

## Installing HMI into 3530 RTAC

- HMI:

1. Deliver efficient HMI solutions by building effective operator interface screens through easy-to-use tools without the need for mapping data tags.
2. Identify changing system conditions and make informed decisions based on real-time analysis without the need of any special software to view the HMI.
3. Leverage powerful and reliable RTAC hardware with a cost-effective HMI option for local/remote monitoring, control, integrated alarms, and annunciation.
4. Monitor your system and analyze performance anywhere, anytime with a secure, web-based, thin client user interface, which Including morphological charts, decision matrices as appropriate
5. Access the RTAC HMI locally or remotely via a web browser interface from the web server on the RTAC unit. On demand visualization and control makes monitoring and controlling your system a more efficient task. Role-based accounts provide appropriate security access. Since it is a thin client, no installation and no upkeep for a specific application are required.
6. The RTAC HMI offers an easy way to visualize data and create custom diagrams to monitor and control your system. The HMI provides authenticated access for multiple users from multiple locations and is viewable from a web browser. It renders natively on browsers compatible with HTML5 web standard—no plugins required.

- The HMI creation explanations:

From the above is the steps of the Human Machine Interface creating process. We depend on the SEL devices (SEL 3530, SEL 2440, SEL 734, SEL 351 and the computer center), and I will explain every device's working principle and the aims when we did in the past time of using in our project.

SEL 3530 which is RTAC (real time automatic control), every remote bite is controlled by this device. Such as the SEL734, SEL 351S. The SEL-3530 Real-Time Automation Controller (RTAC) provides complete and flexible system control with integrated security, seamless configuration, unified logic, and reliability. The RTAC converts data between multiple protocols, communicates with any configured and connected device.

SEL 734 which is the electrical meter. We use ACSELERATOR QuickSet to customize your metering. Set and edit meter configuration, settings, and logic. And as the working of the SEL 734 in the project:

- Current, voltage, power, frequency, supply voltage interruptions, dips and swells, harmonics, inter harmonics, flicker, and unbalance
- Measurement aggregation
- Harmonic phase angles for voltage and current
- High-resolution, 512-samples/cycle waveform capture

- Total harmonic distortion (THD), crest factor, and K-factor metering with up to 63rd harmonic content
- High-speed load profile recording with three-second resolution
- Symmetrical components (unbalance)
- Real-time waveforms with the Wave view oscillography functionality.

SEL 2440. In the process of the new HMI platform designing. We depends on the SEL 2440 to distinguish the condition of the breaker. The SEL-2440 DPAC is a 48-point discrete programmable automation controller ideal for utility. And it is the good communicator to connect the controller and the power system. And it is easy to maintain and support, and it meets stringent protective relay standards. Available mounting options to meet our application needs include rack, panel, surface, and DIN mounts.

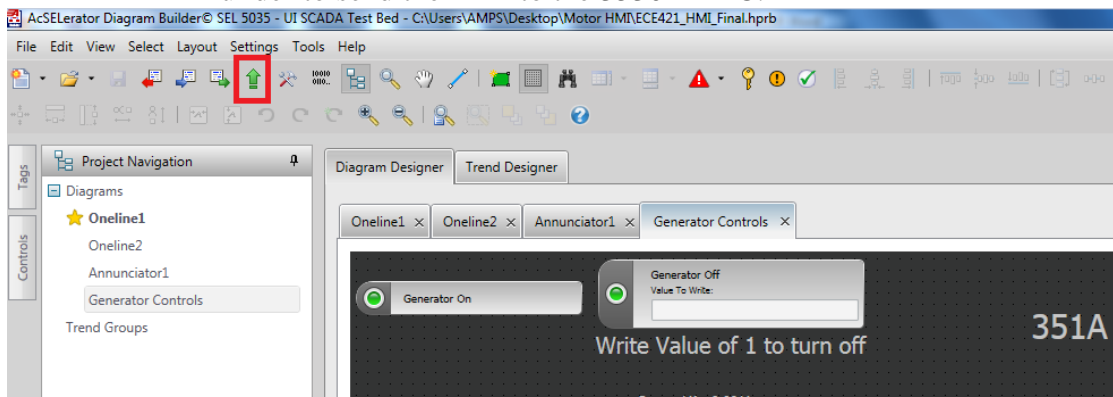
SEL 351S which is used to control the breaker's closing and opening. Reliable Breaker Control—Open or close the circuit breaker manually with the optional Safe Lock trip/close pushbuttons, which provide direct control of the breaker independent of the relay. Reclosing Control—Program the relay four-shot auto reclosing function with synchronism and voltage check logic to mimic a variety of reclosing practices. Sequence coordination logic coordinates with downstream reclosers for a complete protection scheme.

Step 1. Open the Diagram Builder Software from the windows start menu

Step 2. Click the File button and Open Project

Step3. Locate the ECE421\_HMI\_Final.hprb file found at C:\Users\AMPS\Desktop\Motor HMI

Step 4. Open the file and click on the green arrow located in the ribbon in Diagram Builder to send the HMI to the 3530 RTAC.



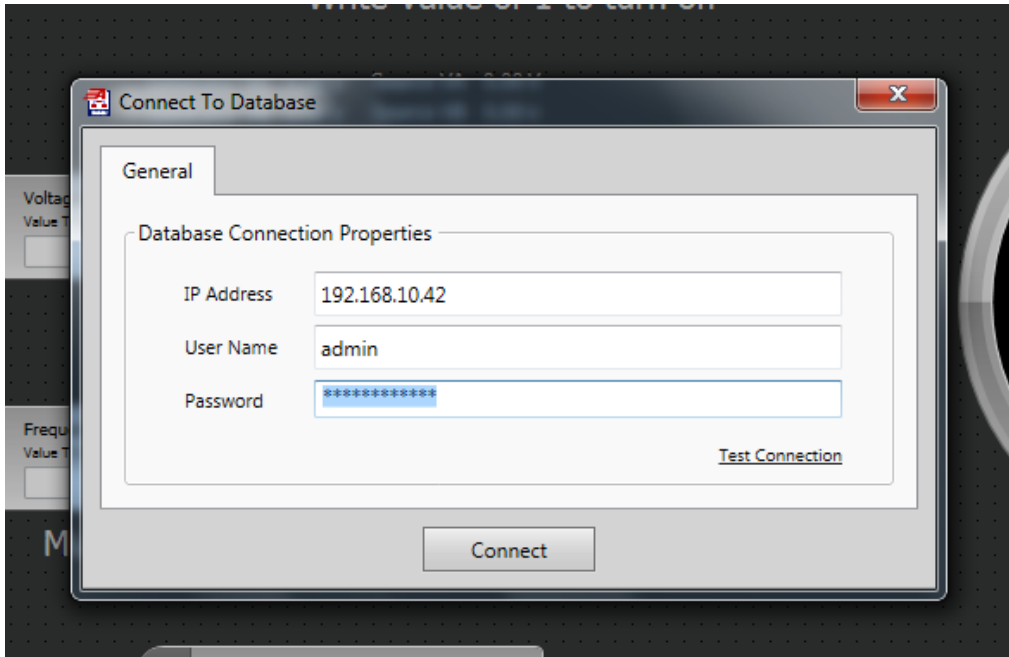
Step 5. Login to RTAC in Diagram Builder

IP Address: 192.168.10.42

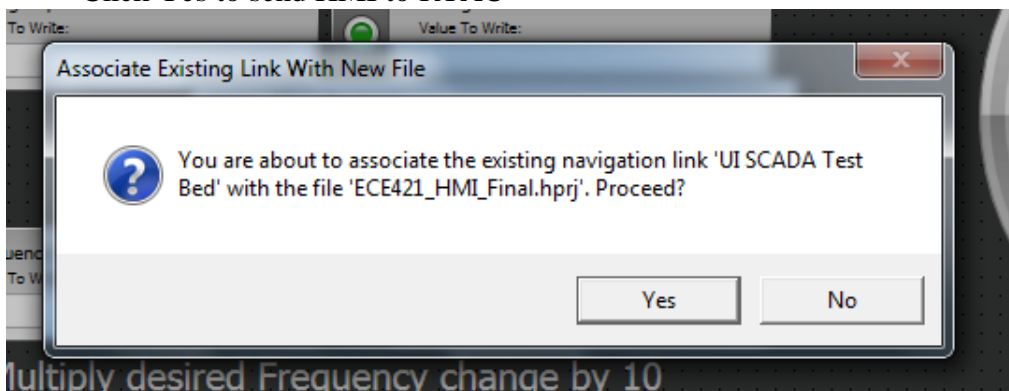
User Name: admin

Password: ModelPower\_1

Click connect



Click Yes to send HMI to RTAC



The HMI is now uploaded to the RTAC and can be viewed in the web browser. Click on HMI project on the bottom left of the web browser menu to access.