TCP-485

CONVERTER
SERIAL / ETHERNET

Ver.03

TCP48503-02T-15846

⚠ Have this manual in the palm of your hand by **FG Finder** application.

1. DESCRIPTION

The **TCP-485** Serial/Ethernet converter allows you to connect Full Gauge controllers with the Sitrad supervisor software over an Ethernet data network using the communication standard TCP/IP. Nowadays many companies have Ethernet cabling already installed in their premises. With the **TCP-485** converter you can use your Company installed cabling instead of installing new cabling for the RS-485 network of controllers. The system is composed of an Ethernet/RS-485 converter connected to the Ethernet network (it can be Internet, Intranet or a direct connection to the computer) and the Sitrad that connects directly to the Ethernet/RS-485 converter using TCP/IP. The converter then communicates with the controllers connected to it and translates the RS-485 electric standard used by the controllers to the TCP/IP communication protocol used in computer network interconnections.

2. APPLICATION

- Installations that already have an Ethernet network and do not have conditions to run new cabling network.
- Centralize data acquisition from many remote locations in one server without the need to have a dedicated computer for each remote location.

NOTE: The **TCP-485** converter is designed to work only with Full Gauge Controls devices.

3. TECHNICAL SPECIFICATIONS

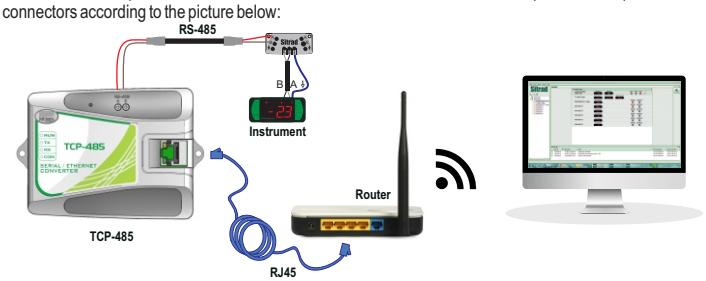
- **Converter Power Supply:** 12 Vdc.
- **Power supply unit supplied with the converter:** Input: 100-240Vac (50/60Hz)
  Output: 12Vdc / 2A
- **Operating temperature:** 0 a 50°C
- **Operating humidity:** 10 a 90%UR
- **Amount of devices supported by the converter:** 32
- **Indicator LEDs:**
  RUN: indicates the converter is ON
  TX: indicates transmission status
  RX: indicates transmission status
  CON: indicates that the application SITRAD is connected to the converter
- **Ethernet Speed:** 10Mbps
- **Connections:**

-RJ-45 connection for connecting with PC using twisted pair cable supplied together with the converter.
- One port Isolated RS-485 for connection to instrument 32, without the need for termination.
- Direct ethernet cable-80cm (without crossover) supplied with the converter.

⚠ **IMPORTANT NOTICE:**
If the "LAN" LED indicator in the RJ-45 connector does not light up upon connecting the TCP-485 converter directly to the network adapter of the computer, you may need to use a crossover cable (not supplied by Full Gauge) or to connect the computer and the converter via a HUB or Switch.

4. INSTALLATION AND OPERATION (DHCP MODE - DEFAULT CONFIGURATION)

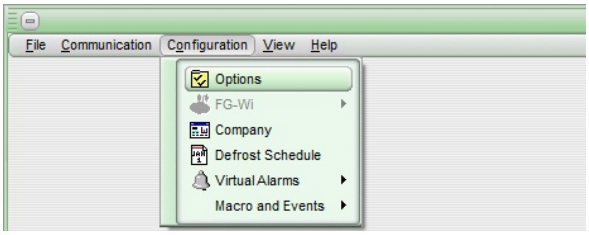
Connect interface terminals **A** and **B** with the respective **A** and **B** terminals on the connecting blocks and instruments;
With the **TCP-485** powered on, use an Ethernet cable to connect it to a router (router/switch) in the RJ-45 connectors according to the picture below:



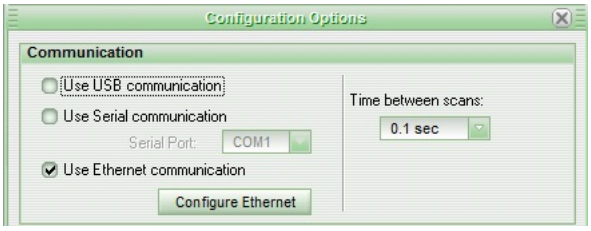
SITRAD 4.12

⚠ **Download a compatible version from: http://www.sitrad.com**

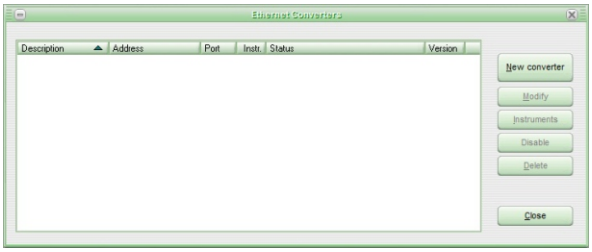
Step 1: With the TCP configured, open Sitrad, click on **"Configuration"** and then on **"Options".**



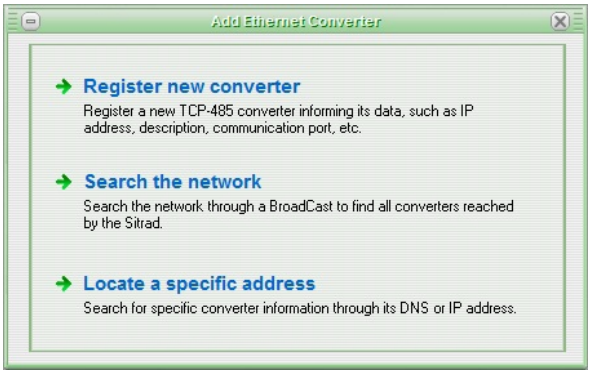
Step 2:
In the window that opens, select the option **"Use Ethernet communication"**. Then click on the **"Configure Ethernet"** button below.



Step 3: In the window that opens, click on the button **"New Converter".**



Step 4: In the window that opens, choose the desired option. As an example we will use the option **"Search the network".**



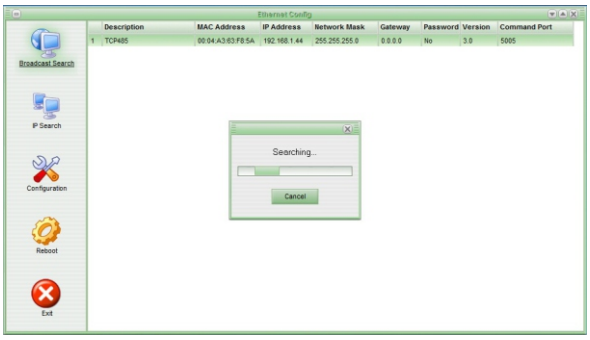
Step 5: Once it has been located, select **TCP-485** and then click on the button **"Register converter"**, select **version 3** and click **"OK"**.
If the user has the **TCP-485** configured with a fixed IP, follow the steps below to connect it to a computer:

5. NETWORK CONFIGURATION IN STATIC IP MODE

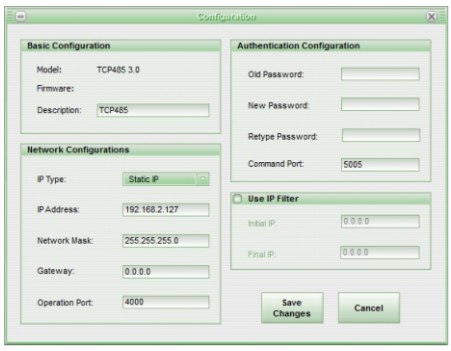
For direct connection with a PC, the IP mode must be changed to static. See the step by step procedure :

Step 1:
Using a computer connected to the same network as the **TCP-485** (cable or wireless), download **EthernetConfig** (Windows version only) from the site:
http://www.sitrad.com/atualizacaoresp.asp

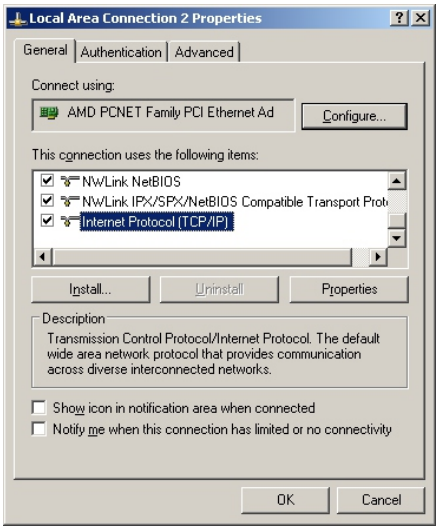
Step 2:
Run **EthernetConfig** and click on the icon **"Broadcast Search".** The **TCP-485** connected to the network will be shown after the search is done. See image below:



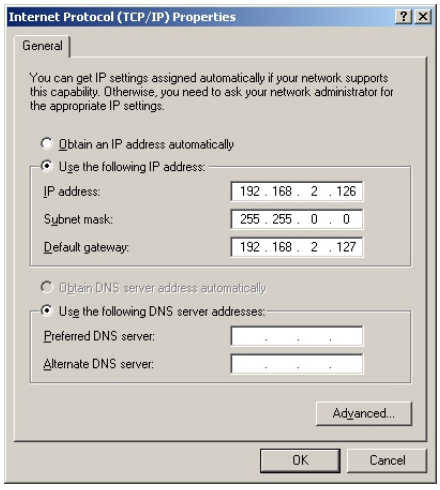
Step 3:
Click on the **"Configuration"** menu and click on the box **"Network configuration"** on the following screen, change the **IP Mode** to static, and then click on **"save changes".**



Step 4:
TCP-485 converter is delivered with the following default values configured:
IP Address: 192.168.2.127
Network Mask: 255.255.0.0
Gateway: 0.0.0.0
Configuration Port: 5005
Communication Port: 4000
If your computer is not configured to access the IP range 192.168.2.0 to 192.168.2.255 you need to perform a direct access to the converter to configure it with some of your computer network IP addresses.
To directly access the converter follow the steps below:
- Connect the converter network cable directly in the computer network card.If the computer is fitted with an old network card, you may need to use a crossover cable, which is not provided by Full Gauge. Upon doing this your computer will lose access to the network and the Internet.
- Access your computer network connections:
In Windows XP, open the OS Control Panel, choose "Network and Internet Connections" and then choose "Network Connections".
In Windows 7, open the OS Control Panel, choose the "Network and Internet" option, then "Sharing and Network Center" and then, at the menu on the left of the screen, choose the "Change adapter settings" option.
- Right-click the connection you are using and choose "Properties".
- Select the "TCP/IP Protocol" or "TCP/IP version 4 Protocol" in the list as shown in the screen below.



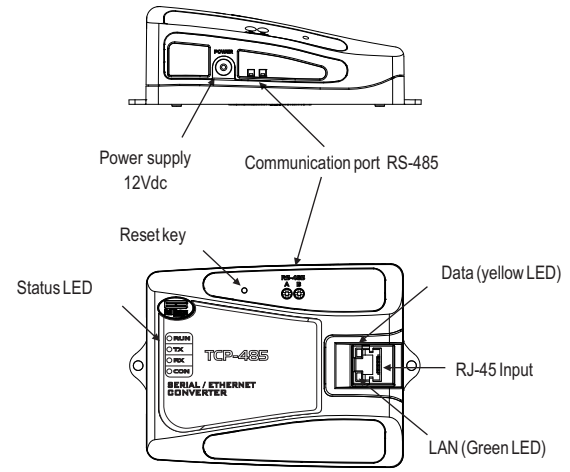
- After selecting the item, click Properties.
In the following screen, write down the current settings so you can reset back to them later.
- Check the "Use the following IP address" option and configure the fields with the following values:
IP Address: 192.168.2.126
Subnet Mask: 255.255.0.0
Default gateway: 192.168.2.127



- Click OK to exit.
- Click OK in the Properties screen to save the changes.

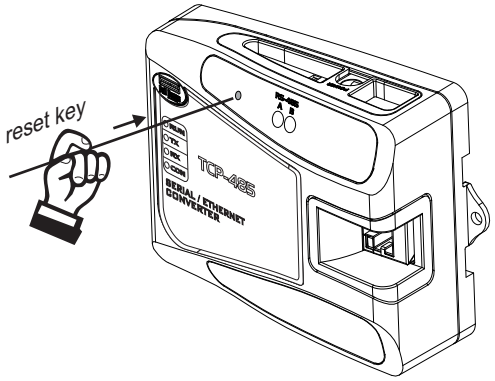
Your computer is now configured to communicate in the same **TCP-485** converter network. Access your converter through the EthernetConfig application and change the converter IP address to a valid address in your network.
After performing the configuration in the converter, reset the properties settings of the network card back to the correct values.

6. ELECTRICAL DIAGRAM

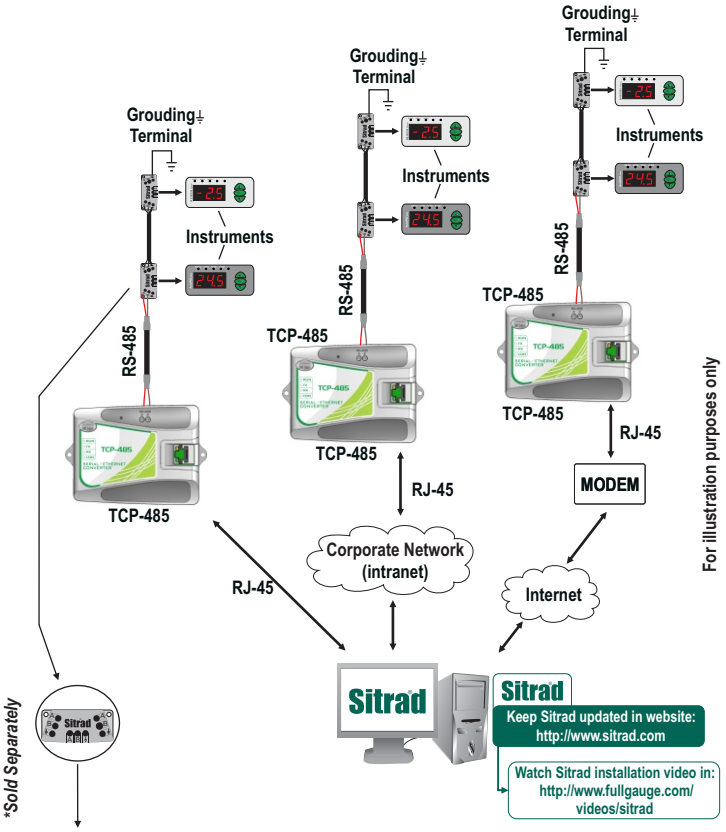


7. RESTORING THE DEFAULT CONFIGURATIONS OF THE CONVERTER

In order to restore the default configurations of the converter you must hold the reset key in the panel down for five seconds. After that, all front LEDs will light up, indicating that the settings have been restored. After releasing the key the converter will reboot with the factory default settings.



8. INTEGRATING CONTROLLERS, TCP-485 CONVERTER AND COMPUTER



Connecting Block for Serial Communication
Used to connect more than one instrument to the Interface. The wire's connections must be made in agreement with the following rules: terminal **A** of the instrument connects to the terminal **A** of the connecting block, that must be connected with the terminal **A** of the Interface. Repeat the action for terminals **B** and ⏚ , being ⏚ the cable shield. The terminal ⏚ of connecting block must be connected to the respective terminals ⏚ of each instrument.

IMPORTANT
According to the chapters of norm IEC 60364:
1: Install protector against overvoltage on the power supply
2: Sensor cables and signal cables of the computer may be joined, but not in the same electric conduit through which the electric input and the activation of the loads run.