

ET9-120W

POWER LINE CARRIER EQUIPMENT ET9

- **PLC COMMUNICATION** LINKS ORGANIZED OVER HIGH-VOLTAGE TRANSMISSION LINES REMAINS TRADITIONAL SOLUTION IN POWER UTILITIES
- **PLC LINKS** ARE POINT TO POINT COMMUNICATIONS USED FOR SIGNALS TRANSMISSION BETWEEN SUBSTATIONS AS WELL AS A PART OF PRIVATE COMMUNICATION SYSTEM OF POWER UTILITIES
- **NEW TECHNOLOGIES AND SOLUTIONS** IN OTHER COMMUNICATION SYSTEMS ARE NOW A DAYS USED ALSO IN PLC SYSTEMS. DIGITAL SIGNAL PROCESSING ENABLES TRANSMISSION OF SPEECH, DATA AND TELEPROTECTION SIGNALS INSIDE THE SAME PLC CHANNEL.

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FEATURES

- **TRANSMISSION** OF UP TO 6 PLC CHANNELS
- **EXTENDED CARRIER FREQUENCY** RANGE FROM 20 kHz UP TO 1000 kHz – PROGRAMMABLE WITHOUT EXCHANGING HARDWARE
- **HIGH FREQUENCY OUTPUT** POWER (PEP) UP TO 120 W
- **AUTOMATIC RF CHANNEL EQUALIZATION** (AEQ)
- **UNIVERSAL TELEPHONE INTERFACES** (FXO, FXS, 4w E&M)
- INTEGRATED **FSK MODEMS**
- **TRANSMISSION** OF BINARY STATES
- UNIVERSAL **AF INTERFACES**
- AVAILABLE **TRANSIT FILTERS ON AF INTERFACES**
- **DEDICATED INPUT / OUTPUT** FOR EXTERNAL TELEPROTECTION EQUIPMENT CONNECTION
- USE OF INTEGRATED OR EXTERNAL **DZ9 TELEPROTECTION EQUIPMENT**
- **SERVICE SPEECH** CHANNEL
- EMBEDDED OPERATION CHANNEL (EOC) FOR ACCESS TO **REMOTE ET9 EQUIPMENT MANAGEMENT SYSTEM**
- **REAL TIME TRANSMISSION OF ALARM STATUS** OF REMOTE ET9 EQUIPMENT USING PILOT CHANNEL
- **SIGNALING ET9 FRONT PANEL FOR ET9 BASIC DIAGNOSTIC** AND LED DISPLAYS FOR SNR AND LINE ATTENUATION
- **PEGASUS SE** - PC BASED GRAPHICAL USER INTERFACE (GUI) FOR CONFIGURATION AND MANAGEMENT
- **LAN** AND **RS232** PORT FOR CONNECTING MANAGEMENT PC
- **SYNCHRONIZATION** WITH EXTERNAL GPS SIGNAL (PPS, IRIG-B, SNTP)
- **UNIVERSAL POWER SUPPLY** FOR AC AND DC VOLTAGES
- **SNMP TRAPS WITH ET9 ALARMS** AND EQUIPMENT INFORMATION TO SERVE A COMMUNICATION NMS
- COMPLY WITH **IEC 60495 STANDARD**

SPARK ENERGY
communication system

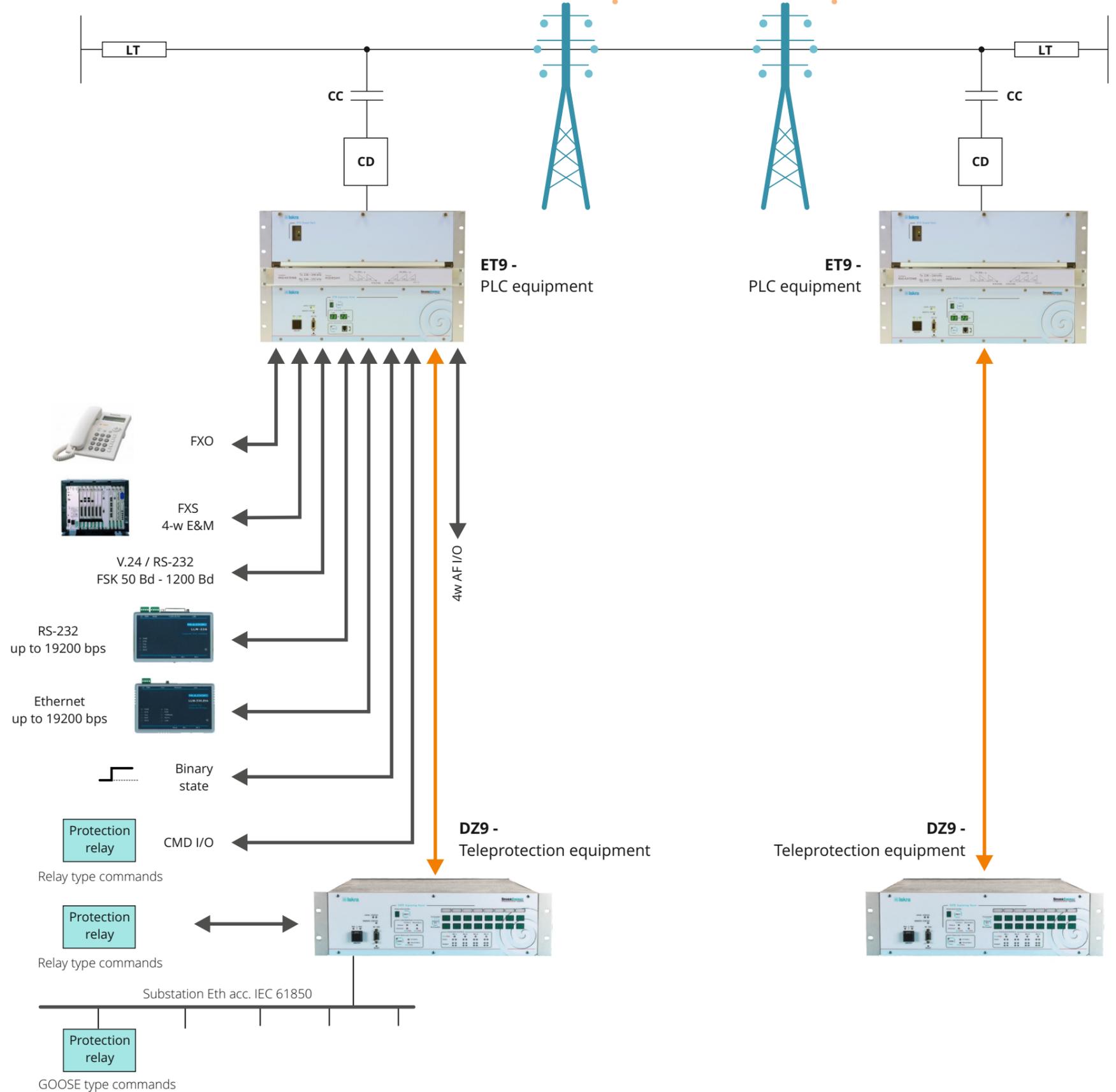
POWER LINE CARRIER EQUIPMENT ET9

APPLICATIONS

- **TRANSMISSION OF VOICE CHANNELS** (FXO, FXS, 4W E&M)
- **TRANSMISSION OF DATA** USING FSK (50 – 1200 Bd)
- **TRANSMISSION OF TELEPROTECTION SIGNALING** – INTEGRATED OR EXTERNAL **DZ9 TELEPROTECTION EQUIPMENT** OR EXTERNAL EQUIPMENT OF OTHER VENDORS
- **TRANSMISSION** OF BINARY STATES
- **TELECOMMUNICATION RESOURCE** FOR DIFFERENT TELECOMMUNICATION EQUIPMENT IN AF BAND



ET9 TOP - WITHOUT COVER



TEHNICAL DATA

CARRIER RACK OPTIONS ET9



ET9-60W

CARRIER RACK

CR-ET9-60	CARRIER RACK FOR ET9 PLC EQUIPMENT UP TO 6 CHANNELS, OUTPUT POWER (PEP) UP TO 60 W
CR-ET9-120	CARRIER RACK FOR ET9 PLC EQUIPMENT UP TO 6 CHANNELS, OUTPUT POWER (PEP) UP TO 120 W

BUILDING BLOCKS FOR ET9 - POWER PART

UNIT	DESCRIPTION	NUMBER OF REQ.-UNITS	
		ET9-60 W	ET9-120 W
PSP	POWER PART POWER SUPPLY UNIT	1	2
PTI	SUB RACK FOR POWER AMPLIFIER AND TRANSMIT LINE FILTERS	1	2
TPA	POWER AMPLIFIER	1	2
TXF	TRANSMIT LINE FILTER	1	2
RXF	RECIIVE LINE FILTER	1	1
IOM	LINE MATCHING UNIT	1	1
SUT	SUMMING TRANSFORMER UNIT	0	1

BUILDING BLOCKS FOR ET9 - PROCESSING PART

UNIT	DESCRIPTION	NUMBER OF REQ.-UNITS	
		MIN.	MAX.
FPET	ET9 FRONT PANEL	1	1
PS	PROCESSING PART POWER SUPPLY	1	2
CMS	CENTRALIZED MANAGEMENT AND SUPERVISION UNIT	1	1
HSM	MODULATION UNIT	1	1
NF9	AF ACCESS UNIT WITH UNIVERSAL TELEPHONE INTERFACE - TWO 4-w UNIVERSAL AF INTERFACES - ONE 2-w OR 4-w TELEPHONE INTERFACE	1*	6
TG9	AF ACCESS UNIT WITH INTEGRATED MODEMS - TWO 4-w UNIVERSAL AF INTERFACE - TWO FSK (50 - 1200 Bd)	1*	4
AFA	AF ACCESS UNIT - TWO 4-w UNIVERSAL AF ACCESS INTERFACE	1*	6
SRU	STATE RELAY UNIT	/	4**
DZ9	TELEPROTECTION APPLICATION - TL/I/LFI LINE UNIT WITH ANALOGUE LINE INTERFACE - CSR COMMAND AND SIGNALING RELAY UNIT (2 COMMANDS)	1 1	1 2

* ET9 REQUIRES AT LEAST ONE AF ACCESS UNIT TYPE NF9, TG9 OR AFA

** SRU REQUIRES TG9 UNIT

GENERAL TECHNICAL DATA

RF RANGE	FROM 20 kHz UP TO 1000 kHz
NUMBER OF PLC CHANNELS	FROM 1 UP TO 6
NOMINAL CHANNEL BANDWIDTH	4 kHz
Tx / Rx CHANNEL POLARIZATION	NORMAL / INVERSE
Tx / Rx FREQUENCY BAND POSITION IN RF BAND	ADJACENT / NON-ADJACENT
CHANNEL ALLOCATION IN RF RANGE	PROGRAMMABLE IN ALL RF RANGE , STEP 1 kHz
RECEIVER SENSITIVITY	- 31 dBm
NOMINAL OUTPUT IMPEDANCE	ASYMMETRICAL 75 Ohm, SYMMETRICAL 150 Ohm

TECHNICAL DATA

AF PART

UNIVERSAL AF INTERFACE

USEFUL BANDWIDTH	FROM 300 Hz TO 3720 Hz
INPUT / OUTPUT IMPEDANCE	6 Ohm, 300 Ohm OR HIGH Z
INPUT / OUTPUT LEVEL ADJUSTMENT	FROM -20 dBm TO +10 dBm
TRANSIT FILTERS	PROGRAMMABLE BAND PASS FIR FILTERS
CONNECTION TYPE	4-w, SYMMETRICAL, GALVANIC ISOLATED

UNIVERSAL TELEPHONE INTERFACE

FXS 2-w SUBSCRIBER INTERFACE	
- IMPEDANCE	600 Ohm, SYMMETRICAL
- INPUT / OUTPUT LEVEL ADJUSTMENT	FROM -20 dBm TO +5,5 dBm
- RING FREQUENCY	16, 20, 25 Hz, PROGRAMMABLE
FXO 2-w PAX INTERFACE	
- IMPEDANCE	600 Ohm, SYMMETRICAL
- INPUT / OUTPUT LEVEL ADJUSTMENT	FROM -20 dBm TO +5,5 dBm
- RING DETECTOR	FROM 13.5 V AT FREQUENCY 16, 20, 25 Hz
4-w PAX INTERFACE WITH E&M SIGNALING	
- IMPEDANCE	600 Ohm, SYMMETRICAL
- INPUT / OUTPUT LEVEL ADJUSTMENT	FROM -20 dBm TO +5,5 dBm
- E&M SIGNALING	TYPE I, II, III, IV AND V
SPEECH LOW-PASS FILTER CUT-OFF FREQUENCY	2k0, 2k2, 2k4, 3k4

DATA TRANSMISSION

MODEM FSK	
- TRANSMISSION SPEED	50 Bd - 1200 Bd
- TRANSMISSION MODE	ASYNCHRONOUS

MONITORING AND CONTROL

PEGASUS - GUI BASED PC SOFTWARE FOR SUPERVISION AND CONFIGURATION OVER RS232 OR LAN INTERFACE	
SNMP TRAPS FOR ET9 EQUIPMENT REMOTE CONTROL	
LED INDICATORS ON ET9 FRONT PANEL	
RELAY ALARM OUTPUTS	
FULL ACCESS TO REMOTE ET9 EQUIPMENT OVER EMBEDDED OPERATIONAL CHANNEL (EOC)	
STANDARDS	IEC 60495:1993; IEC 60950-1 (LVD); RoHS COMPLIANT
AMBIENT CONDITIONS	
- STORAGE (TEMPERATURE/HUMIDITY)	-40 °C TO +70 °C / ≤ 100 %
- OPERATION (TEMPERATURE/HUMIDITY)	-5 °C TO +45 °C / ≤ 95 %

POWER SUPPLY

POWER SUPPLY	DC (40 V - 264 V), AC (82 V - 264 V)
MAX. POWER CONSUMPTION	
- EQUIPMENT CONFIGURATION ET9-60W	280 W
- EQUIPMENT CONFIGURATION ET9-120W	470 W

MECHANICAL CONSTRUCTION

EQUIPMENT CONFIGURATION	DIMENSIONS (WxHxD)	Weight (kg)
- ET9-60W; 19" / 7U + 1 U	482.6 mm x 354 mm x 332 mm	14
- ET9-120W; 19" / 11U + 1 U	482.6 mm x 534 mm x 332 mm	23



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