NFC Enabled Astronomical Time Relay User Manual



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PROPER USE and SAFETY REQUIREMENTS



Cut all the power when connecting and disconnecting the device to a panel.



Do not clean the device with a solvent or similar material. Only use a dry cloth.



Please do not intervene to the device when a technical problem is encountered and get in contact with a technical service within the shortest time.



If the warnings are not taken into account, our company or the authorized dealer shall not be held responsible for the negative consequences.



Do not dispose in the trash, the device must be delivered to the collection centers (electronic device recycling centers). It should be recycled or disposed of without harming human health and environment.



The installation, assembly, activation and operation of the device hould be done and used by only expert professionals and in accordance with safety regulations and instructions.

1.INTRODUCTION

1.1. General Features

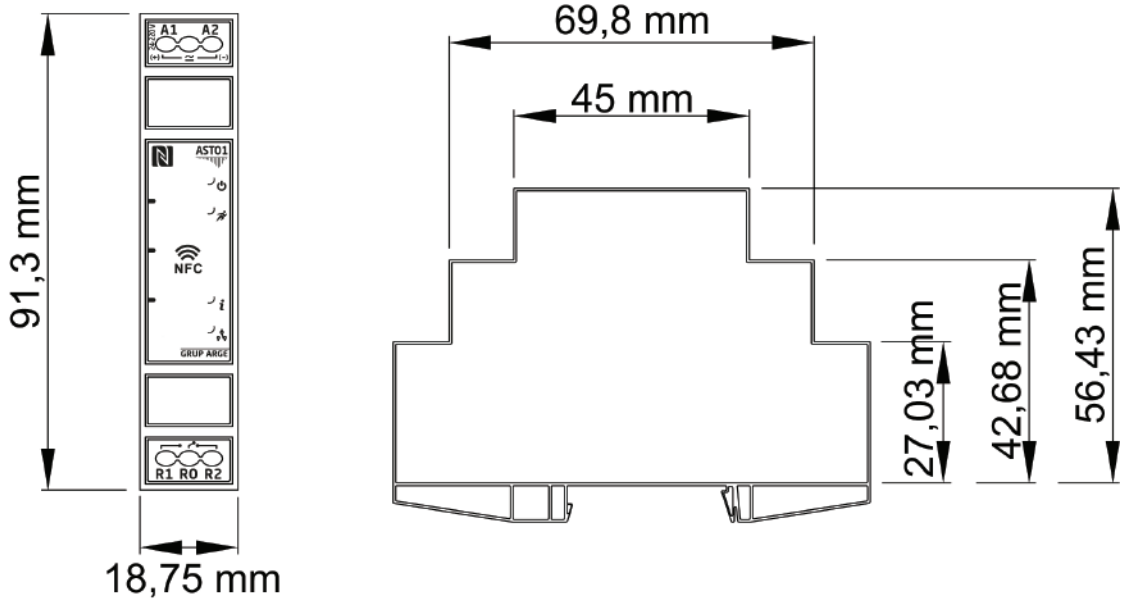
AST01 is a digital time relay with a real time clock that automatically calculates the sunrise and sunset times. AST01 is designed to control the devices connected to its contact according to the set days and hours of the week, as well as the set sunrise or sunset times.

Thanks to the NFC antenna on the device, device configuration/programming can be done via a smartphone with the TouchConfig mobile application. Through this application, 32 different programs can be created and installed on the device.

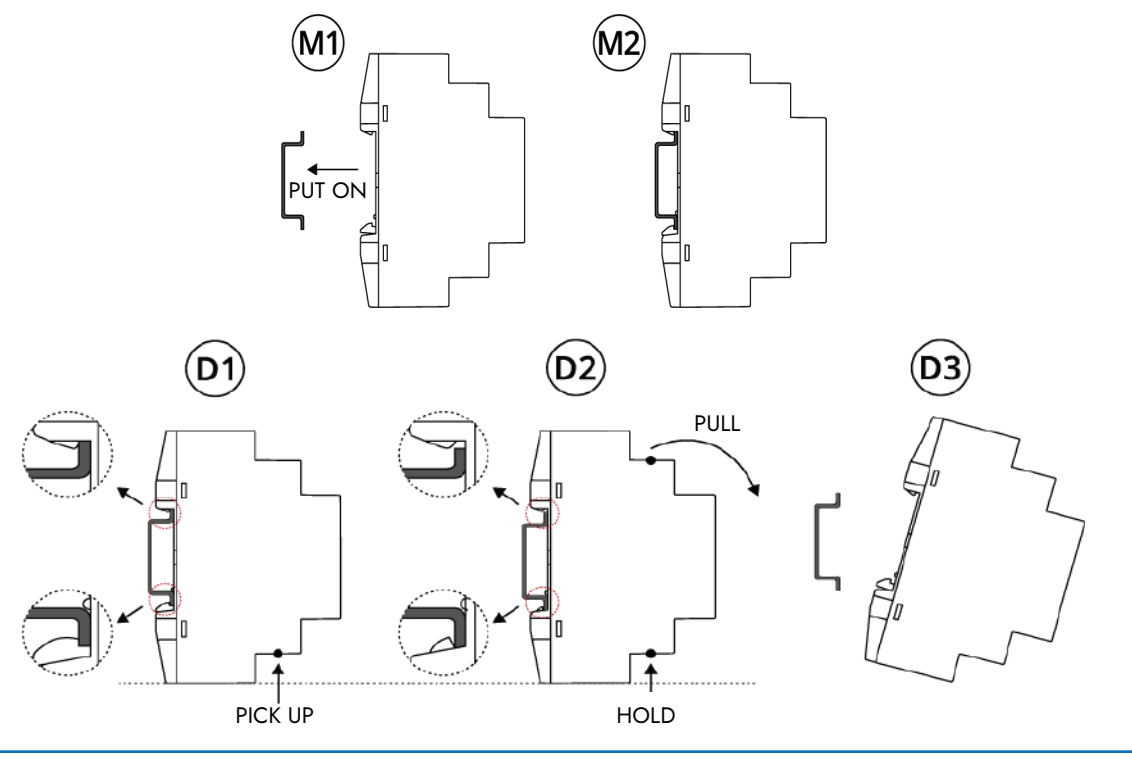
1.2. Technical Features

Operating Voltage	12-240 V AC/DC Supply
Operating Frequency	50-60 Hz
Time Interval	Programmable Time Interval
Program Number	32
Relay Output	10 A @250 VAC for R1 output (NO) 6 A @277 VAC for R2 output (NC)
Setting / Programming	Via NFC with Mobile App
Indicator	4 Pcs LED
Operating Temperature	-10°C, +55°C
Protection Class	IP20
Mounting	DIN Rail Mounting

1.3. AST01 Technical Drawing



1.4. Product Assembly and Disassembly



1.5. LEDs and Their Functions

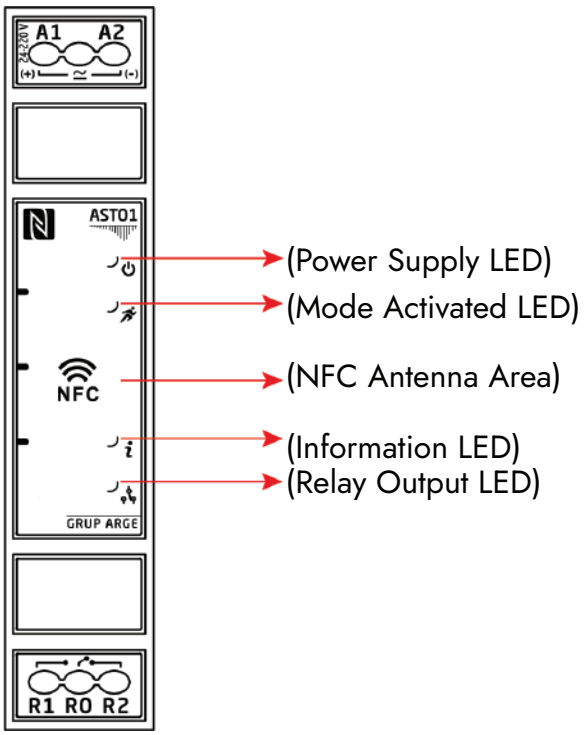


Figure 1.1

There are four LEDs on the device as shown in figure 1.1 These are in order from top to bottom:

⏻ (Supply/Power LED): Indicates whether the device is energized.
(Mode Active LED) : Blinks every second if the device is energized.
i (Information/Warning LED) : Lights up if the device has encountered an alarm condition/problem.
(Relay Output LED) : Lights up if R1 output is active.

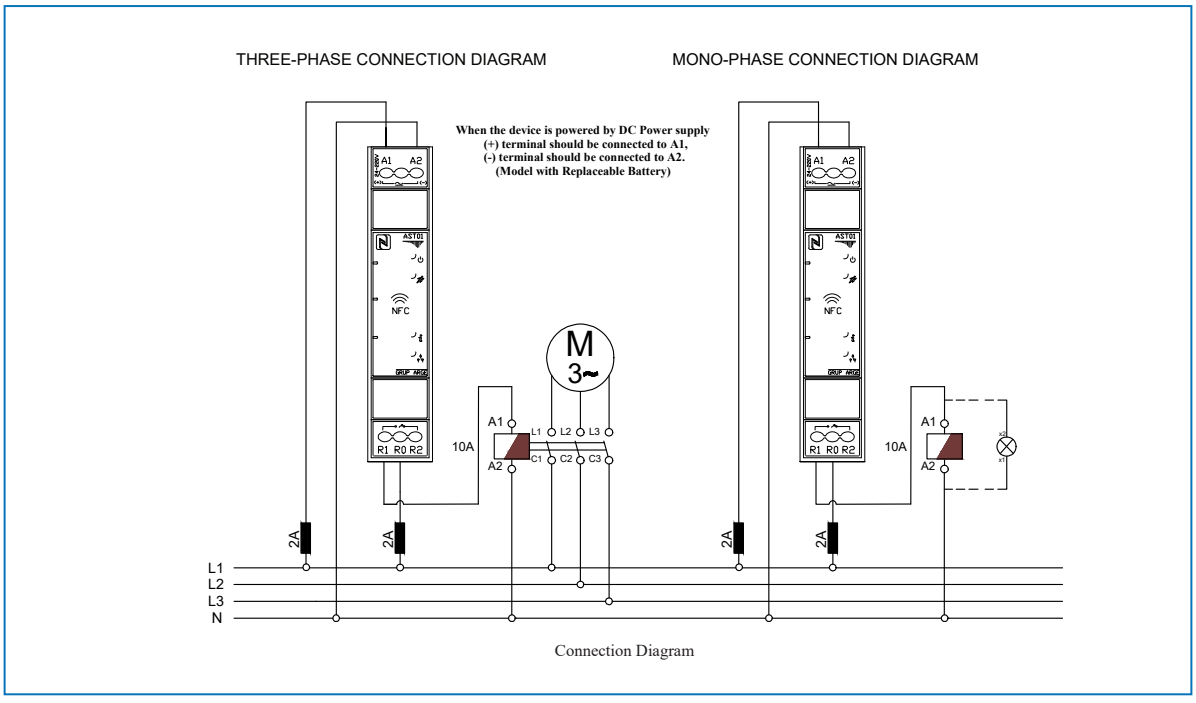
Aside from the LEDs, the symbol NFC on the device is the part of the device where the NFC module is located, which you need to bring closer when using the TouchConfig app on your mobile device.

1.5.1. LEDs in Case of Error

LEDs	Normal Use Case	
1.Supply/Power LED (Blue)	Energy is Available	
2. Mode Active LED (Green)	Closed	Intermittent Blinking
	Mode Not Installed	Mode Installed
3. Info/Warning LED (Red)	Continuous Blinking	Intermittent Blinking
	Battery Depletion Status	Clock is Out of Date
4. Relay Output Led (Green)	Relay Status	

Table 1.1

1.6. Device Connections



Connection Diagram

Supply Connection

The connections of the device are made from terminals A1, A2, R1, R0 and R2 as shown in Figure 1.

As can be seen from the symbols next to the A1 terminal, the supply to be connected to the device can be in the 24 and 220 V voltage range, regardless of AC or DC. A1 terminal is the positive / phase side of the supply and A2 is the negative / neutral side

Relay Output

The Relay Output of the device is at the R0, R1 and R2 terminals. R0 is the input terminal and R1 and R2 are the output terminals. When the relay is not engaged, that is, when the output is not active, the R0 terminal and the R2 terminal are short-circuited, therefore the signal entering from the R0 terminal is transferred directly to the R2 terminal. Meanwhile, R0 and R1 terminals are open circuit, meaning there is no output at R1 terminal.

When the relay activates, that is, when the output becomes active, terminals R0 and R1 become short circuit, and terminals R0 and R2 become open circuit. The signal entering from the R0 terminal is no longer output from the R2 terminal, but from the R1 terminal. R2 terminal does not give output until the relay releases.

2. TouchConfig APP

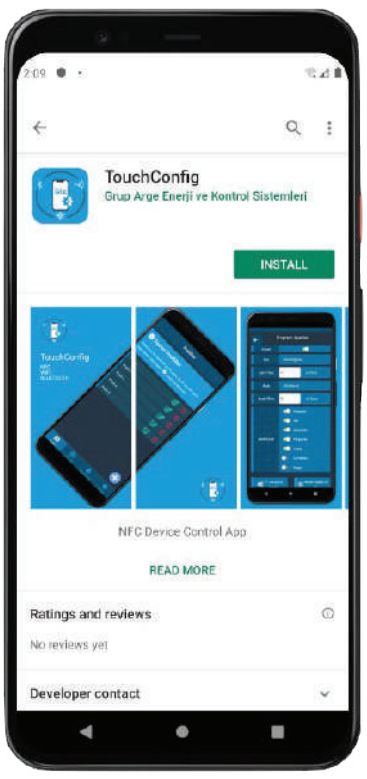


Figure 2.1.

App Store

Google Play

You can control your NFC devices with TouchConfig application. You can create profiles according to your needs and program the programs in these profiles according to features such as time-dependent, sunrise, sunset, etc. and set your time relay with the help of NFC.

2.1. Application Overview

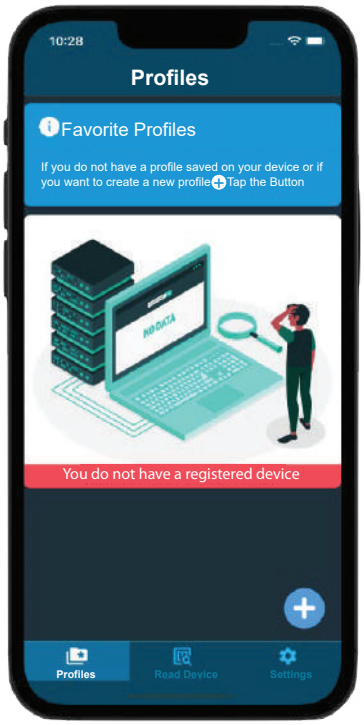


Figure 2.2.

When the application is first opened, the user is greeted with a screen as shown in Figure 2.2. From this screen, which appears as the main screen of the application; you can add profiles, read profiles on devices and make changes in the settings section. You can start the process of creating a new profile by pressing the plus button at the bottom right of the application.

2.1.1. Add Profile

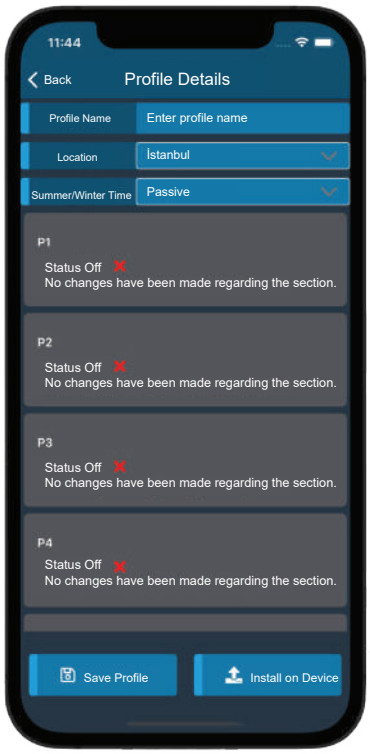


Figure 2.3.



Figure 2.4.

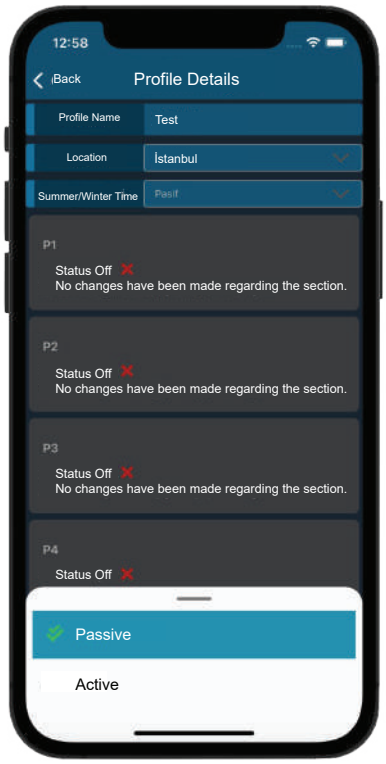


Figure 2.5.

Program: A program is the whole structure in which the withdrawal and release statuses are entered and which determines which operation is to be performed on which days.

Profile: A structure that can contain 32 programs is called a profile.

NFC: Near Field Communication (Technology that enables communication between the device and the phone)

When the add profile page is opened, we will see a screen like the one in Figure 2.3. On this page, we can enter the name we will give to the existing profile, the city where the product is used and the daylight saving time status. Then we can make arrangements according to our wishes in the set of 32 programs.

2.1.2. Program Configuration

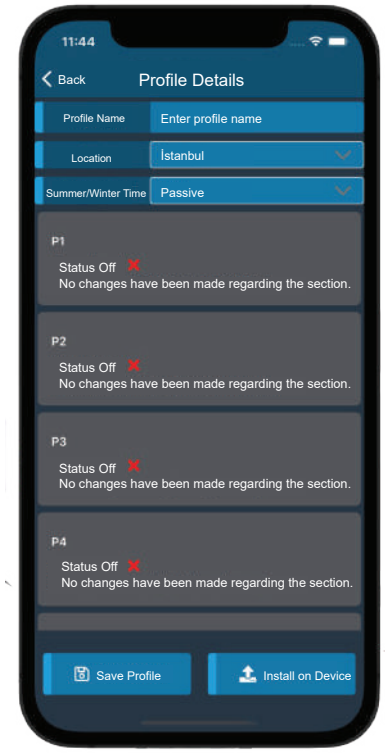


Figure 2.6.

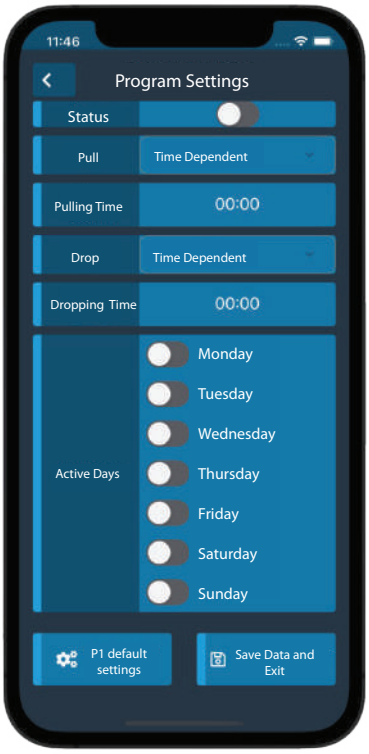


Figure 2.7.

After entering the required fields related to our profile, when we select any program to make the settings of the first program, a screen like the one in Figure 2.7 welcomes us. Fill in the required fields for program settings on this screen.

2.1.3. According to Time

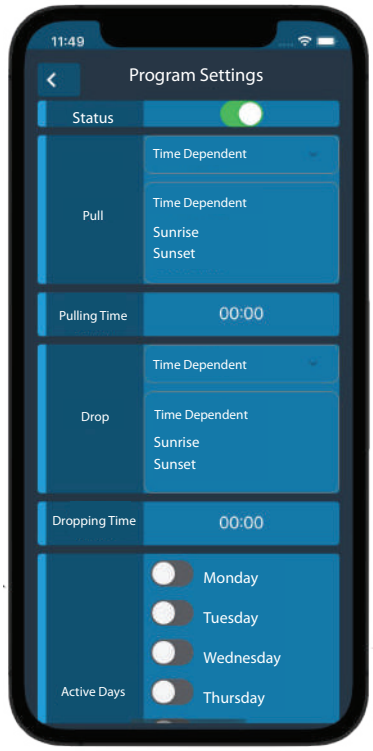


Figure 2.8.

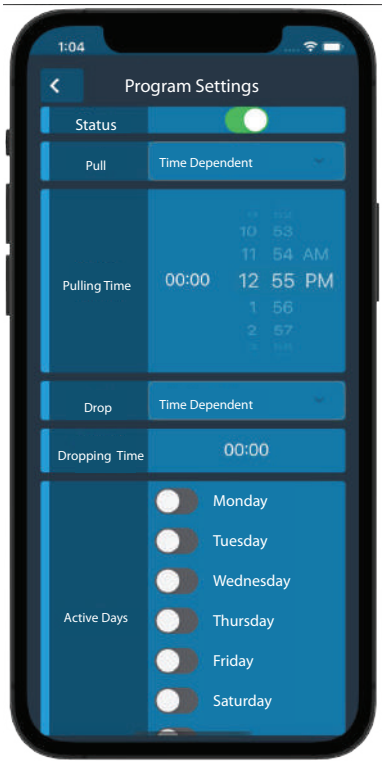


Figure 2.9.



Figure 2.10.

The device operates according to the hours you specify in the program setting section, so the values to be entered should be taken into consideration.

In the program, the status of the device must be set first. The operation of the program will be determined according to whether the status is off or on. According to the user's request, for the pull and drop states; sunrise, sunset or time-dependent options are selected and the setting is started by selecting one of the options.

When the user selects the time dependent option, he/she needs to enter a time value for the pull or drop time selection. After the time is entered, the time-dependent setting is made for the pull or drop (according to the part where the value is entered).

2.1.4. According to Sunrise and Sunset

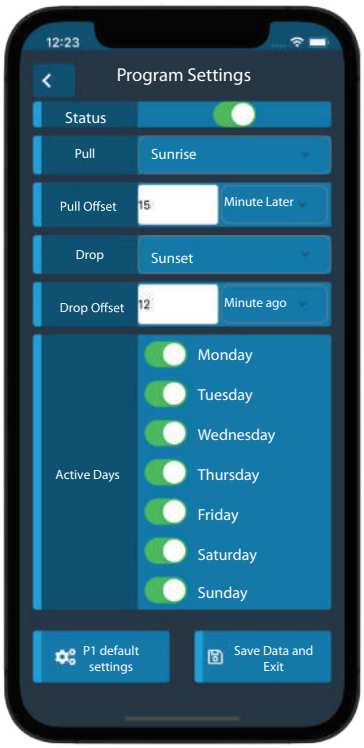


Figure 2.11.

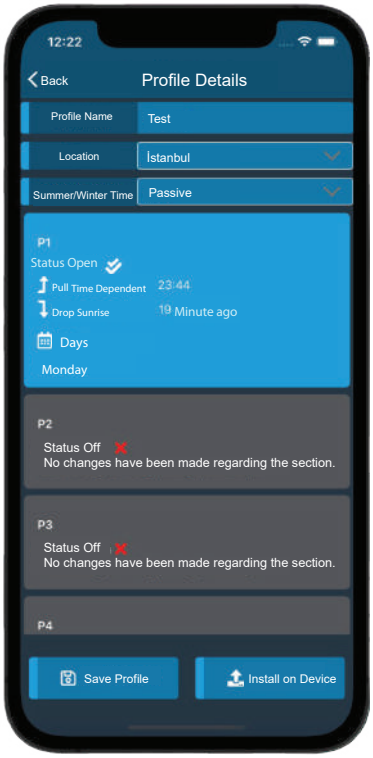


Figure 2.12.

If the user wants to use the structure for sunrise or sunset settings, he/she has to enter offset values. If the user wants the relay to be activated how many minutes before or after sunrise or sunset, that value is entered in minutes.

After the pull and drop adjustments are made, the user marks the days when the program should run. After marking, the user completes the setting of the program and presses the save data and exit button. The saved program is shown to the user with summary information as shown in Figure 2.12.

2.1.5. Profile Creation

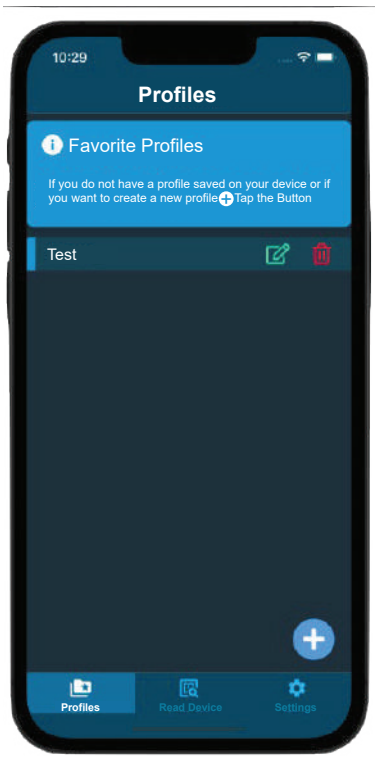


Figure 2.13.

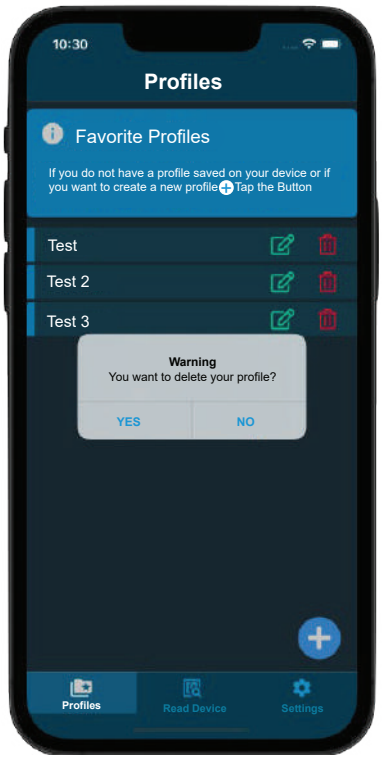


Figure 2.14.

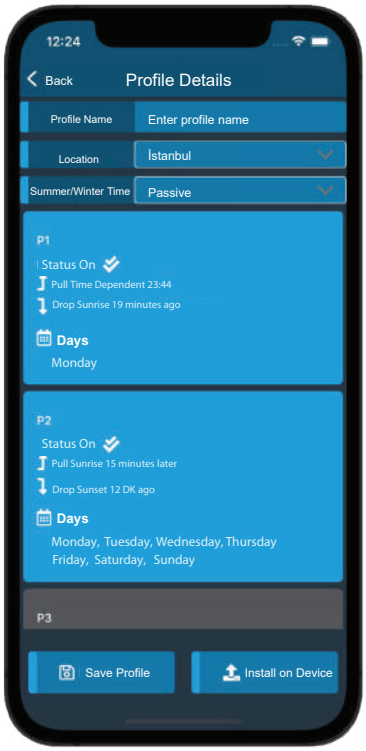


Figure 2.15.

We can add 32 programs as shown in Figure 2.15. The created programs are then saved to the profile when we press the Save Profile button and shown to the user on the homepage as in Figure 2.13. In this way, we can add as many profiles as we want and upload them to the device.

Optionally, we can delete or update the profile as shown in Figure 2.14. After creating and completing the programs in the profile in Figure 2.15, when we want to install it on the device, we will start the installation process by pressing the Install to Device button.

2.1.6. Upload Profile



Figure 2.16.

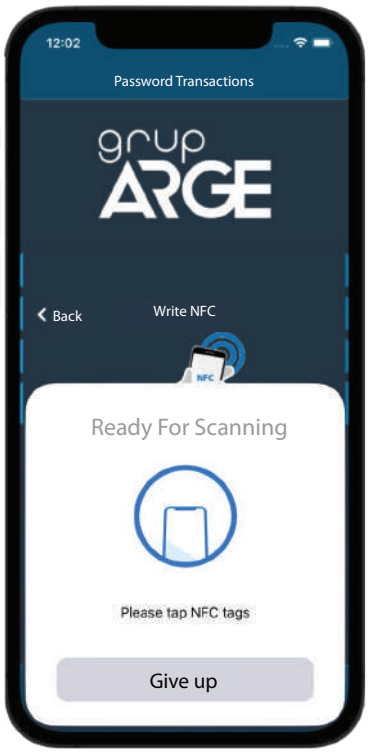


Figure 2.17.

To upload, your device must be NFC enabled. Installation cannot be done with devices without NFC feature. For NFC control; iOS Operating Systems: iOS phones have NFC feature on all devices from iPhone 7 and later. It is on by default without the need to turn it on in any way. On iOS phones, NFC is located at the top of the phone, next to the camera. Android Operating Systems: Most Android phones have NFC. However, some brands and models may not have it. If your device does not have NFC when the application is first opened, the user will be notified via message method. For NFC control, you can check the NFC feature by going to Settings > Connections > NFC. To turn on the NFC feature on your Android operating system phone, you can check Settings > Connections > NFC.

For Android devices, if the phone's NFC feature is turned off, after pressing the button, the user will be warned and reminded to turn on the NFC feature. After NFC is turned on, the loading screen will appear.

For iOS devices, the loading screen will appear as in Figure 2.17. Here, the user will perform the installation process by bringing the phone closer to the NFC device of the device. While the user is installing, the device status will be visible and the user will be alerted with a message when the process is complete.

Caution: Factors affecting read and write status on devices:

1) Phone and device are in close proximity to each other for interaction of NFC contact zones

2) NFC reader status of the phone

3) Internet connection of the phone (Required for clock uploads. When there is no internet, the device's current time will be assigned to the device).

2.1.7. Program Reading

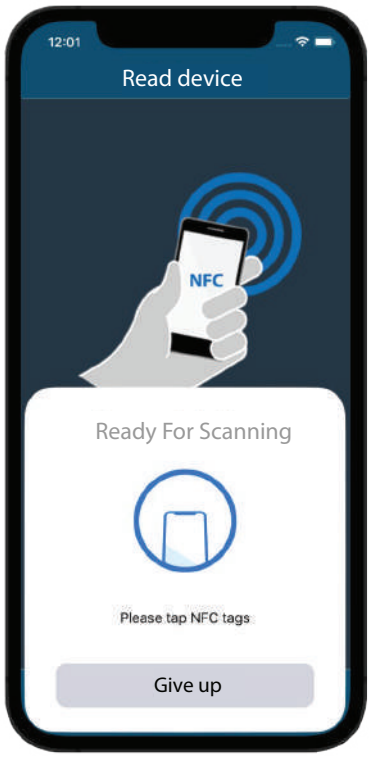


Figure 2.18.

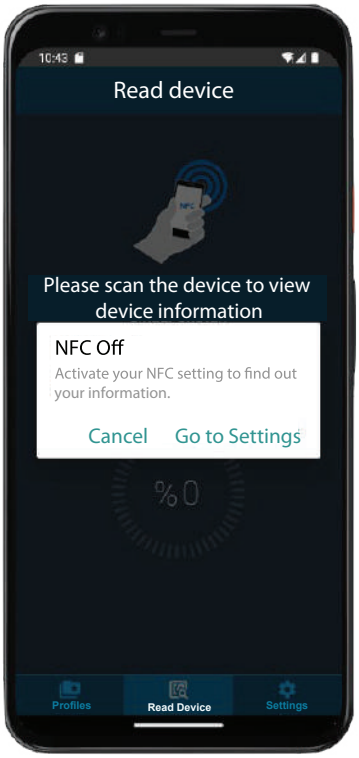


Figure 2.19.

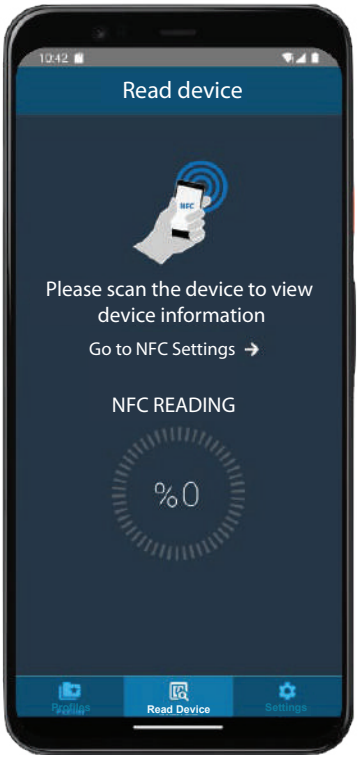


Figure 2.20.

There is another section in the app for scanning devices. If NFC is turned off on the Android platform, the user is warned and asked to turn it on. After NFC is turned on, once we bring the phone closer to the NFC device, the application starts reading and the reading status is shown to the user in a percentage format at the bottom. In this way, the user is informed about NFC. When the reading is completed, the saved profile page is shown to the user.