPPoE, SNMP, SMTP, Dynamic DNS client, DNS proxy, VLAN, QoS, *DMVPN, NTP Client/Server, *Routing protocols RIP, BGP, OSPF, IS-IS, NHRP, Backup Routes, Port Forwarding, Host Port Routing, Ethernet Bridging, Load Balancing, IPv6 Dual Stack
Industrial Protocols and IoT	*Modbus RTU/TCP gateway, *IEC 60870-5-101 to 104 gateway, *DF1, *DNP3, *MQTT, *LWM2M
Security	HTTPS, SSH, SFTP, DMZ, Firewall (IP Filtering, MAC address filtering, Inbound and outbound Port filtering) VPN Tunneling – WireGuard, OpenVPN, *EasyVPN, IPsec with IKEv1 and IKEv2, GRE, L2TP, PPTP Authentication – RADIUS, TACACS+, 2FA, *SCEP Encryption – DES, 3DES, AES, RSA, MD5, SHA
Firmware Management	Automatic firmware updates – server, locally via LAN or remotely via WAN Over-the-Air cellular module firmware updates
Diagnostic/Log	Status – Signal Strength, Data Usage, Detailed Long Term Statistics One CLICK report – Current Configuration, Factory Identification, Routing Table Log – System Log, Reboot Log, Kernel Log Remote Diagnostics (via SSH)
Event Engine	StartUp script & Up/Down script (Own rules based on Digital Inputs, Network Parameters, Data Usage, Timer, Power, Device Temperature) Report Types: SMS, email, SNMP Trap
Configuration	Web server, SSH, Four configuration switchable profiles, Automatic configuration update from server, Backup & Restore configuration
Advanced Software Tools	WebAccess/DMP – Remote Device Provisioning, Monitoring & Management Platform WebAccess/VPN – Advanced Secure Networking Platform

*Functionality is available with installed Router App (User Module)

Standards & Regulations	
Radio	EN 3001 908-1, EN 301 908-2, EN 301 908-13, EN 303 413, EN 301 893, EN 300 328
EMC	EN 301 489-1, EN 301 489-17, EN 301 489-19, EN 301 489-52, EN 610000-6-2, EN 55032, EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6
Safety	EN 62 368-1, IEEE 802.3
Transportation	E-mark (ICR-4434W, ICR-4434WS)
National	CE, UKCA
Mechanical	EN 60068-2-27, EN 60068-2-64, EN 60529
Climatic	EN 60068-2-2, EN 60068-2-1, EN 60068-2-14, EN 60068-2-30
Environmental	REACH, RoHS3, WEEE
Cellular Module Approvals*	Regulatory: GCF, CE, FCC, PTCRB, IC, Anatel, CCC, NCC, KC, JATE/TELEC, RCM, ICASA, Carrier: Vodafone Global, Deutsche Telekom, British Telecom, Telefonica Spain, TIM, Verizon, AT&T, FirstNet, T-Mobile, Rogers, Telus, NTT Docomo, Telstra

*- Approvals are valid for the integrated cellular module inside the router only. Cellular module approvals are not always applicable for the whole router – see "Standards and Regulations" chart for complete router approvals available. **- Models having ICR-4434W1, ICR-4434W1S order codes have no E8 certification.

Accessories

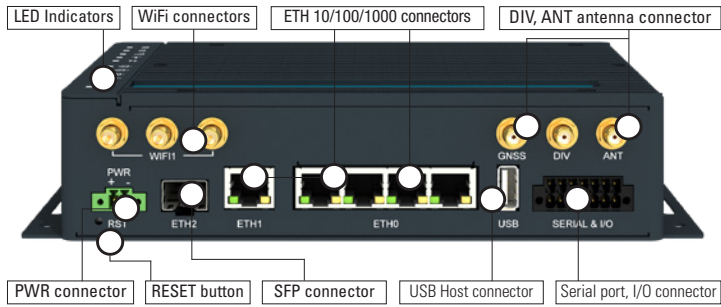
Part Number	Description	Included in the package
BB-CON-WR2	2-pin PWR connector	✓
CON-ICR44-14	14-pin Serial / IO connector	
	Wall mount kit	Optional
BB-DIN-ICR32	DIN clip (2 pcs are necessary for the mounting)	
RPS-ICR4-WR2-M	Wall mount Power supply, 12 V/1.5 A, EU, UK, US, AUS plugs	
RPS-ICR4-WR2-PSE	**Desktop Power supply POE PSE, 48 V / 1.35 A, (without Power Cord)	
BB-PWRCORD-AUS	AUS Power Cord (for RPS-ICR4-WR2-PSE)	
BB-PWRCORD-EU	EU Power Cord (for RPS-ICR4-WR2-PSE)	
BB-PWRCORD-UK	UK Power Cord (for RPS-ICR4-WR2-PSE)	
BB-PWRCORD-US	US Power Cord (for RPS-ICR4-WR2-PSE)	
BB-KD-ETH	Ethernet cross cable, 1.5 m, Shielded	
BB-AW-A2458G-FSRPK	Antenna Wi-Fi, 2.4 & 5.8 GHz (3 pcs are recommended for full 3x3 MIMO performance)	
BB-2J7041BGFAP-300	Antenna LTE 3in1 MIMO, GPS passive, dome screw mount, 3x cable 3m	
ANT-LTE5G-025	Antenna 5G/LTE, Terminal (2 pcs are recommended for full cellular performance)	
BB-2J6024BA-150	Antenna LTE 2in1 MIMO, Low profile Screw mount, 2x cable 1.5 m	
BB-2J6983MPA-150	Antenna 2in1 5G/LTE MIMO, Magnetic and Adhesive mount, 2x cable 1.5 m	
BB-2J6A24BA-150	Antenna 2in1 LTE MIMO, Dome Screw mount, 2x cable 1.5 m	

For more Antenna accessories visit www.advantech.com

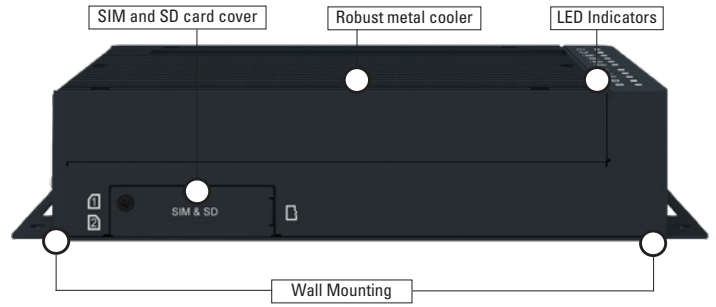
**Required power supply when used PoE/PoE+ on all ports is 48V / 150W

Views

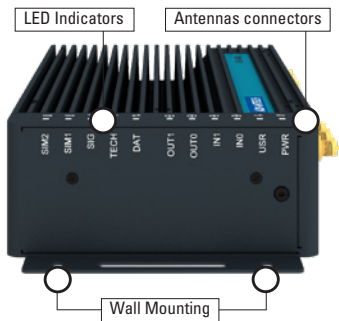
FRONT VIEW



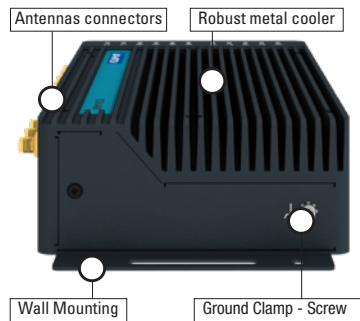
REAR VIEW



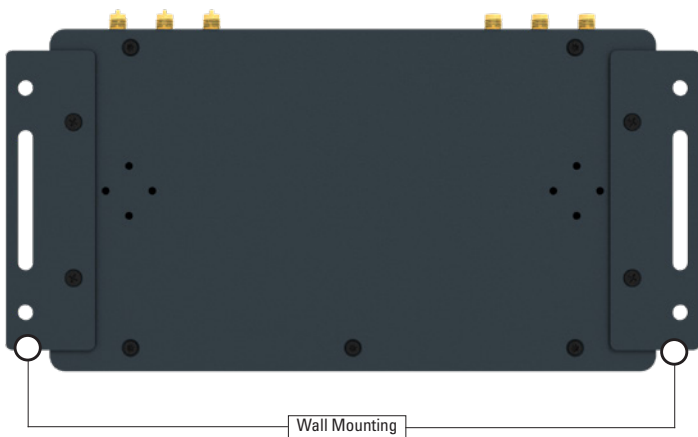
LEFT SIDE VIEW



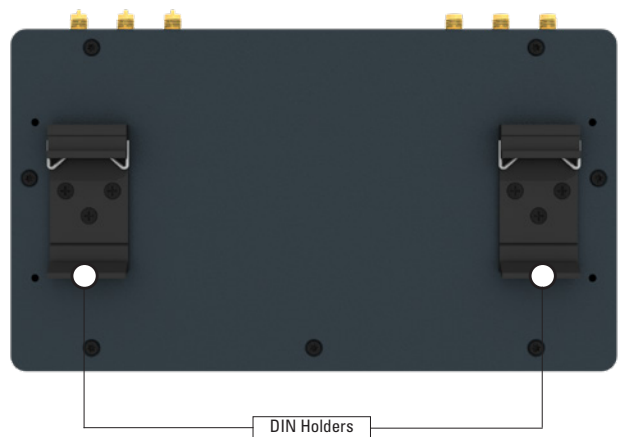
RIGHT SIDE VIEW



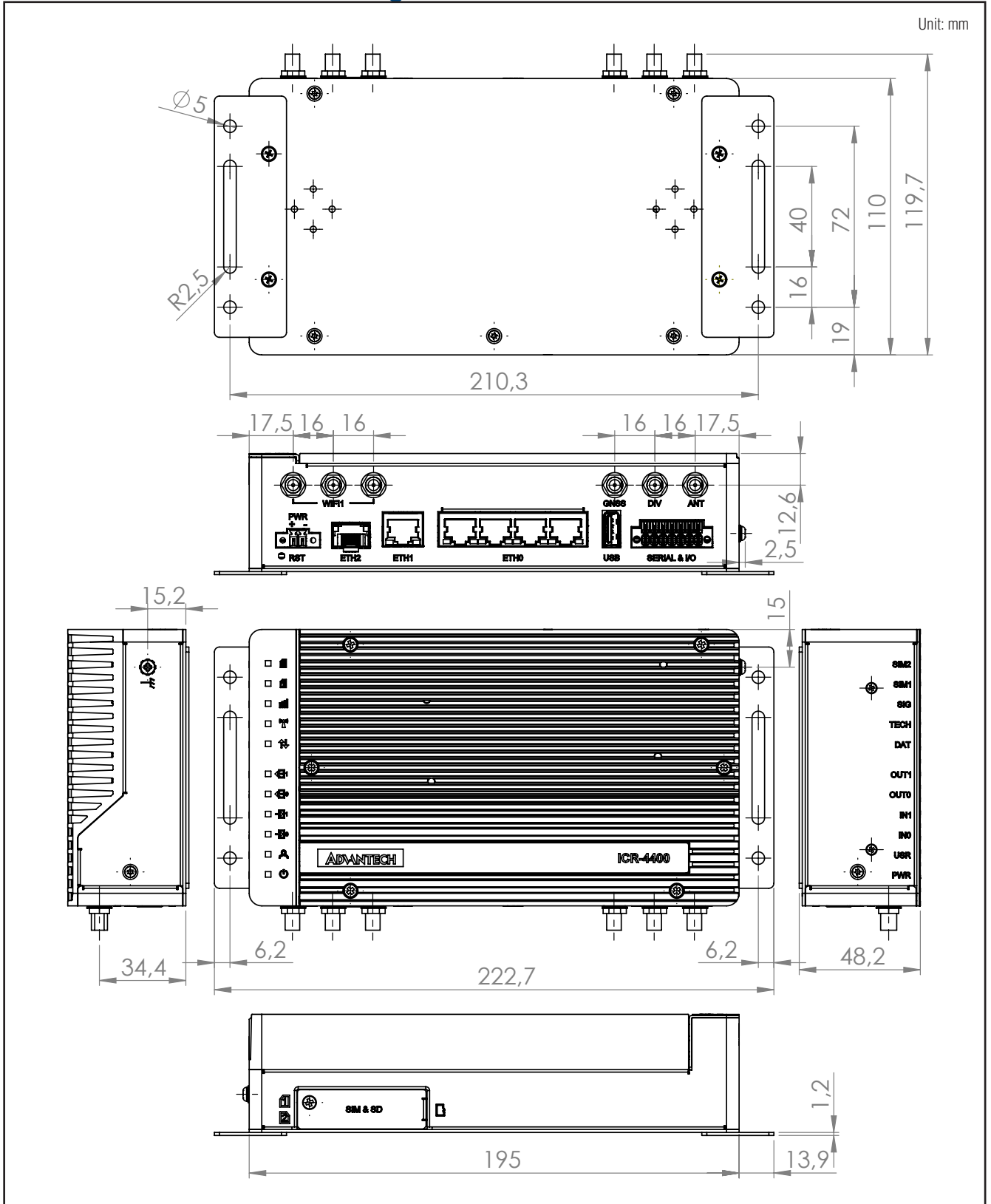
BOTTOM VIEW - WALL MOUNT KIT



BOTTOM VIEW - DIN HOLDERS



Dimensions - Technical Drawing - Wall Mount



Dimensions - Technical Drawing - DIN Holders

