G

COMMUNICATION

POLAR MONITORING

Remote monitoring solutions

Comprehensive Cloud Solution for remotely monitoring field devices from anywhere. Compatible with a multitude of brands, sensors and applications, allowing management of all systems from one location.

View the latest device compatibility list by scanning the QR Code:

Scan here to learn more

General features:
- Remote programming, monitoring, trending
- Alerts and notifications *(SMS and email)*
- Error codes and reporting
- Multiple user access rights
- Device agnostic *(Supports multiple types of devices and applications in one platform)*

Polar Gateways are installed onto compatible RS-485 devices or sensors in the field to connect to the Cloud platform. Each gateway includes:

- Three month trial *(limited)* subscription
- Plug and Play connection to Polar's Cloud
- The Gateways come in two variations depending on required Internet connectivity

new

PM-GW-LTE

type	supply voltage	network connection	connector type	description	price
LTE Gateway			DIN mounting rail	**IP40**	

LTE Gateways use the GSM network to connect to the Cloud. Gateways have a pre-installed SIM Card, managed by Polar Monitoring.

- SIM: Pre-installed, no airtime/data required *(managed by Polar Monitoring)*
- Antenna Includes standard antenna (PM-A-2)

type	supply voltage	network connection	connector type	description	price
PM-GW-LTE	9-36 VDC	2G/LTE	terminal	LTE - Gateway *(within South Africa)*	**3 235.69**
PM-GW-LTE-G	9-36 VDC	2G/LTE	terminal	LTE - Gateway *(outside South Africa)*	**3 235.69**
Ethernet Gateway			DIN mounting rail	**IP40**	

The Ethernet Gateway requires an existing on site internet connection. It connects directly into an existing IP network via DHCP.

- DHCP client connects through firewall
- No VPN or port forwarding required

type	supply voltage	network connection	connector type	description	price
PM-GW-ETH	9-36 VDC	Ethernet	terminal	Ethernet - Gateway	**1 763.09**
Industrial fieldbus solution			DIN mounting rail	**IP40**	

PM-MB4442

type	supply voltage	inputs (DI)	outputs (D0)	inputs (AI)	pulse counter	price

The MB4442 takes 4-20mA, pulse count data, digital inputs and outputs and converts it to RS-485 which is then configured by the Polar Gateway. Permitting non RS-485 sensors in the field to be monitored by the Polar Cloud.

type	supply voltage	inputs (DI)	outputs (D0)	inputs (AI)	pulse counter	price
PM-MB4442	12-24 VDC	4	4	4 *(4-20mA)*	2	**3 235.69**

POLAR CLOUD

Polar Cloud Portal

Polar Portal - Licence Fee *(access via smartphone, tablet or PC)*

Software licence fees cover access and usage of the Cloud Portal as well as getting the data to the cloud. Pricing is per active Gateway in the field and includes all aspects of the Polar Cloud including SIM card management, data logging, SMS and email notifications.

type				description	price
PL-Y-STD	Cloud Portal		annual license subscription *(up front, net price, no discount applicable)*		**3 230.09**

Accessories *for above*

Antennas

type	gain	mounting	cable length	description	price
PM-A-2	2.5db	magnetic	2m	magnetic base antenna cable	**483.40**
PM-A-24	4db	bracket	5m	omni directional outdoor ant. cable	**1 120.44**
PM-A-28	8db	bracket	5m	omni directional outdoor ant. cable	**2 081.61**
PM-A-32	3db	p/mount	1m	vandal resistant ant. cable	**560.78**

Communication cables

type				description	price
PM-CAB-RS-2	RS-485		2m	shielded communication cable	**104.31**
PM-CAB-RS-5	RS-485		5m	shielded communication cable	**183.94**
PM-CAB-RS-10	RS-485		10m	shielded communication cable	**431.81**
PM-CAB-D-2	RJ-45 - RS-485		2m	comm. cable for Delta VFDs	**104.31**
PM-CAB-D-5	RJ-45 - RS-485		5m	comm. cable for Delta VFDs	**183.94**
PM-CAB-D-10	RJ-45 - RS-485		10m	comm. cable for Delta VFDs	**431.81**

PM-A-2

Above ZAR prices do not include VAT. E&OE

Smart Solutions that Monitor
What Matters Most

www.polarmonitoring.com

Remote monitoring systems that enable devices in the field to be securely viewed from anywhere via the cloud. The portal brings together a multitude of applications, brands and sensors into one, easy-to-use system, allowing you to manage your production, maintenance, and cost savings, all from the comfort of your workplace.

How the system can be used?

Water: Boreholes, irrigation systems, pumps, water levels, pressure and water quality
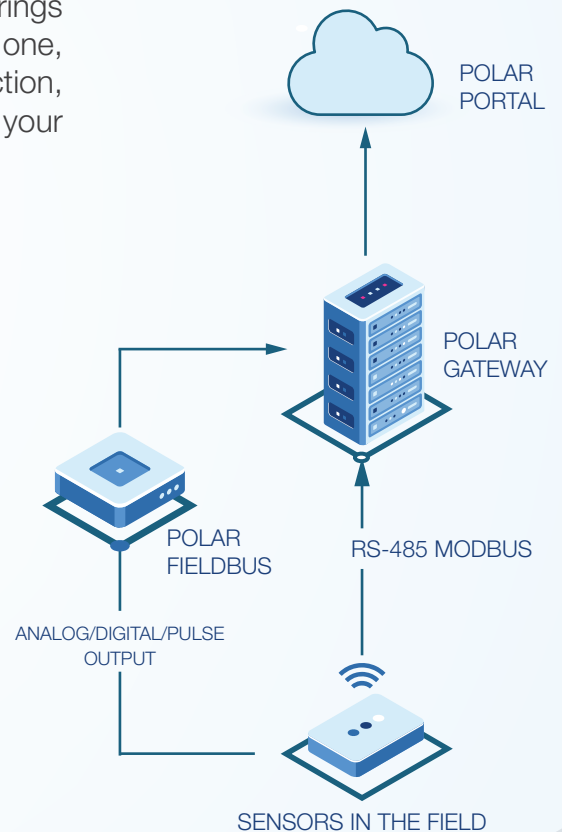
Generic Modbus: Devices with RS-485 communication can be setup and monitored on the cloud

Variable Speed Drives: Solar VSDs, Irrigation VSDs

Power monitoring: Electricity meters, power factor correction systems, generator controllers, multi-meters

POLAR PORTAL

POLAR GATEWAY

POLAR FIELDBUS

ANALOG/DIGITAL/PULSE OUTPUT

RS-485 MODBUS

SENSORS IN THE FIELD

Scan here to learn more

POLAR MONITORING

DVS series - Unmanaged Industrial Ethernet switches

DVS series industrial 5, 8 and 16-port Ethernet switches support IEEE 802.3/802.3u/802.3x with 10/100M, full/half-duplex, MDI/MDIX auto-sensing RJ45 ports. Specifically designed for harsh and hazardous industrial environments.

- RJ45 connector   10/100Base-T, auto MDI/MDI-X, auto negotiation
- Std compliance: IEEE 802.3 10Base-T, 802.3u 100Base-T(X) and 100Base-FX, 802.3x flow control
- Housing: Industrial DIN-rail mounting, IP40 aluminium metal case

type	No. Ports	operating temperature	alarm contact	fibre type	description	price
Entry level Ethernet switches					*(H) 145.3 x (W) 45 x (D) 108.7 mm*	
• Input voltage: 12 to 48 VDC						
• Dimensions: **DVS-G...** - *(H) 110x (W) 28 x (D) 75 mm*						
DVS-G005I00C∗	5	-20...+70ºC	–	–	compact Gigabit Ethernet switch	**2 864.56**
DVS-005I00	5	-10...+60ºC	–	–	entry level Ethernet switch	**1 718.16**
DVS-008I00	8	-10...+60ºC	–	–	entry level Ethernet switch	**2 557.34**
DVS-005W01∗	5	-40...+75ºC	yes	–	standard Ethernet switch	**3 876.21**
∗ *Redundant dual inputs.*						
Standard Ethernet switches					*(H) 145.3 x (W) 75 x (D) 108.7 mm*	
• Supports IEEE 802.1p based QoS for packet forwarding precedence						
• Input Voltage: 2 sets, 12 to 48 VDC redundant terminal block input						
DVS-008W01	8	-40...+75ºC	yes	–	standard Ethernet switch	**5 502.30**
DVS-016W01	16	-40...+75ºC	yes	–	standard Ethernet switch	**9 366.50**
Fibre series Ethernet switches						
• Fibre Optic Ports: 1 100Base-FX *(SC connector)* MultiMode – 5 km						
DVS-008W01-MC01	8	-40...+75ºC	yes	1 x SC	Ethernet switch with fibre port	**9 184.09**
DVS-016W01-MC01	16	-40...+75ºC	yes	1 x SC	Ethernet switch with fibre port	**12 168.64**
• Fibre Optic Ports: 1 100Base-FX *(SC connector)* SingleMode – 30 km						
DVS-008W01-SC01	8	-40...+75ºC	yes	1 x SC	Ethernet switch with fibre port	**10 174.14**
DVS-016W01-SC01	16	-40...+75ºC	yes	1 x SC	Ethernet switch with fibre port	**13 764.73**
Gigabit Ethernet switches					*(H) 145.3 x (W) 45 x (D) 108.7 mm*	
• 10/100/1000Base-T, auto MDI/MDI-X, auto negotiation • 10Gbps, Wired speed						
• Input voltage: 12 to 48 VDC *(1 set)*						
DVS-G005I00A	5	-40...+75ºC	–	–	Gigabit Ethernet switch	**4 511.05**
PoE Gigabit Ethernet switches					*(H) 144.3 x (W) 26.1 x (D) 94.9 mm*	
• 10/100/1000Base-T PoE(PSE) ports. 2 x 100/1000Base-SFP (only DVS-G406W01-2-GF)						
• Based on IEEE 802.3at standard up to 30Watts per port. Backward compatible with IEEE 802.3af						
• 48 to 57 VDC redundant terminal block power input						
DVS-G406W01-2GF	6	-40...+70ºC	yes	2 x SFP	PoE Gigabit Ethernet switch	**11 014.19**
DVS-G408W01	8	-40...+70ºC	yes	–	PoE Gigabit Ethernet switch	**11 476.21**
Managed Ethernet switches					*(H) 145.3 x (W) 75 x (D) 109 mm*	

High-end Layer 2 management, redundant self-healing ring and a wide-operating temperature.

- Supports EtherNet/IP and Modbus TCP protocols for remote management by SCADA etc.
- IEEE 802.1X, TACACS+, SSH, HTTPS and SNMP v3 for enhanced network security
- Compatible with most industrial protocols, including EtherNet/IP, Profinet, EtherCAT, CC-LINK IE, DNP 3.0
- RJ45 ports: 10/100/1000Base-T, auto MDI/MDI-X, auto negotiation
- SFP Ports: 100/1000Base-SFP (2x DVP108, 3x DVP110)

type	No. Ports	operating temperature	alarm contact	fibre type	description	price
DVS-108W02-2SFP	6	-40...+75ºC	yes	2 x SFP	managed Ethernet switch	**18 828.99**
DVS-110W02-3SFP	7	-40...+75ºC	yes	3 x SFP	managed Ethernet switch	**22 561.18**

1-port Gigabit Ethernet SFP fibre transceiver

type	operating temperature	interface			price
		connectors	fibre type	max. link distance	
LCP-1250A4FDRJ	-5ºC...70ºC	duplex LC	multi mode	550 m	**1 976.51**

DVS-005I00

DVS-016W01

DVS-G406W01-2GF

DVS-110W02-3SFP

DVW-W02W2-E2

DX-2300LN-WW

new

DX-3021L9

IFD9507

IFD8500

IFD6500

Communication devices

type	No. Ports	operating temperature	description	price

Wireless AP/WDS/Client/Gateway   *(Industrial IEEE 802.11 a/b/g/n)*

The EEE 802.11n with better data rates by Multiple-input and Multiple-output (MIMO) technology. Supporting bandwidths from 20 MHz to 40 MHz doubling the speed of transmission performance.
- Compliant with IEEE 802.11n wireless technology capable of up to 450Mbps data rate
- Multiple Wireless modes: AP, Client CPE, WDS P-T-P, WDS P-T-MP, Repeater
- Supports 2 x ports RS-232/422/485-to-Ethernet Device Server
- Built-in 2 x ports Modbus ASCII/RTU to Modbus TCP Gateway
- Built-in 20MB buffer memory to avoid data loss when connection is down
- SNTP *(simple network time protocol)* for network clock synchronisation
- Antennas: 3 x 2dBi omni-directional, RP-SMA*(male)* connector

type	No. Ports	operating temperature	description	price
DVW-W02W2-E2	2	-40...+75ºC	wireless AP/WDS/Client/Gateway	**15 252.80**

DX-series - Industrial cloud solutions   *(Industrial DIN-rail and wall mounting)*

- Data acquisition equipment connected to cloud servers.
- Supports a two-way data collection channel between the device and the cloud
- Various peripheral interfaces include RS-485, RS-232 and LAN ports
- Built-in RTC and supports NTP time synchronisation over a network
- Supports TCP/IP, UDP, ICMP, DHCP, HTTP, DNS, SSH, TCP and Modbus RTU protocols

Industrial Ethernet cloud router   *(4-Port LAN FE + 1-Port WAN FE + 1 RS-232 + 1 R-S485)*

Wired industrial router with multiple application interfaces, including Ethernet, RS-232 and RS-485 serial interfaces. For mobile network interconnection, industrial automation, video surveillance. Safe, reliable data transmission, remote management/configuration, maintenance can be realised.
- Flexible connection method over WAN ports, e.g. static IP, DHCP client and more
- Customisable SMS alarm functions
- SD card for data backup and quick installation

type	No. Ports	operating temperature	description	price
DX-2300LN-WW	5	-20...+70ºC	cloud based Industrial VPN router	**7 051.58**

Industrial 3G cloud router   *(1-Port FE + 1-Port RS-232 + 1-Port RS-485)*
- UMTS/HSPA+ 3G technology, supports a wide range of bands
  - Downward compatible with GSM / GPRS / EDGE 2G network

type	No. Ports	operating temperature	description	price
DX-2100RW-WW	1	-20...+70ºC	cloud based Industrial 3G router	**12 219.40**

Industrial 3/4G/WAN   *(1-Port FE + 1-Port RS-232 + 1-Port RS-485)*

As above but with following additions:
- Dual redundancy design : seamless switch between two 3/4G/VPN for continuous online

type	No. Ports	operating temperature	description	price
DX-3001H9	5	-20...+70ºC	cloud based industrial 3G/WAN router	**14 099.45**
DX-3021L9	5	-20...+70ºC	cloud based industrial 4G/WAN router	**19 417.03**

Industrial Fieldbus solution

Industrial automation applications for converting communication signals of automation, servo and control devices. IFD communication modules are robust, high quality devices offering stable communication with in-built protection.

Excellent signal processing and isolation properties ensure correct, reliable data transmission.

type	from	to	description	price

Ethernet to serial Modbus RS-232/485 converters *(full isolation)*

type	from	to	description	price
IFD9506	RS-232/485	Modbus TCP	converter *(inc. power supply)*	**4 716.26**
IFD9507	RS-232/485	EtherNet/IP	Modbus converter *(inc. power supply)*	**4 205.10**

Note: *To configure IFD devices you need to install DCISoft*

Serial to serial communication converters

type	from	to	description	price
IFD6500	USB	RS-485	converter *(no ext. power supply required)*	**1 448.49**
IFD6530	USB	RS-485	with 9V power supply *(115.2k bps Max.)*	**2 427.74**
IFD8500	RS-232	RS-422/485	RS-232 isolated converter	**1 518.09**
IFD8520	RS-232	RS-422/485	isolated *(addressable)* converter	**2 002.92**
IFD8510	RS-485		isolated repeater/amplifier *(extends transmission to 1.2 km)*	**1 749.70**

Note: IFD65xx requires special driver to work with Windows OS, available on Delta website.

CAN / DeviceNet to serial converters

type	from	to	description	price
IFD6503	USB	CAN	CAN to serial converter	**6 303.93**
IFD9502	RS-232/485	DeviceNet	DeviceNet to serial converter	**3 876.21**
IFD9503	RS-232/485	CANopen	CANopen to serial converter	**3 052.97**

Communication

Klemsan®

Ethernet gateways

An Ethernet gateway converts data between different protocols ensuring consistent flow of information. **ETOR, WTOR** provide fast *(up to 115Kbps)* data transmission for serial devices.

- First class quality to fulfil all communication requirements with quick view of status via frontal LED's
- Bidirectional protocol converting with client and server mode
- Converting between Modbus TCP and Modbus RTU/ASCII
- Automatic or manual IP addressing and Ping blocking
- Line protection by galvanic isolation
- Compact modular *(H) 90.4 x (W) 17.5 x (D) 66.5 mm (same dimensions as single pole MCB)*

type	supply voltage	serial standard	connector type	No. Serial devices server	client	description	price
ETOR	**Ethernet / Serial Gateway**						

- Converts between Modbus and Ethernet protocols to permit user to control and monitor:
  - a) Serial devices in a plant over Internet or local area network in server mode
  - b) Devices which support Ethernet-based protocols, over the serial interface in client mode
- Mini USB port or WEB interface configuration
- Dual supply option: 18 - 50 VAC/DC or can be powered up through a mini USB cable

type	supply voltage	serial standard	connector type	No. Serial devices server	client	description	price
ETOR-4	**Ethernet gateway** (TCP/IP - RS-485)						
601400	18 - 50 VAC/DC	RS-485	RJ45	64	1	Ethernet - Serial Gateway	**5 789.11**
ETOR-2	**Ethernet gateway** *(TCP/IP - RS-232)*						
601401	18 - 50 VAC/DC	RS-232	RJ45	1	1	Ethernet - Serial Gateway	**7 526.80**
WTOR	**Wi-Fi to RS-485 Gateway**						

WTOR series products connect to serial Modbus devices with TCP/IP based systems to remotely control and monitor devices connected to the Modbus network via a WI-FI service and can be easily integrated into existing Modbus networks due to their wide range of configuration options.
WTOR series products works as a TCP/IP server.

- Point or station mode
- Operating with access
- Configuring via web interface

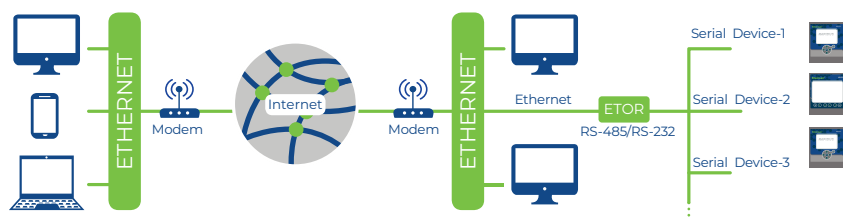| type	supply voltage	serial standard	connector type	No. Serial devices server	client	description	price
601450	11 - 30 VDC	RS-485	RS-485	64	1	WI-FI - RS-485 Gateway	**7 167.98**
UTOR	**Converters - USB to RS-485, RS-232 and TTL**						

UTOR is powered from the USB port without external power supply requirements, they incorporate an isolation barrier providing electrical isolation between the PC and serial devices.

- Removable terminal block with screw connection
- Baudrate: 300 ... 115200 bps
- Connector: USB type A

type	supply voltage	serial standard	USB	converter from	to	description	price
601430	USB port	RS-485	1.1 + 2.0	RS-485	USB	USB/RS-485 converter	**1 929.71**
601431	USB port	RS-232	1.1 + 2.1	RS-232	USB	USB/RS-232 converter	**1 654.89**
601432	USB port	TTL(5V)	1.1 + 2.2	TTL(5V)	USB	USB/TTL (5V) converter	**1 875.71**
601433	USB port	TTL(3V)	1.1 + 2.3	TTL(3V)	USB	USB/TTL (3V) converter	**1 765.30**

General operating principle of server mode (ETOR series)

ETOR converts between Modbus and Ethernet protocols and allow user to control and monitor serial devices over the Internet or local area network with server mode.

Synergy is a supervision and energy management web-based software that provides the monitoring and control of the electrical installation. In addition to electrical quantities, it allows to check all environmental and process information *(operating status, alarms, etc.),* acquired from LOVATO Electric products, equipped with communication port.

Key software features:
- Structure and applications based on MS SQL relational database management system
- Server with Multi Client capability
- Client view through web-browsers, compatible with various platforms and operating systems.
- Communication with all LOVATO Electric measurement and control devices,via serial ports, Ethernet or modem
- Automatic reports of consumption periods *(e.g. time bands)* in both analytical and graphic format
- Energy consumption reports, Graphic display of trends, Database of instantaneous values
- Alarm management, both locally and via e-mail
- Access level management of users

type	description	price
Synergy customer server hosted software		
SYN2 SET	Licence for single host server install, includes 1 device licence	66 183.46
SYN2 SLL	Licence for single LOVATO Electric device via Modbus-RTU	2 943.76
SYN2 SLX	Licence for single 3rd party device via Modbus-RTU	6 605.15
SYN2 SDLWS	Licence for WEB API to access Synergy SQL database	27 157.43
SYN2 SLM	Licence *(annual)* for single device to access software updates	589.24
Synergy Cloud hosted software		

Synergy Cloud solution is specifically designed to make the software functions described previously available and accessible via PC or tablet on the LovatoElectric.com Internet portal.

With Synergy Cloud, it is possible to collect and view production and consumption data with the management software without installing software and without a physical server. This saves on server purchasing,configuration and maintenance costs.

Key software features:
- Specific design for client requirements *(selection of measurement scenarios)*
- Low data traffic thanks to the extreme economy of the protocol used (Modbus)
- Instantaneous data acquisition from various devices that can even be located in different sites
- Simple and clear reporting of all energy data
- Limited subscription cost, yearly renewal required

type	description	price
SYN2 CLL	Cloud Licence for single LOVATO Electric device	2 126.52
Synergy compatible hardware		

Hardware expansion modules to enable Lovato product to communicate to **Synergy** or **Synergy cloud**

Compatible on DMG*6XX/7500/8000/9000,* **RGK***610/750/800/900,* **ATL***610/800/900,* **DCRG8x**

type	description	price
EXP1012	opto-isolated RS-485 interface	1 532.49
EXP1013	opto-isolated Ethernet interface *(only for DMG8000/9000)*	3 577.39
EXP1015	GPRS/GSM modem without antenna *(only for DMG8000/9000)*	6 470.75
CX03	GSM Quad-band antenna for **EXP1015** modem *(800/900/1800/1900MHz)*	1 189.27

Compatible on DMED310T2, DMG300

type	description	price
EXM1012	opto-isolated RS-485 interface	2 738.56
EXM1013	opto-isolated Ethernet interface with Web server function	4 598.65
EXM1020	opto-isolated RS-485 interface and 2 relay outputs (5A 250 VAC)	4 076.63
Synergy data logger		

EXC GL A01 gateway is able to collect data from devices which are connected through Ethernet or RS-485 port. Modbus RTU, ASCII and TCP protocols are supported.

The data can be reviewed by a connection to Synergy Cloud service or to Ethernet local web server and a browser. Access to Internet for data sending can be achieved with Ethernet port or by adding **EXC GL AX1** 2G/3G modem.

General features:
– 2 Ethernet port
– CPU ARM 1 GHz, with local memory
– 1 RS-232 / RS-422/RS-485 serial port
– 24 VDC (10…32 VDC) power supply
– Operating temperature -20…+60°C
– Simplified connection to Lovato Electric devices, up to 32 devices

type	description	price
EXC GL A01	Gateway data logger for data collecting via Modbus from the devices in the field	22 609.19

EXP...

EXC GL A01

Communication