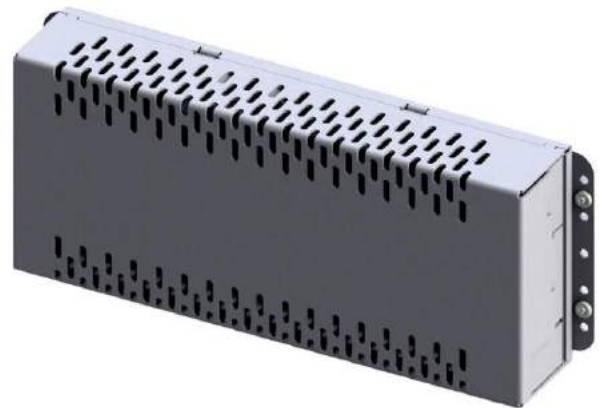VIDI+ System Controller
VIDI+ I/O System Controller
UIF User interface display

VIDI Auxiliary Controllers:
VIDI-BM Battery block Monitoring
VIDI-LVD Low Voltage Disconnector
VIDI-SAM Serial Adapter Module

IEC61850 SCADA Converter

UTILITY   RAIL   INDUSTRIAL   TELECOM

Product Description

VIDI Controller Platform is powerful tool to set ideal parameters and monitoring architecture for OPUS backup power systems. True redundancy principle applies also for the controller, which means that controller can be changed or updated without any power break in the system.

Controller has intelligent and easy to use local interface and web access to monitor the system behaviour and plan the controlled maintenance process during the expected 15-20 year life time of the power system. System has diagnostics for the battery health and expected battery life time, which typically defines the timing for the modernization investment.

On top of default power system features included in main VIDI, additional features can be added by auxiliary VIDI controllers. Such aux controllers are VIDI-BM battery block voltage monitoring, VIDI-LVD additional LVD driver, VIDI-SAM inverter controller and IEC61850 converter for SCADA networks.

Features

- Universal controller for all 24 VDC to 220 VDC OPUS DC Power Systems
- Compatibility with Enedo DAC60000 inverter family
- Modular structure for optimal performance and system redundancy
- User friendly local UIF and remote web interface
- Comprehensive features and parameter settings
- 12 x configurable relay alarms
  Ethernet TCP/IP, Modbus TCP/IP, RS-232, IEC61850 SCADA, SNMP
- Large event log file with real time clock time stamps
- EMC:
  Generic EN 61000-6-1 / -2 / -4
- Safety:
  EN/IEC 60950-1

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Technical Specifications VIDI & UIF

Electrical, mechanical	VIDI+, VIDI+ I/O
Input voltage range	18 – 280 VDC
Input power	<10W (excluding LVD contactor current)
Protections	Internal input fuse 2-pole F5A, input polarity protection diode
Mechanical data	IP 20, Dimensions (L x H x W): 218 x 41 x 88 mm, Weight : 400 g

Communication Ports	VIDI+, VIDI+ I/O
LAN	10/100 Ethernet, RJ-45 connector
Serial communication	RS-232, 9600-115200 kbps

Monitoring and Control, Local	UIF
Local Display	128 x 64 Graphical LCD with Backlight
Local Operation	Dial button, Info button and cancel button
Local LED indication	3 color system Status LED
Info	Dedicated button to open info text
Default view	Charge mode, system voltage, number of active alarms
Languages	Factory defaults: English, Finnish, Russian Custom packages: German, French, Spanish, Dutch, Czech Republic

Monitoring and Control, Remote	VIDI+, VIDI+ I/O
Remote PC connection	Connect via LAN
Local PC connection	LAN port or serial port RS-232
Alarms	Configurable relays, E-mail, SNMP traps
Remote user interface	Web interface, 4 access levels
Remote terminal	Text mode interface over Telnet/SSH
Supported Protocols	HTTP, HTTPS, Telnet, SSH, SMTP, SNMPv2, SNMPv3 NTP, DHCP, Modbus TCP/IP, IEC61850 SCADA via adapter
Languages	Factory defaults: English, Finnish. Russian Custom packages: German, French, Spanish, Dutch, Czech Republic

System Features	VIDI+, VIDI+ I/O
Measurements	System Output Voltage and current Battery current, measured from 60mV shunt Load current, calculated Rectifier AC input voltage Rectifier DC output voltage and current Inverter DC input and AC output voltages and currents Bypass input and output values Temperatures: system, battery, rectifiers, inverters
Functions	CAN-bus to rectifiers (CAN1) and system modules (CAN2) Energy Save Mode, with MHE rectifiers Alarm configuration, Alarm Matrix System parameters upload and download in XML format Real Time Clock with Battery Backup Plug-and-Play Support, Automatic Module Configuration Inventory Management for Installed Modules
Battery or load LVD	1 x Contactor Coil Driver + Aux contact (more LVDs with VIDI-LVD)
Max quantity of modules per system	40 x MRC/MHE, 1 x UIF, 16 x VIDI-BM, 8 x VIDI-LVD, 1 x VIDI-SAM Total max 48
Log data	512 last alarms, 100 last events, 12 monts Batt.Temp and system power log

	VIDI+,	VIDI+ I/O
Alarm Relays, contacts 60V/0.5A	4 pcs	12 pcs
Alarm/Temperature Inputs	4 pcs	12 pcs
Earth fault detection	0 pcs	1 pcs

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Battery Management features	VIDI+, VIDI+ I/O
Battery tests & battery monitoring	Manual battery test, Periodic battery test Natural battery tests, starts on mains fault Battery test by remote input Battery connection quick test Battery Life Time analysis and alarm Battery block voltage measurement (VIDI-BM)
Charge modes	Float charge Manual boost charge Periodic boost charge Automatic boost charge Temperature compensation in all charge modes
Functions	Charge current limiting Discharged Ah-counter Time window for battery tests

Alarms

Example of Alarm Configuration in Alarm Matrix, full freedom for 12 relays (e.g. urgent / non-urgent alarms)

Alarm	Enabled	Delay	Relay 1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12
System Over Temperature	x	10s	x											
Low System Voltage	x	1s	x											
High System Voltage	x	1s	x											
Low System Voltage Warning	x	10s	x											
High System Voltage Warning	x	10s	x											
Mains Fault	x	3s		x										
Earth Fault	x	10s		x										
Rectifier Fault	x	1s	x											
Inverter Fault	x	10s	x											
Bypass Fault	x	10s	x											
Battery test fault	x	1s			x									
Battery asymmetry	x	10s			x									
Battery lifetime warning	x	10s			x									
Battery fuse fault	x	10s	x											
Load fuse fault	x	10s	x											
External Alarm Group 1-4		10s												
...														
Totally +40 alarms														

Applicable Standards	VIDI+, VIDI+ I/O
EMC	Emissions: EN/IEC 61000-6-4 Immunity: EN/IEC61000-6-2 Harmonic currents: EN / IEC 61000-3-2 Voltage fluctuations & flicker: EN / IEC 61000-3-3 * Measured as a part of Opus C-series rack system
Environment	Operation: ETS 300 019-2-3 cl T3.2 Storage: ETS 300 019-2-1 cl T1.2
Safety	EN/IEC 60950-1
Approvals	CE CB, Tested as a part of Opus C-series rack system
Quality	Manufacture and design conform to ISO 9001, ISO 14001

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Technical Specifications VIDI-BM Battery Monitoring Module

Electrical	VIDI-BM
Power Input voltage range	18 – 280 VDC
Communication	PowerCAN connection to VIDI+ Controller
Block Voltage Measurement	Inputs: 4 pcs 12V nominal, Accuracy < 20mV, polarity protection
System voltage measurement range	0 – 280 VDC
Current Sense	1 pc shunt voltage measurement, 60 mV
Alarm inputs	2 pcs configurable alarm/temperature inputs
Status indication	LED Green/Red
Mechanical data	IP20, Dimensions (H xW x D) : 75 x 160 x 27 mm, Weight : 320 g

Technical Specifications VIDI-LVD Low Voltage Disconnect Module

Electrical	VIDI-LVD
Power Input voltage range	18 – 280 VDC
Communication	PowerCAN connection to VIDI+ Controller
Coil Contact Driver	Maximum allowed continuous coil current: 2A
Coil Driver output voltage	System voltage
Aux contact for contactor	Indication of the actual core position of the latched contactor
System voltage measurement range	0 – 280 VDC
Current Sense	1 pc shunt voltage measurement, 60 mV
Alarm inputs	2 pcs configurable alarm/temperature inputs
Status indication	LED Green/Red
Mechanical data	IP20, Dimensions (H xW x D) : 75 x 160 x 27 mm, Weight : 320 g

Technical Specifications VIDI-SAM Serial Adapter Module for inverters

Electrical	VIDI-SAM
Power Input voltage range	18 – 280 VDC
Communication	PowerCAN connection to VIDI+ Controller
Auxiliary communications	RS-232, RS-485, CAN
System voltage measurement range	0 – 280 VDC
Current Sense	1 pc shunt voltage measurement
Alarm inputs	2 pcs configurable alarm/temperature inputs
Mechanical data	IP20, Dimensions (H xW x D) : 75 x 160 x 27 mm, Weight : 320 g

Technical Specifications IEC61850 SCADA converter

Electrical	IEC61850 SCADA converter
Power Input voltage range	18 – 31 VDC
Communication internal	LAN connection to VIDI+ Controller
Communication external	LAN port, IEC61850 protocol
Mechanical data	IP20, Dimensions H 71,9mm x W 78,6mm x D 100mm, Weight: 231g

Technical Specifications, common

Environmental	VIDI+, VIDI+ I/O, VIDI-BM, VIDI-LVD, VIDI-SAM
Cooling	Natural convection
Acoustic noise	< 40 dB
Operating temperature	-20 / +50°C
Storage temperature	-40 / +70 °C
Humidity	95 % (relative humidity, non-condensing)
Altitude (max)	2000 m above sea level

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Order Information

System controller kits	
Description	Order number
VIDI+ System controller unit	94G900
VIDI+ controller kit. Includes system controller module and cable set	8320X0004311
VIDI+ I/O System controller unit	94G910
VIDI+ I/O controller kit. Includes system controller module and cable set	8320X0004312
Auxiliary controller kits	
Description	Order number
VIDI BM kit. Includes Battery monitoring module and cable set	9040X0002338
VIDI LVD kit. Includes Low Voltage Disconnector controller module and cable set.	8320X0003275
VIDI SAM kit. Includes serial adapter module and cable set. Used with OPUS EIM and DUAL inverters.	8320X0004402
IEC61850 SCADA converter	8320X0015545

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