DW 918 N iGPRS

INDUSTRIAL GPRS ROUTER

The DW 918 N is a wireless industrial GPRS data transfer device which performs router functions. It is for use in systems requiring wireless data communications with outstandingly high availability, parallel redundant data connections, and IPSec encryption.

FEATURES

- DHCP or fixed IP address
- NAT (target IP address translation)
- Redundant GPRS connection
- IPSec encryption

SPECIAL CHARACTERISTICS

- Integrated web server
- Diagnostic functions
- Watchdog
- Complete remote manageability and remote software update from Ethernet and GPRS interfaces

INDUSTRIAL DESIGN

- Operational temperature range -10°C to 60°C
- Protection: IP30
- Omega track mounting

APPLICATION

The DW 918 industrial router is used as a field wireless communication device in industrial communication systems where high reliability is required. The device, in cooperation with the 918 LC central router and using the IPSec protocol, creates a reliable data connection between field devices and a central process control system. The optional GPRS redundancy is realized by switching to a backup service provider's system if the GPRS system of the preferred provider behaves abnormally.

The easy and secure connection to the field and central networks is made possible by the NAT function of the DW 918 LC and DW 918 N routers.

TECHNICAL SPECIFICATIONS

FUNCTIONS

Ethernet standard:	10BaseT
Applied protocols:	ICMP, TCP, UDP, FTP, HTTP, ARP
IPSec:	Support for AH Transport Mode, MD5 signature, iGSA encryption procedure
Network functions:	tracert, ping
Communication buffer:	128 KByte RAM
Program memory:	128 KByte Flash
GPRS:	MS Class B, GPRS Class 8, max. 85.6kbps P Channel Support Coding schemes CS1-CS4
Engineering interface:	Yes
Settings via web interface:	Yes

CONNECTION INTERFACE

Ethernet jack:	8 pole RJ45
GSM antenna jack:	50 Ω MMCX
DC jack:	2 pole Phoenix Contact Combicon

LED STATUS SIGNALS

POWER:	Presence of power supply
GPRS Err:.	GPRS status
GPRS Rx:	GPRS data receive
GPRS Tx:	GPRS data send
ETH Coll.:	Ethernet collision
ETH Rx:	Ethernet data receive
ETH Tx:	Ethernet data send

GENERAL CHARACTERISTICS

Voltage:	24V DC +/- 10%
Power consumption:	max. 1800 mW
Operational temperature:	-10°C to +60°C
Storage temperature:	-10°C to +120°C
Relative humidity:	+5% to 95% (noncondensing)
Vibration:	2.1g - 15-150Hz ± 2.5 mm amplitude
Size (LxWxH):	25x122x117mm
Protection against reserved voltage polarity:	Yes

RADIO FREQUENCY DATA

Dual band GSM/GPRS device
EGSM 900/1800MHz
Meets 3GPP GSM Phase 2+ standard

Output capacity:	2W 900 MHz-en, 1W 1800 MHz-en
Integrated modem:	Sony-Ericsson GM 47
Type approval:	Every GSM service provider
Number of SIM card slots:	1

GENERAL INFORMATION

PURPOSE OF THE DEVICE

The alternative redundant GPRS industrial communication system serving field stations is made up of at least one DW 918 N field router and one DW 918 LC central router. The two DW 918 N iGPRS routers ensure the alternative redundant wireless data connection between the field network and the central router using the IPSec protocol. The two-way IP – IPSec conversion and the source IP address translation (NAT) is handled by the DW 918 N router.

SECURITY

The security of the transferred GPRS packets is guaranteed by the IPSec protocol. To prevent unwanted manipulation of data every IP packet is signed with an MD5 hash code. The iGSA encryption procedure prevents information falling into unauthorized hands. The implementation of the IPSec protocol AH Transport Mode standard eliminates potential duplication of packets.

SETTINGS

Operational parameters and settings can be adjusted via an integrated web server and the HTML page it presents and also via the engineering port (12C bus) using the DW 900 TWI software.

DIAGNOSTICS

The device collects diagnostic information while operating. Such information includes time since switch on, network circuit handling data, GPRS statistics, and IP traffic counting. The diagnostic information can be viewed on the device's web interface or can be continuously channeled to a pre-defined IP address. Diagnostic information can also be queried via XML.

OPERATION

The operation of the device fundamentally corresponds to that of a traditional router. When specifying target IP addresses always that of a single DW 918 LC unit SIM card is given (static route table).

The target IP addresses must be accessible from the APN used by the DW 918 N iGPRS device. In the case of dynamic routing, the route table is automatically filled in according to the current IP traffic

During operation a continuous GPRS connection is ensured and when necessary makes use of the alternative GSM provider. (SIM redundancy).

While routing, the device handles every IP packet which meets the given routing rules. When necessary NAT-ing is used and as such only ICMP, UDP, and TCP packets are allowed to pass.

When NAT-ing the device replaces the target IP address in the IP packet header with an address falling in another range. In the reverse direction the original IP address is restored. With this solution, the injection of virtual IP addresses (address ranges) into the network becomes possible.

REMOTE SOFTWARE UPDATE

The software for the microcontroller can be remotely updated by reloading the program stored in FLASH memory.

This takes place via Ethernet and GPRS. The upload is performed using the DW 900 FWU software. "A90" extension Intel-extended format rendered files may be used for the upload, which the manufacturer provides together, with the software when a version upgrade is necessary.

During the software upgrade all other functions remain undisturbed and available. Following a successful update, the device automatically restarts and the new version becomes active. If the update is unsuccessful, it can be repeated at any time.