Biometric Readers

Quick User Guide
Ver 2.0

The comprehensive User Manual is located on the CD provided with the Biometric Readers.

Technical Specifications

Authentication	Finger(**BIOC2**); Finger or/and PIN code(**BIOXR**); Finger or/and Card (**BIOIN PROX**)
Template capacity	9500
PIN code capacity	999 **(BIOXR only)**
Finger enrollment time	< 1 second for each finger
Recognition and matching time	< 1 second for each finger
Number of templates for each user	1-10 Templates (Fingers)
Free tension LED	Yes (BIOXR and BIOIN PROX)
Output	Wiegand (8-128bit), default: Wiegand 26bit
Communication	RS485
Power Supply	12Vdc
Consumption	70 - 150mA max.

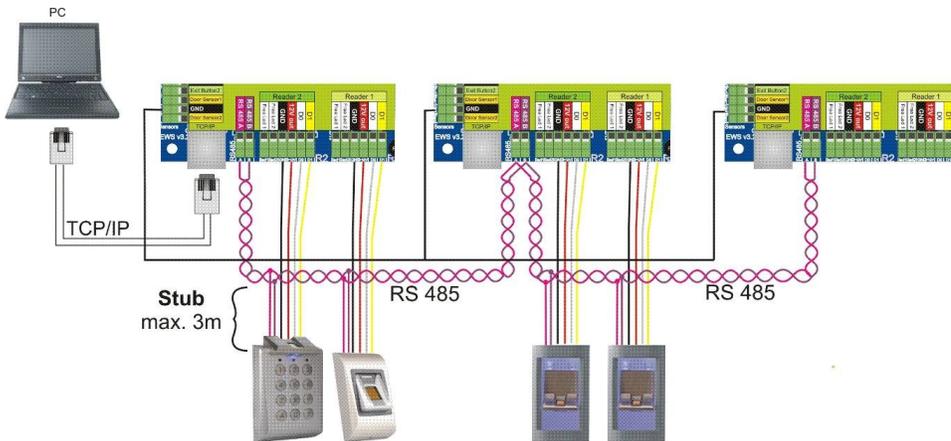## I)   Connecting Biometric readers to EWS Controller

The biometric readers are not able to work alone. They have to be connected to an access controller with Wiegand input. The Biometric readers can be connected to virtually any controller that conforms to Wiegand format standards (standard Wiegand 26bit or self-defined Wiegand).
The lines D0 and D1 are the Wiegand lines and the Wiegand Number is sent through them. The RS485 line (A, B) is used for fingerprint transfer and reader settings. The Biometric readers must be powered from the controller. If you use different power supply for the biometric reader, connect the GND from the both devices to ensure correct transfer of the Wiegand signal.
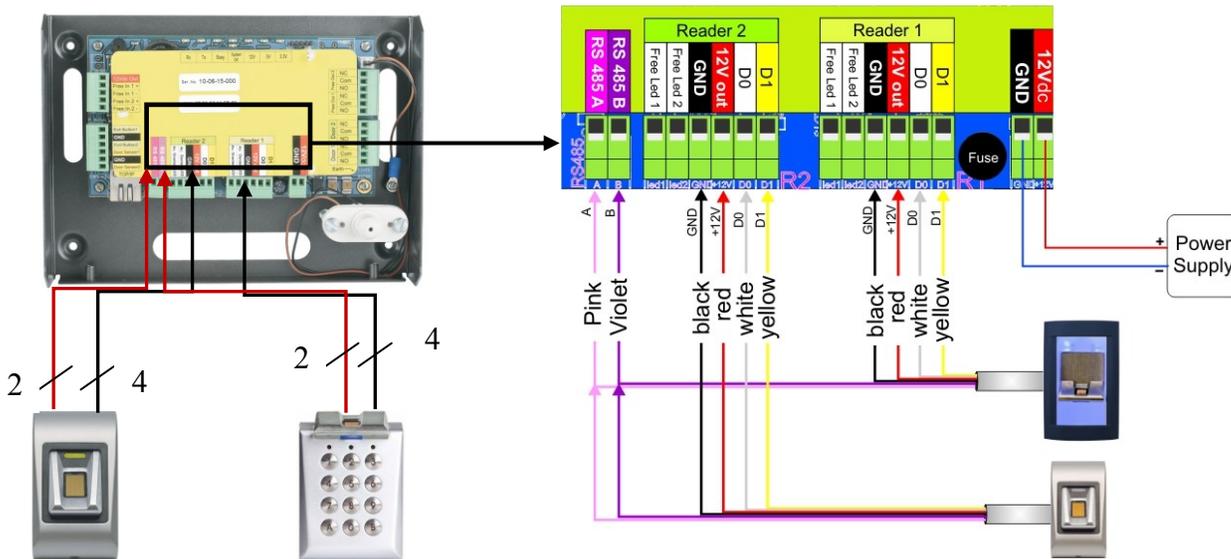
- Connect the lines D0, D1, Gnd, +12V, A and B to the EWS controller.
- When you have connected the reader and powered on, the LED should flash in orange light + 2 beeps. This lets you know it's on and ready for use.

- Fingerprint enrollment is done from the PC Software. Connection between the Biometric readers and the PC must be established.

- **Note:** The Biometric reader must be powered from the controller or make common ground for the controller and the Biometric reader.

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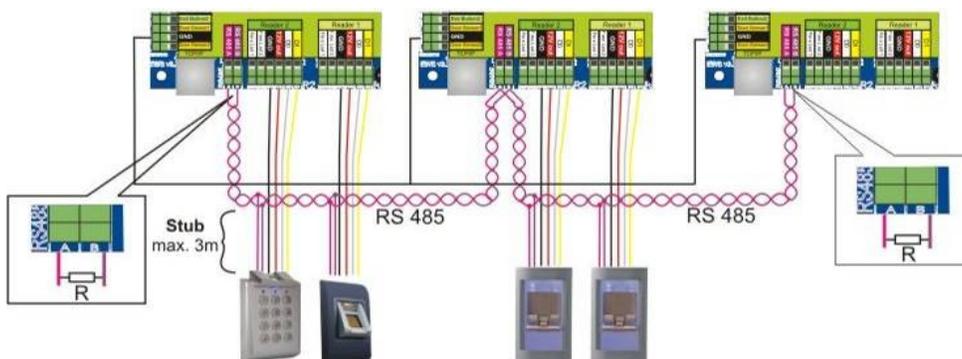# Biometric readers in network with EWS controllers

- The Biometric readers are connected through RS485 bus. The same RS485 bus that the EWS controllers are connected to.
- Maximum units in one network (EWS + Biometric readers) is 32.
- If there are more than 32 units in one network, please utilize RS 485 HUB to connect.
- The RS485 Line should be configured in the form of a daisy chain, NOT in a form of a star. If star must be used in some points, keep the stubs from the RS485 backbone as short as possible. Maximum length of the stub is dependant of the installation (total number of devices in RS485 line (total cable length, termination, cable type...) so recommendation is to keep stubs shorter than 10 meters and keeping mind that this can be possible reason if there is errors in communication with PC software
- The cable must be twisted and shielded with a min. 0.5 mm2 cross section.
- Connect the ground (0V) of each unit in the RS 485 Line using a third wire in the same cable.
- The shield of the communication cable between two devices must be connected to the EARTH from ONE side of the RS 485 Line. Use the side that has earth connection to building grounding network.

RS 485 termination resistors

- For proper communication over a RS485 network, the end points must be terminated with a 120 Ohm resistor. There are on board 120 Ohm termination resistors on the EWS controller. Those termination resistors are selected by jumper.

Note: The RS485 Communication Line must be made in a daisy chain, NOT in a star type.

II) Configuring the Biometric readers in PROS Software

Adding Biometric reader

- Expand the Door item to view the readers
- Right-click on the reader to be configured and select the Properties item from the reader drop-down menu
- Set the reader type to one of the fingerprint models in the Basic tab
- Select the Biometric tab and set the values
  - **Serial:** Biometric reader Serial Number
  - **Sound level:** Sound level of the device
  - **Finger Acceptance Flexibility:** Accepted tolerance. The recommended value is "Automatic Secure".
  - **Sensitivity:** Bio-sensor sensitivity, the recommended value is 7, most sensitive.
  - **Entry Mode**
- Click on the Save & Exit button
- If the Automatic update for biometry option is set, PROS will configure the reader immediately, if it is not set, update the reader manually using the reader menu option "Send configuration"

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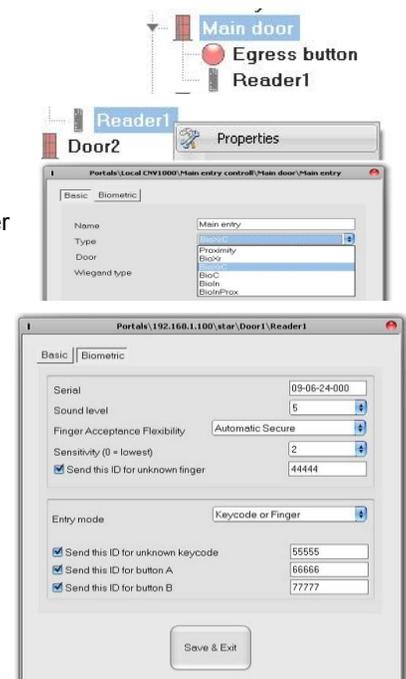
Enrolling Fingerprints from a reader

Select the User in the User Column, NOT the Check Box (the Check Box is used for sending the fingerprints) and the User Name cell will turn blue.

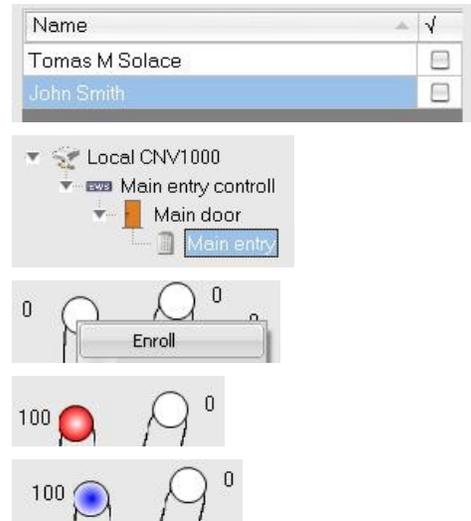Select the Biometric reader from where the enrollment will be done.

Right click on the fingertip and select "Enroll".

In the next 15 sec. present the finger on the selected reader and the finger tip will turn blue, with the percentage of successful enrollment shown next to the fingertip.

Repeat the procedure for the other fingers (as required)
Click on "Save templates". All the enrolled fingers will change their color to red.

Note: If more fingerprints are added for one user, all fingerprints will send the same Wiegand Code to the controller.

Uploading fingerprints to the Biometric readers

- Select the Users whose fingers templates will be sent to the reader, by clicking on the checkbox of the user

- Select the Biometric reader to where the Users data should be sent and click on "Upload selected users to reader"
- As each user is being sent, the checkbox will uncheck indicating that the user has been successfully sent. At the same time the orange LED of the Biometric reader will blink. Note: The average time for transferring one finger template is 0.8 sec.
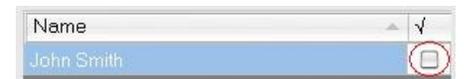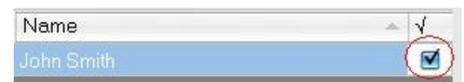
Note: If there were any PIN Codes available, they also would have been sent.

III)   Connecting Biometric readers to Third Party Controller
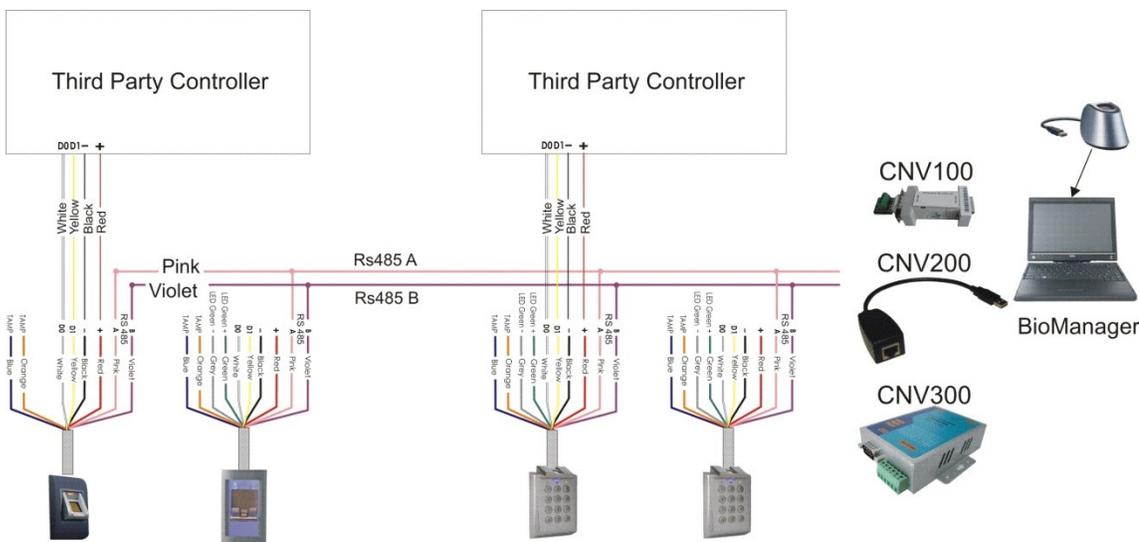
Connect the lines D0, D1, Gnd and +12V to the third party controller.

Connect the RS485 Line (A, B) to the converter. Connect the converter in the PC.

Note: The Biometric reader must be powered from the controller or make common ground for the controller and the Biometric reader.

Fingerprint enrollment is done from the PC Software. Connection between the Biometric readers and the PC must be established.
The Biometric readers communicate with each other with a RS485 and with the PC Software through a Converter.
The RS485 Line should be configured in the form of a daisy chain, NOT in a form of a star. Keep the stubs from the RS485 backbone as short as possible (not more than 3 meters)

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IV)   Configuring the Biometric readers in BioManager

Add Reader

- Right-click on the portal connected to the reader and select **Add reader**
- Fill the Reader form
- Click on **Save** and the reader icon appears under the selected portal
- Right-click on **Reader** and select **Version info**

If reader is online, new line is added on top of the event table

Time	Portal	Reader	Event	User
28/03/2010 17:41:30	Network portal	Main entry	Device online	Type: BioXr Version: 1.22

If reader is not online, following line is added on top of the event table

Time	Portal	Reader	Event	User
Network portal	Main entry	No response		

- If reader is online, right click on **Reader** and select **Upload configuration**
- Check at **Event** table if configuration was successful
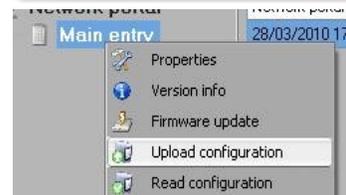
Add user

- At **User** table, click on last empty user field and enter user name

| #	User	ID (User code)	PIN code
☐	Tom Smith	12345	1111
☐		0	0

- Click on ID (User code) field and enter ID number. This number will be sent by the reader to the access controller when user finger is recognized by the reader
- Click on PIN code field and enter the PIN. PIN code is used at readers with keypad. When PIN code is typed at reader, User ID will be sent to the access controller

Enroll fingers

- Select the User in the User Column, not the check box (the check box is for sending the fingerprints) and the User name cell will turn blue
- Select the Biometric reader or Desktop reader BIOE from where the enrollment will be done
- Right click on the fingertip and select **Enroll**
- Swipe the finger on the Reader and the finger tip will become blue, with percentage of successful enrollment given right beside the fingertip

#	User	ID (User code)	PIN code
☐	Tom Smith	12345	1111
☐	John Do	567	0067
☐	Lane Ly	456	0000
☐		0	0
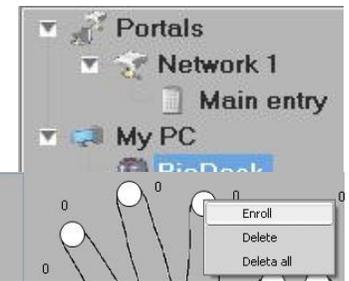
Note: If more fingerprints are added for one user, all fingerprints will send the same Wiegand Code to the controller.

Upload fingerprint to readers

- Check the users which fingerprints will be sent to the Reader
- Right-click on the Biometric reader whose users should be sent and select **Upload users**
- As each user is being sent, the checkbox will become unchecked indicating that the user is successfully sent. In the same time the orange LED of the Biometric reader blinks

#	User
☑	Tom Smith
☑	John Do
☑	Lane Ly

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