

## Power Supply Products

# ModBUS-TCP Digital Interface Option Added to the New and Advanced Programmable DC Power Supply Series

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TDK Corporation announces the introduction of the optional **Modbus-TCP** Digital Communication Interface to the highly popular **GENESYS™** Programmable DC Power Supply Series.

Adding to the already released optional **IEEE** (488.2 & SCPI compliant) Digital Communication Interface, and the **three** built-in standard Digital interfaces (**LAN (LXI 1.5)**, **USB (2.0)** and **RS-232/RS-485**), the **Modbus-TCP** Interface is well-suited for Industrial Ethernet applications and allows the user to remotely program, measure and check status of the Power Supply by sending Modbus information using a TCP/IP protocol over a **Modbus-TCP** network.

With the **GENESYS™ Modbus-TCP** Interface installed there are altogether six different Power Supply operating modes available to the user. Those operating modes are via the **Modbus-TCP** Interface, the **LAN** Interface, the **RS-232/RS-485** Interface, the **USB** Interface, the **Remote Isolated Analog** Interface or the **Front Panel (Local)** Interface. When either the **Remote Isolated Analog** Interface or the **Front Panel (Local)** Interface is active the **Modbus-TCP** Interface is still allowed to monitor the Power Supply functionality.

Using the Advanced Front Panel Display, the user can view the IP and MAC address, can set a complete IP Address, can perform a **Modbus-TCP** reset and can identify Remote operation by viewing a blinking **REM** indicator.

The rear panel offers a 2-port **Modbus-TCP** Interface which has two shielded Ethernet RJ-45 connectors and allows the connection of multiple **Modbus-TCP** power supplies in a daisy-chain without a network switch, with each Power Supply receiving its own IP address. Network status, Module status and Link/Activity indicators (LED's) are provided to identify the Interface operation conditions.

An RS-485 Multi-Drop feature is also available which allows connection of up to 31 Power Supplies with a simple link cable using one Modbus-TCP IP address (shared by all RS-485 Power Supplies).

The **GENESYS™ Modbus-TCP** Interface has the ability to communicate over any standard TCP/IP network including LAN (Local Area Network) and WAN (Wide Area Network), with PING server also being supported, and has a built-in webpage which allows the user to read and configure/modify the Ethernet configuration parameters, view Modbus-TCP statistics and verify communication with the Power Supply.

Also available are full remote Program/Monitor functions that are compatible with **Modbus-TCP** Test & Measurement utilities using the **Modbus-TCP** command language. Programming using TCP sockets, which support PLC's, Linux and other non-VISA controllers, is supported with multiple and simultaneous socket (up to four) connections allowed by port 502.

For a view of the **GENESYS™** **Modbus-TCP** Interface specifications, please go to the website ([https://us.tdk-lambda.com/hp/product\\_html/genplus1u1\\_7.htm](https://us.tdk-lambda.com/hp/product_html/genplus1u1_7.htm)) and download a copy of the **Modbus-TCP** User's Manual.

## Major Applications

- Industrial Ethernet environments

## Major Specifications

Modbus-TCP Features	Description
Electrical	<b>Ethernet:</b> meets IEEE 802.3u <b>Auto-MDIX:</b> accepts straight "patch" or "crossover" cable <b>Auto-Negotiate:</b> selects 10Base-T or 100Base-T (Half or Full-Duplex)
Network Types	Network with DHCP Server, Peer-to-Peer Network
Network Configuration	<b>MAC Address:</b> Modbus-TCP has unique MAC Address <b>IP Address:</b> Static IP, DHCP, Auto-IP <b>Address Resolution:</b> ARP Protocol; <b>Hostname:</b> DNS protocol <b>Subnet Mask/Default Gateway Address:</b> set by DHCP or Static <b>DNS Server:</b> set by DHCP; <b>PING Server:</b> verify connection
Communication	Over TCP/IP network (LAN, WAN, PING server) with TCP socket timeout.
Modbus-TCP Protocols	TCP (Modbus TCP packets follow TCP); IPv4
Commands	Modbus-TCP (Modbus TCP packets follow TCP)
Controllers	Multiple client (up to four concurrent webpages or four TCP socket channels)
Webpage	View and set LAN configuration Multiple webpages (up to four) can be open
Configurations	Front Panel (Local), Modbus-TCP, LAN, USB, RS-232/RS-485, or Remote Isolated Analog
Front Panel Capabilities	View/Set IP Address, View MAC Address, Modbus-TCP Interface reset, blinking indicator (for Remote mode)
Rear Panel Capabilities	Dual shielded RJ-45connector, Network Status LED's, Module Status LED's, Link & Activity LED
Power Supply Specs	Power Supply ratings and accuracies are the same as for Digital Remote Program/Monitor using the LAN, USB or RS-232/RS-485
Compliance	Same conformances as a standard <b>GENESYS™</b> Power Supply (UL, IEC, TUV, CE Mark, RoHS, etc.)

## About The **GENESYS™** Programmable DC Power Supply Series

Currently offered in *1U Full-Rack 1.7kW, 2.7kW and 5kW*, *2U Full-Rack 10kW* and *3U Full-Rack 15kW* the **GENESYS™** Series has advanced performance and functionality well suited for Design, Test and Measurement within the Laboratory/R&D environment and addresses broad market segments including Automotive, Aerospace, Semiconductor, Industrial and Renewable/Alternative Energy.

All platforms offer Output voltages from 10V to 600V with different AC input options that have built-in Active Power Factor Correction (0.99 typical for single-phase and 0.94 typical for three-phase) with high conversion efficiencies (up to 90.5%) and cooling fan speed control (for reduced audible noise and extended life).

Advanced features and functions include an *Arbitrary Waveform Generator* (with Auto-Trigger capability), programmable *Slew-Rate Control* ( $V_{out}/I_{out}$ ), *Internal Resistance Simulation* and *Constant-Power Limit* programming, which are accessible through a front panel LCD display that has five embedded multi-functional Power Supply Setup menus (that address Digital Communication, Protective Functions, Operating Configuration, System Configuration, and System Triggering).

Multiple built-in standard remote programming methods are available including the built-in Remote Isolated Analog Program/Monitor (5V/10V) & Control and Remote Digital Serial Communication Interfaces (LAN (LXI 1.5), USB (2.0) and RS-232/RS-485) along with the optional IEEE (IEEE 488.2 & SCPI compliant) and Modbus-TCP Interfaces.

Power systems of up to four units in parallel utilize on-board *Auto-Configuring* technology for easy system setup and provide dynamic response and Output voltage ripple/noise characteristics comparable to that of a single unit.

All platforms of the **GENESYS™** Power Supply Series carry a five (5) year warranty, have Safety Agency approvals to IEC/EN/UL/cUL 60950-1 and carry the **CE** mark in accordance with the Low Voltage, EMC (IEC/EN61204-3; industrial environment) and RoHS Directives.

For more information about the TDK-Lambda **GENESYS™** AC/DC Programmable Power Supply Series, please visit the TDK-Lambda Americas Programmable & High Voltage website at [https://us.tdk-lambda.com/hp/product\\_html/low\\_volt.htm](https://us.tdk-lambda.com/hp/product_html/low_volt.htm)

Also available is the complementary [Cost-Effective General-Purpose Genesys™ AC/DC Programmable Power Supply Series](#) and a wide range of other TDK-Lambda Americas Programmable & High Voltage power supplies which can be viewed from the Programmable & High Voltage website at <https://us.tdk-lambda.com/hp/>.

**About TDK Corporation**

TDK Corporation is a leading electronics company based in Tokyo, Japan. It was established in 1935 to commercialize ferrite, a key material in electronic and magnetic products. TDK's portfolio features passive components such as ceramic, aluminium electrolytic and film capacitors, and magnetics, high-frequency, and piezo and protection devices. The product spectrum also includes sensors and sensor systems such as temperature and pressure, magnetic, and MEMS sensors. In addition, TDK provides power supplies and energy devices, magnetic heads and more. These products are marketed under the product brands TDK, EPCOS, InvenSense, Micronas, Tronics and TDK-Lambda. TDK focuses on demanding markets in the areas of information and communication technology and automotive, industrial and consumer electronics. The company has a network of design and manufacturing locations and sales offices in Asia, Europe, and in North and South America. In fiscal 2019, TDK posted total sales of USD 12.5 billion and employed about 105,000 people worldwide.

**About TDK-Lambda Corporation**

TDK-Lambda Corporation, a group company of TDK Corporation, is a leading global power supply company providing highly reliable power supplies for industrial equipment worldwide. TDK-Lambda Corporation meets the various needs of customers with our entire range of activities, from research and development through to manufacturing, sales, and service with bases in five key areas, covering Japan, Europe, America, China, and Asia.

For more details, please pay a visit to <https://www.tdk-lambda.com/>

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