

# Roteadores celulares industriais

## M!DGE

Os roteadores celulares M!DGE são projetados principalmente para aplicações SCADA e Telemetria em infraestruturas críticas, como concessionárias de energia, água, petróleo e gás. Eles também são adequados para muitas outras aplicações onde é necessária alta confiabilidade, como POS, ATM e Segurança.



## Líder no Mercado

- Protocolos SCADA seriais
- Interface SFP
- Pronto para expansão - mPCIe
- Redes híbridas

## Desempenho

- 5G, 4G, 3G, 2G
- 2x SIM
- Roteamento dinâmico e estático
- QoS

## Segurança

- IPsec, OpenVPN
- RADIUS, SNMPv3
- Firewall, VLAN
- FW digitalmente assinado

## Confiabilidade

- Desenho industrial endurecido
- Estrutura metálica
- -40 to +70 °C
- MTBF > 100 anos



# Parâmetros técnicos

	MIDGE3	MIDGE2
Frequency bands	One world wide model	3 models: EU, Asia, Americas
CPU	800 MHz Dual Core	600 MHz Single Core
Ethernet	4 × 1 Gb/s	4 × 100 Mb/s
SFP	Yes	No
Inputs / Outputs	2 × DI, 2 × DO, 1 × DiffDI	1 × DI, 1 × DO
Responsive web / Wifi management	Yes / Yes	No / No

<b>Cellular interface</b>	<b>MIDGE3</b>		
Frequency bands W	4G LTE (also 5G NSA) - Band 1 (2100 MHz), Band 2 (1900 MHz), Band 3 (1800 MHz), Band 4 (2100 MHz), Band 5 (850 MHz), Band 7 (2600 MHz), Band 8 (900 MHz), Band 12 (700 MHz), Band 13 (700 MHz), Band 18 (850 MHz), Band 19 (850 MHz), Band 20 (800 MHz), Band 26 (850 MHz), Band 28 (700 MHz), Band 38 (2600 MHz), Band 40 (2300 MHz), Band 41 (2500 MHz), Band 66 (2100 MHz)		
	3G UMTS/HSDPA/HSUPA - Band 1 (2100 MHz), Band 2 (1900 MHz), Band 3 (1800 MHz), Band 4 (2100 MHz), Band 5 (850 MHz), Band 6 (850 MHz), Band 8 (900 MHz), Band 19 (850 MHz)		
	2G GSM/GPRS/EDGE - GSM 850 MHz, E-GSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz		
<b>Cellular interface</b>	<b>MIDGE2</b>		
Frequency bands E	4G LTE (also 5G NSA) - Band 20 (800 MHz), Band 5 (850 MHz), Band 8 (900 MHz), Band 3 (1800 MHz), Band 1 (2100 MHz), Band 7 (2600 MHz)		
	3G UMTS/HSDPA/HSUPA - Band 5 (850 MHz), Band 8 (900 MHz), Band 2 (1900 MHz), Band 1 (2100 MHz)		
Frequency bands P	2G GSM/GPRS/EDGE - GSM 850 MHz, E-GSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz		
	4G LTE (also 5G NSA) - Band 28 (750 MHz), Band 5 (850 MHz), Band 8 (900 MHz), Band 3 (1800 MHz), Band 1 (2100 MHz), Band 7 (2600 MHz)		
	3G UMTS/HSDPA/HSUPA - Band 5 (850 MHz), Band 8 (900 MHz), Band 2 (1900 MHz), Band 1 (2100 MHz)		
Frequency bands A	2G GSM/GPRS/EDGE - GSM 850 MHz, E-GSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz		
	4G LTE (also 5G NSA) - Band 17 (700 MHz), Band 5 (850 MHz), Band 4 (1700 MHz), Band 2 (1900 MHz), Band 7 (2600 MHz)		
	3G UMTS/HSDPA/HSUPA - Band 5 (850 MHz), Band 8 (900 MHz), Band 4 (AWS, i.e. 1700 MHz), Band 2 (1900 MHz), Band 1 (2100 MHz)		
Frequency bands U	2G GSM/GPRS/EDGE - GSM 850 MHz, E-GSM 900 MHz, DCS 1800 MHz, PCS 1900 MHz		
	3G UMTS/HSDPA/HSUPA - Band 5 (850 MHz), Band 8 (900 MHz), Band 2 (1900 MHz), Band 1 (2+B1:B21)		
	<b>MIDGE3</b>		<b>MIDGE2</b>
Data rates	Up to 150 Mb/s downlink; 50 Mb/s uplink		
SIM slot	2 × Micro SIM		
<b>Electrical</b>			
Primary power	10 – 50 VDC		12 – 24 VDC, +/- 20%
Power consumption	Average 7W		
<b>Interfaces</b>			
Ethernet	4 × Ethernet 10/100/1000 Base-T, Auto MDX bridged or routed	4 × RJ45	4 × Ethernet 10/100 Base-T, Auto MDX bridged or routed
SFP	1 × 10/100/1000 Base or T/1000Base-SX or 1000Base-LX	1 × SFP	No
Serial	1 × RS232/RS485 SW configurable	Terminals (5 pins)	1 × RS232 300 b/s – 115 kb/s
USB	1 × USB 3.0 / Host A		1 × USB 2.0 / Host A
Inputs/Outputs	1 × HW alarm input, 1 × HW alarm output, 1 × Sleep input	Power connector RJ45	1 × DI, 1 × DO
Antenna	2 × SMA female – receiver diversity		Terminals
<b>Optional Expansions</b>			
mPCIe slot	Cellular module or GPS or 2 × RS232		Cellular module or GPS
Proprietary extension slot	No		COMIO: RS232/RS485 + 1 × DI, 1 × DO
<b>Environmental</b>			
IP Code (Ingress Protection)	IP40		
MTBF (Mean Time Between Failure)	> 900 000 hours (> 100 years)		> 220.000 hours (> 25 years)
Operating temperature	-40 to +70 °C (-40 to +158 °F)		
Operating humidity	5 to 95% non-condensing		
<b>Mechanical</b>			
Casing	Metal		
Dimensions	132 H × 43 W × 110 D mm (5.20 × 1.69 × 4.33 in)		125 H × 45 W × 110 D mm (4.9 × 1.8 × 4.3 in)
Weight	0.50 kg (1.1 lbs)		0.45 kg (1.0 lbs)
Mounting	DIN rail, optionally: Flat-bracket or L-bracket		DIN rail, optionally: Flat-bracket
<b>Security</b>			
Management	HTTPS (Web)		HTTPS (Web), SSH (CLI)
Role-based access control (RBAC)	4 levels (Guest, Tech, SecTech, Admin)		2 levels (User, Admin)
IPsec	Yes		Yes
Firewall	Layer 2 – MAC, Layer 3 – IP, Layer 4 – TCP/UDP, SMS filter		
AAA protocol	RADIUS		
FW	Digitally signed		
HW tamper	Case opening evidence		
<b>SW</b>			
Fallback management	Yes		
Connection supervision	Yes		
Automatic connect recovery	Yes		
SMS management	Yes		
Routing	Static / Dynamic		
BGP/OSPF/BABEL	Yes/Yes/Yes		Yes/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		
Serial to IP convertors	DNP3 / DNP3 TCP, Modbus RTU / Modbus TCP, Terminal servers		
VPN	IPsec, GRE		OpenVPN, IPsec, PPTP, GRE
VRRP	No		Yes
NTP	Client, Server		
SNMP	v1, v2c, v3		
Software Development Kit	No		Full featured
Linux container	No		LXC
<b>Approvals</b>	CE, FCC, ... Ask for others		

All information provided is preliminary and may change after the product is launched.

