Tender No. (SELCo. 04/2019)

SCADA

Grand Total Excluding VAT($)	
Discount	
Total after Discount ($)	

Total In words:……...

Company……. **Signature……**

The following data shall be filled and submitted with the tender:

Tender Number:……...

Tender Name:……...

Supplier Name: …….

Contact Person: ……

Address: ……....

Telephone Number: ……..

Fax number: ……..

Mobile Number: ……...

Email: ……

Bid Submission date and time: ……

Company……. **Signature…….**

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Instructions to bidders

- *The working region is the south of west bank in all Hebron district excluding the city of Hebron.*
- *The purchaser is not obliged to the lowest price.*
- *The bidder must submit a bank guarantee equivalent to 5% of the tender total value, the validity of the bid and the guarantee will be 90 days from the date of submission; otherwise, quotation will be rejected.*
- *The awarded supplier and within 10 days from receiving the awarding letter shall submit a performance guarantee equivalent to 10% of the tender value, valid for 90 days.*
- *The awarded supplier and after implementing the project shall submit a maintenance guarantee equivalent to 5% of the tender value, the guarantee shall be valid for 2 years.*
- *The warranty of the delivered goods shall be as mentioned in general specifications.*
- *The tender is indivisible.*
- *Prices are in US dollar $ Excluding VAT.*
- *Prices including two years of technical support.*
- *In case of mistakes in summation, the unit price will be considered.*
- *Payments: within 30 days from delivery and technical approval.*
- *Project implementation: within (90) days from the date of accepting and informing the bidder of acceptance of quotation.*
- *Fines: 1% of the item price per week of delay and not more than 10% of total bid value.*
- *Bid document price is 500 NIS and will be paid when submitting the offer by the participants.*

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- *Wednesday October, 2nd 2019 12:00 pm is the final time of receiving the offers at SELCo headquarter/Procurement department and in sealed envelopes. The bid opening will be in the same time and date.*
- *Discount at source certificate is required.*
- *Tender document could be obtained from SELCo website or from procurement department.*
- *For further information please do not hesitate to contact the procurement department:*

Tel: 02 2283602/3

Fax: 02 2283601

Email: abed@selco.ps

Website www.selco.ps.

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Bill of Quantity:

Item #	Description	QTY	Unit price USD	Total USD
1.	**PLC (RTU):** Including: • 8DI/6DO. • PLC Panel. • 24V power supply. • Installation and configuration.	14		
2.	**RTU Two-way communication**	15		
3.	**SCADA software for control room** Including: • Control Maestro CM-FULL-500 Development and Runtime package for 500 I/O tags. • Programming for monitor and control applications. • HMI programing.	1		
4.	**Enable access for one concurrent browser client** to the SCADA software CM-WEB-1.	1		
5.	**Mobile software** application per operator.	6		
6.	***Optional:*** Server	1		
Grand total Excluding VAT (without optional)				

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Introduction

- SELCo has a number of pole-mounted POLAR Auto-Recloser units, and indoor switch gears that are not equipped with any means for data communication except reading digital status through "Dry/Wet Contacts" and controlling the unit "Performing Remote Open & Close Operations"

- SELCo needs to have a solution that includes remote browsing option, since now there is no main control center but its planned to be established, the system is to be also run by mobile application system.

1. **Needed solution main features:**

    - SCADA software can monitor and control the relays signals remotely.
    - SCADA software to be installed at the existing server in SELCo-HQ.
    - Two-way communication between the sites must be used for communication between the relay's sites and control room.
    - The relays needed to be controlled remotely by SCADA software and mobile web application.
    - PLC with integrated Web server and built in application must be used in order to control and monitor the relays remotely by the mobile application software installed in the operator mobile phone as direct control system between the operator and PLC.
    - All I/O connections needed between the PLC/RTU communications must be done in order to achieve control and monitoring.
    - SCADA Web Client for one concurrent access to the SCADA software is also needed.
    - SCADA software web service (API) for integration with other SELCo applications.

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2. PLC Specifications

- 1 X RS485 serial interface.
- Centrally expandable with up to 10 I/O modules.
- Support optional SD card adapter for data storage and program backup.
- Variants with integrated Ethernet (Ethernet includes webserver).
- Minimum cycle time per instruction: Bit 0.08 µs, Word 0.1 µs, Float-point 1.2µs.
- Program memory: 128kB.
- Supply voltage: 24 VDC.
- Web server's data for user RAM disk: 512kB.
- Data buffering (of saved data): flash memory.
- Program execution: Cyclical, Time controlled Interruption and User program protection by password.
- Onboard digital inputs: 8 (including 2 counter inputs, or up to 4 interrupt inputs), Signal voltage: 24VDC.
- Onboard digital outputs: 6 (including 2 PWM outputs for types with transistor outputs) Transistor, 24 V DC with 0.5 A Nominal current per channel.
- Max. Number of decentralized inputs/outputs: On CS31 bus; up to 31 stations with up to 120 DI / 120 DO each or up to 32 AI/32 AO per station.
- Internal interfaces:
  - COM1: RS485, Sub-D connection, Programming, Modbus-RTU, ASCII,CS31.
  - Ethernet: RJ45, Ethernet functions: Programming, Modbus TCP/IP,UDP/IP, integrated Web server, DHCP, FTP server, SNTP client.
- RUN/STOP switch.
- LED for power, status and error.

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3. SCADA Software Specification

SCADA software is a Supervisory Control and Data Acquisition (SCADA)system used to monitor and manipulate control equipment in the field such as Programmable Logic Controllers (PLCs), measuring instruments, and other devices.

SCADA automation software must provide an advanced end-to-end solution for site-wide business automation by bringing together unparalleled Web performance for remote services and the most desired application benefits including engineering productivity, security, and wireless mobility.

Beyond the traditional SCADA supervisory visualization, communication and control functionality, SCADA system should provide advanced performance Web-enabled remote access and control, secured enterprise architecture, and enhanced engineering development productivity, user mobility, and wireless wide-area control.

All the software tools needed to build a complete and powerful automation application as well as everything that's typically expected of a professional Control, HMI and SCADA solution are provided:

- Discrete control and process.
- Data acquisition.
- Alarming.
- Visualization.
- Centralization and distribution of information.
- Complete reporting.
- Local HMI.
- Web-enabled remote access full information and control, anytime, anywhere.
- Open Supervision, standards-based more than 160 drivers: OPC, industrial protocols, building protocols, PLCs, device manufacturers....

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- Complete, reliable, and highly scalable.

The application should support multi-tasking capabilities of the latest Windows operating systems and a built-in event-driven mechanism to achieve utmost performance and data integrity.

Key Features

- Security – Different User groups and different users.
- Database Connectivity /ODBC.
- Advanced Alarm Management.
- Background Processing.
- Built-in Report Generator.
- Events Summaries.
- Audit Trail.
- Hot Backup Support.
- Built-in Programing Language.
- Milli-second Time Stamping.
- Network Application Update.
- OPC technology to exchange data with HMI and SCADA software and OPC servers.
- Database is open for SELCo direct access, without any restrictions.
- Full licensed, and expandable for any future use (with ability to expand license upon need with no changes on the core software).
- Supports upgrades for server redundancy topology.
- Web service (API) must be included for SELCo internal use, main needs are as bellow where other needs may be added during project installation:
    - Data reading.
    - Logs and history for all transactions.
    - Transaction status.

Communication Drivers

Communication drivers handle communications with external devices, such as PLCs, industrial instruments, remote computers and field buses.

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SCADA software should use standard communication drivers to communicate with standard RTU communication protocols and should integrates OPC drivers to communicate with SCADA software and servers.

PLC Communication

SCADA software must have the ability to talk to different network of RTU/PLC. New RTU/PLCs can be added to the system by simply changing the configuration to point to the RTU/PLC address. RTU/PLCs can be added and removed from the system with disruption to existing operations.

User Management and Security

The application must provide security management system, in which users, group and sub-groups can be created and managed. User management must provide the following features:

- Different Groups.
- Active Directory Group Import.
- Users assigned to groups.
- Groups defined according to RTU, to assign user to a set of RTU's.
- Different Layouts per user/group.
- Menus Customized per user/group.
- Event and Alarm Handling per user/group.
- Password protected.
- Password length and format.
- Password expiration.
- Disable and enable workstations.
- User inactivity timeout.

Alarms and Reporting

Alarms are configured application messages used to notify operators of exceptional conditions at the work place. Alarms are generated when ever pre-defined conditions exist. Alarms can be defined in order of hierarchy. Each alarm can be defined in a different Level in a hierarchical tree. New alarms

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can be added (or existing alarms modified) to different levels of the hierarchy tree.

Two types of Alarms in the system: Predefined, and user defined. Predefined alarms: are generated by the application without user intervention. User defined alarms: are conditions that the system engineer predefines

The Report module can be used to define customized reports for specific plant requirements. The application generates the reports that you define with this utility as free-format documents that can contain text and calculated values (fields), based on current and historical data.

Advanced Archiving

Tags Storage and Archiving:

- Tag Recorded to application history.
- Tag Recorded to ODBC database.
- Tag Recorded to both application history and ODBC.

Charts and Reporting

SCADA server must have a built-in charts and reports generator.

✓ **Charts:**

- Charts provide graphical view of past and current activities in the system
- Charts can be predefined and edited by the user
- A window can display up to 16 activities simultaneously
- Chart operations are performed according to the operator's authorization level

✓ **Reports:**

- The system display user-define reports based user inputs
- Reports contain text and calculated values (fields), based on current and historical data
- Reports are generated in HTML format

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Tags and Data points

A Tag is a contact point through the Application receives data from the controller and / or outputs data to it. Tags can be analog, digital or compound

For the current needs 500 tags is needed but the system must store and generate up to 65,535Tags (expanded by license), tags can be analog, digital or string. In addition to the tags that the system can read from the PLC the system must also has a built it tags known as System Tags, these tags handle system internal operations such as date/time, user data and communication information.

Image Editor

The Image Editor is the graphic tool of the application. It is used to create and view the images that enable the operator to visualize part or all of a control process.

The Image Editor operating in an Image window defined during application setup includes a wide variety of drawing tools that make image design quick and easy. Any drawing in this window can be zoomed and scrolled.

The system must import standard type of images, including bitmaps, JPEG, PNG and animated GIFs. Images can be used in any part of the graphical layout such as background images and interactive controls.

Ownership of Software.

All Software included by this tender, including enhancements or modifications there to prepared by either party or their Representative, will be and will remain the exclusive property of SELCo thereof and the other party will have no rights or interests in such Software. A party shall not, without the owning party's prior consent, decompile or reverse engineer the Software of the other party.

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4. RTU two-way communication

Utility to show status of connection with each RTU .

Remote browsing, data reading, sends control command to device through secure connection.

Two-way conventional

Allow on site management through easy, quick, run and play connection for on field team.

Backup utility to be included in case of power source failed (for example UPS), the utility must be online, and backup time equal 3 hours.

Link between server and RTU must be through VPN.

Support well known protocols as bellow: FINS, PROFINT, ETHERNET/IP, KNX, DALI

VPN Tunneling: includes IPsec, OpenVPN, L2TP – through secure encrypted tunnels.

5. Mobile application

Mobile application is a software application to be installed on the mobile phones of the operators and it connected to the PLC devices, so the operator can control and supervise the relays remotely and directly without the need to access to the SCADA software. The privileges of this application will be specified by SELCo.

Main features:

- Android and iOS version must be included.
- Responsive,
- User can connect by user and password.
- Source code delivered officially and owned by SELCo.

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6. Optional: Main SCADA Server specifications

Processor:2 x Intel® Xeon® Gold 5118 2.3G, 12C/24T at least
Memory:
128GB (4 x 32GB) Dual Rank x4 DDR4-2666.
Max 16 DIMM.
Support (LRDIMM) , (RDIMM).
Hard Drives:2 x 600GB 15K SAS RAID 1 mirrored for OS
Network Controller: dual port 20GB SFP (dual port 1GB base-T),
+ 20GB cable x 2ready to run.
Storage: Dual port 16GB FC
Remote Management: Monitor your servers for ongoing management, service alerting, reporting and remote management, full remote control over network.
Storage Controller: Smart Array SAS modular Controller with 1GB Flash-Backed Write Cache (at least) Support RAID 1.
Power Supply: Redundant Power Supply.
Windows server Standard 2019 kit (5 CALs).
Warranty: 3years support (Parts, Labor, and Onsite).

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