ПРОМЫШЛЕННЫЕ СОТОВЫЕ РОУТЕРЫ

M!DGE

5G 4G LTE 450 LTE-M NB-IoT

Сотовые Роутеры M!DGE специально разработанные для систем SCADA и телеметрии критически важной инфраструктуры, такой как Энергетика, Водоснабжение, Нефть и Газ. Они также подходят для всех применений, где требуется высокая надёжность и безопасность беспроводной передачи данных, таких как POS-терминалы, банкоматы, лотерейные автоматы и системы охраны/наблюдения.

ЛИДЕР РЫНКА

- 5G, 4G, 3G, LTE 450, NB-IoT
- 2x Micro SIM, eSIM ready
- Интерфейс SFP
- Расширение mPCIe - 2-е сотовые, Wi-Fi, GPS...

ПРОИЗВОДИТЕЛЬНОСТЬ

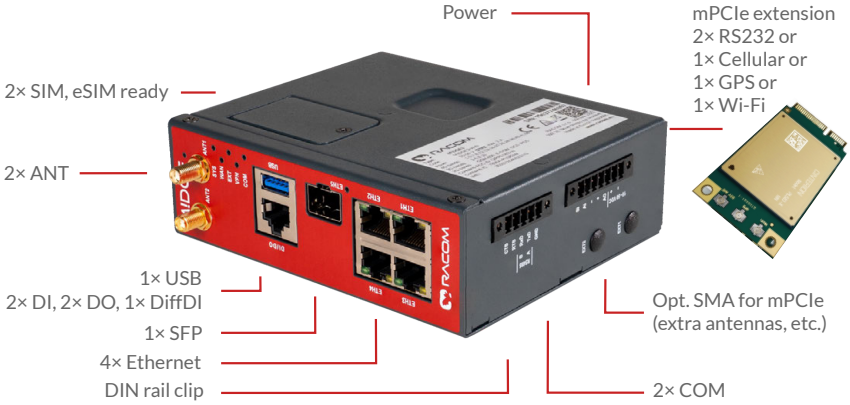
- Последовательные протоколы SCADA
- Статическая и динамическая маршрутизация
- Расширенная диагностика, API
- Гибридные сети

НАДЕЖНОСТЬ

- Усиленная промышленная конструкция
- Одобрено для электроподстанций
- От -40 до +70 °C
- Наработка на отказ > 100 лет, Сделано в Чехии, ЕС

БЕЗОПАСНОСТЬ

- IPsec, OpenVPN
- RADIUS, Firewall, VLAN
- Цифровая подпись ПО
- HW tamper, IEC 62443-4-2



RACOM

www.racom.eu

СПЕЦИФИКАЦИИ

	M!DGE3	M!DGE3e
mPCIe	Yes	No
Interfaces	4× ETH, 1× SFP, 2× COM, 1× USB	2× ETH, 1× COM, 1× USB
Inputs / Outputs	2× DI, 2× DO, 1× DiffDI	No
HW tamper	Yes	No
Dynamic routing	BGP / OSPF / Babel	No
Link management	Yes	No

Model	Order Code	Frequency bands	Data rates
5G M!DGE3	'Q' Telit FN990A28-HP Worldwide	5G Rel.16: n1, n2, n3, n5, n7, n8, n12, n13, n14, n18, n20, n25, n26, n28, n29, n30, n38, n40, n41, n48, n66, n71, n75, n76, n77, n78, n79	NSA: 3.4 Gb/s DL / 0.55 Gb/s UL SA: 2.5 Gb/s DL / 0.90 Gb/s UL
		4G Rel.16: B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B29, B30, B32, B34, B38, B39, B40, B41, B42, B43, B46, B48, B66, B71	Cat.19: 1.6 Gb/s DL / Cat.18: 211 Mb/s UL
		3G HSPA+ Rel.9: B1, B2, B4, B5, B6, B8, B19	HSPA+: 42 Mb/s DL / 5.7 Mb/s UL
4G M!DGE3, M!DGE3e mPCIe ext. board	'W' Cinterion PLS83-W Worldwide	4G LTE (also 5G NSA), 3GPP Rel.10: B1, B2, B3, B4, B5, B7, B8, B12, B13, B14, B17, B18, B19, B20, B25, B26, B28, B38, B40, B66, B71, B106	Cat.4: DL 150 Mb/s, UL 50 Mb/s
		3G UMTS/HSDPA/HSUPA, 3GPP Rel.7: B1, B2, B3, B4, B5, B6, B8, B19	Cat.14: HSPA+ DL 21 Mb/s HSUPA UL 5.7 Mb/s
		2G GSM/GPRS/EDGE, 3GPP Rel.4: GSM 850 MHz, E-GSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz	Class 12: DL 237 kb/s, UL 237kb/s
LTE - M **NB - IoT** M!DGE3, M!DGE3e mPCIe ext. Board	'R' Telit ME310G1-W2 EU (RED), UK (UKCA), interoperable (GCF)	4G LTE Cat M1, NB2 3GPP Rel.14: B1, B3, B5, B8, B20, B28, B31, B72, B87, B88	Cat. M1: DL 588 kb/s, UL 1 Mb/s Cat. NB2: DL 120 kb/s, UL 160 kb/s
	'S' Telit ME310G1-WW Worldwide	4G LTE Cat M1, NB2 3GPP Rel.14: B1, B2, B3, B4, B5,B8, B8_39d, B12, B13, B18, B19, B20, B25, B26, B27, B28, B66, B71, B85	

Electrical	**M!DGE3**	**M!DGE3e**
Primary power	10 – 50 VDC	
Power consumption	Average 7W	
Interfaces		
SIM slot	2× Micro SIM, eSIM ready	
Ethernet	4× Ethernet 10/100/1000 Base-T, Auto MDX, bridged or routed — 4× RJ45	2× Ethernet 10/100/1000 Base-T, Auto MDX, bridged or routed — 2× RJ45
SFP	1× 10/100/1000 Base or T/1000Base-SX or 1000Base-LX — 1× SFP	No
COM1	RS232 / RS485 SW configurable — Terminals	
COM2 (Var. 'D', no Ext. 'C')	RS232 (only when COM1 is RS232) — (COM1, COM2 shared)	No
COM2, COM3 (Ext. module 'C')	2× RS232 — RJ45	No
USB	1× USB 3.0 / Host A	
Inputs/Outputs	1× HW alarm input, 1× HW alarm output, 1× Sleep input — Power connector 2× DI, 2× DO, 1× difDI (when mPCIe-COMS is not used) — RJ45	1× HW alarm input, 1× HW alarm output, 1× Sleep input — Power connector
Antenna	1× SMA female - LTE Cat M1, Cat NB2 2× SMA female - receiver diversity (2×2 MIMO) - LTE Cat 4 4× SMA female - optional extension board - 5G (+ 1× SMA for GPS)	1× SMA female - LTE Cat M1, Cat NB2 2× SMA female - receiver diversity (2x2 MIMO) - LTE Cat 4
Optional Extensions	1× mPCIe: Cellular module ('W', 'R', 'S', 'Q') or 2× RS232[1)] or GPS or Wi-Fi	No
Environmental		
IP Code (Ingress Protection)	IP40	
MTBF (Mean Time Between Failure)	> 100 years	
Operating temperature	−40 to +70 °C (−40 to +158 °F)	
Operating humidity	5 to 95% non-condensing	
Mechanical		
Casing	Metal	
Dimensions	132 H × 43 W × 110 D mm (5.20 × 1.69 × 4.33 in)	
Weight	0.50 kg (1.1 lbs)	
Mounting	DIN rail, optionally: Flat-bracket or L-bracket	
Security		
Management	HTTPS (Web or API)	
Role-based access control (RBAC)	4 levels (Guest, Tech, SecTech, Admin)	
IPsec, OpenVPN	Yes	
Firewall	Layer 2 – MAC, Layer 3 – IP, Layer 4 – TCP/UDP, SMS filter	
AAA protocol	RADIUS	
FW	Digitally signed, Secure boot	
HW tamper	Case opening evidence	No
Cyber resilience	IEC 62443-4-2	
SW		
Fallback management	Yes	
Connection supervision	Yes	
Automatic connect recovery	Yes	
SMS management	Yes	
Routing	Static / Dynamic - BGP / OSPF / Babel	Static
Link management	Yes	No
QoS	Yes	
NAPT	Yes	
User protocols on Ethernet	Yes	
Serial SCADA protocols	DNP3, DF1, IEC101, Modbus RTU, PR2000, RDS, Siemens 3964(R), COMLI, SAIA S-bus, Mars-A, UNI, Async Link, PPP, Transparent	
Serial to IP convertors	DNP3 / DNP3 TCP, Modbus RTU / Modbus TCP, Terminal servers	
VPN	IPsec, OpenVPN, GRE	
NTP	Client, Server	
SNMP	v1, v2c, v3	
Approvals	CE, FCC, ANATEL, … Ask for others	

Technical parameters are subject to change without prior notification. For more details see User manuals.