

# SERIAL DEVICE SERVER CONFIGURATION SOFTWARE

SC100 SERIES
 SERIAL DEVICE SERVER

12 / 2022 MIKRODEV\_SM\_SC100\_EN\_v1.0

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### Preface

Mikrodev SC100 series serial device server creates a gateway between serial communication (RS232 and RS485) ports and TCP/IP. Ethernet, GSM, Wi-Fi and RF communication port options are offered.

It can work as server in TCP/IP connection. It also provides multiple connection support for TCP socket connections and can serve up to 4 different TCP Master devices over the same port. The Mikrodev SC100 series serial device server is programmed using the Assistant program.

Please follow our site www.mikrodev.com for the current version of the document.

## About Mikrodev



Since 2006, MIKRODEV has been developing and manufacturing industrial control and communication products. MIKRODEV serves the system integrators in the public and private sector, OEM and end users.

Our products are manufactured complying with the quality standards required by the industrial automation industry and the quality of our products are proved on the field for many years

MIKRODEV is one of the few companies in the world that has its own designed IEC 61131-3 compliant library for its programmable logic control devices. In addition, the open, flexible, programmable SCADA solution developed by MIKRODEV is also available to customers.

MIKRODEV products' performance and wide range of applications make them possible for customers to achieve faster, simplified and cost-effective results.

## Warning!



- ✓ Use the programming editor only for Mikrodev Certifed devices
- ✓ When you change your physical hardware configuration, update your development to the appropriate version.
- ✓ The developed program should be tested separately before taking to field service and should be shipped to the field after the tests are successfully completed.
- $\checkmark$  Take all accident prevention measures and safety measures identified by local law



## Failure to comply with these rules may result in death, serious injury or property damage

#### **1** SERIAL GATEWAY CONFIGURATION SOFTWARE

#### **1.1 General Information**

The Assistant software is used to make all necessary settings for the Mikrodev gateway devices. Thanks to the software, device settings can be made online and/or offline. The settings that are loaded on the device can easily be downloaded and the previously saved settings can easily be uploaded into the device by the program.

The connection between the program and the device can be established in various ways such as USB, Ethernet, GSM, Wi-Fi. For Ethernet supported devices; there is also the ability to search the network and list details with connection information.

#### **1.2 Device Connection**

#### 1.2.1 USB Serial Connection

One of the methods for establishing communication between PC and Mikrodev device in device configuration is USB serial connection. In order to perform USB connection between PC and device, you need to install USB driver for PCs with Windows 7/8 / 8.1 operating systems. There is no need to install the USB driver for Windows 10 operating systems. For serial connection over USB, "Connect over USB" box in the "Connect and Configure Your Device" section of the Assistant software is selected. In the "USB Port Selection" section, you should select the port and click "Connect". USB connection will be established after that. (Figure 1)

Mikrodev Assistant v3.12					-	×
<b>Mikrodev</b> °	Levice Management	() bout				
Disconnected						
Connect And Configure Your Device						
Select a connection type. Make sure you have connected the device on appropriate	C Connect Over TCP					
interface	<ul> <li>Connect Over USB</li> </ul>		Click here for offline confic	uration		
USB Port Settings					_	
Select USB Port	USB Seri Cihaz (COM3)	*		Connect		

Figure 1 USB Connection

#### **1.2.2 TCP Connection – Device Discovery Mode**

"Network Discovery" option is used to detect and connect IP addresses of Mikrodev devices which are active in the local network. The "Network Discovery " box will be highlighted after the "Connect via TCP" box is checked in the "Connect and Configure to Device" section of the Assistant software. After clicking "Scan Network for Mikrodev Devices", the serial number, IP address, listening port and software versions of all Mikrodev devices which are active in the network are listed on the screen. (Fig. 2) You can connect the device on the list by double clicking on the device name on the screen.

Disconnecte	ed	_	_		
Connect /	And Configu	ure Your D	evice		
Select a connection interface	n type. Make sure you	have connected the	e device on appropriate	Connect Over TCP     Connect Over USB	Click here for offine configuration
address and port n	umber of a device	network for Mikrode	v devices or enter the	p ← Manual (● Network Discovery	
Device D	IP Address	Listen Port	Firmware Version		
- 5489 - 10428 - 65535	192.168.199.160 192.168.199.99 192.168.199.44	2404 502 502	15.41 15.26 15.39		
		Discover	y Completed		Search Network for Mikrodev Devices

Figure 2 TCP Device Discovery

#### **1.2.3 TCP Connection – Manual**

When manually entering the IP address and port number of the device that is active in the local network, "Manual" option is used. The "Manual" box is checked after the "Connect over TCP" checkbox is checked in the "Connect and Configure Device" section from the Assistant software. The IP address of the device to be connected is entered into the "Device IP" section, the port number is entered into the "Port" section and "Connect" is clicked. (Figure 3) Assistan software connects to the Mikrodev device with specified IP address and port number.

Mikrodev Assistant v			- 0	ı x
<b>NiKRO</b>	DEV®	📩 😨 🕕 Device Management Language About		
 Disconnected				
Connect A	nd Configure Your Device			]
Select a connection t interface	${\rm e}$ , where we have connected the device on appropriate $${\rm C}$$	Connect Over TCP Connect Over USB Click here for offline configuration		
Select Network Disco address and port nur	very to search the network for Mikrodev devices or enter the ip	Manual Network Discovery		
Manual Co	onnection			]
Device IP	192.168.2.200		]	
Port	502		]	
		Connect		
				J

**Figure 3 TCP Connection** 

#### **1.2.4 Port Numbering**

Port terminal places might difference according to PCB version of device. To do right configuration connect over USB to device and check version with AT commands.

Özel Komut Girişi AT+VERSION=?	Gönder
Figure 4 Version Query	
Response from device should be like below.	
VERSION=MBS100_E_s15.52p66	

**Figure 5 Response of Version Query** 

Check the PCB version number placed to last 3 character of response like "pXX" VERSION=MBS100\_E\_s15.52<u>p66</u>

- If PCB version is p55 ;
  - Port 1 -> RS 232 (ROUTE 1)
  - Port 2 -> RS 485 (ROUTE 2)
- If PCB version is p66 ;
  - Port 1 -> RS 485 (ROUTE 1)
  - Port 2 -> RS 232 (ROUTE 2)

#### 1.3 Offline Settings

Offline mode is used when parameter settings are made and saved without connecting to the device. Click on "Click here for offline configuration" on the Assistant main screen when you want to make the offline parameter settings. The device is selected in the screen that appears, and then "Select this device" is clicked. (Fig. 6) Offline parameter settings of the selected device can be made. In addition, using the "Load from configuration file" option on the same page, previously saved configuration values can also be loaded to the program.

Mikrodev Assistant v3.12		- 🗆 X
<b>Microdev</b> <sup>®</sup>	🛓 😨 🗿 Device Management Language About	
Disconnected		
Back MODBUS Gateway MODC Gateway M-BUS Gateway Serial Gateway Remote IO	SC100	Load from configuration file
Device Type	Device Family	Device Model
	SC100E	
	Select this Device	

**Figure 6 Offline Device Selection** 

#### 2 SERIAL GATEWAY Settings

#### 2.1 Status Page

It is the status information screen which shows related information to the connected Mikrodev device. This screen contains the device's manufacturing information, IP settings and serial connection settings (port1, port2). (Fig. 7) You can access the web interface of the device from this screen as well. To access the web interface, click the "Click here to access the web interface of the device" option.

	/ <sup>®</sup>		*				
			Device Mana	igement Langua	age About		
Disconnected	-						
atus					Ethernet		
isic Settings					Local IP		0.0.0.0
erial Gateway ettings					SubNetma		0.0.0.0
rminal					DefaultGat MAC	leway	0.0.0.0 1a:1b:00:00:00:00
					SSID		
				L. L.			
					PORT1		
					Baudrate		
					Databit		
					Stopbit		
					Parity	None	
	0.0.0.0				PORT2		
	Device				Baudrate	115200	
	Product Serial Number	SC100E			Databit	7	
	Firmware Versio				Stopbit	1	
	PCB Version	0			Parity		
	CSQ	0					
	Error Code	0					
	TCP Config Port	502					

**Figure 7 Status Screen** 

#### 2.2 Basic Settings

In the basic settings section, parameter set values are entered according to communication types. For ethernet connection enter the local IP, gateway IP, subnet and for GSM connection enter the APN, username, user password. SSID (modem username) and password are entered when Wi-Fi connection is requested. In addition; the password definition for access control to the Mikrodev device is performed on this page. Also, device connection follow-up duration, auto reset duration, and configuration port can be entered. You can send ID after connection by checking the "Send ID after connection" checkbox. (Figure 8)

🔅 Mikrodev Assistant v3.12						-	×
<b>Mikrodev</b>	®		La Device Management La	anguage Abo			
Connected							
Status	Ethernet				GSM/GPRS		
Basic Settings	Local Ip	192.168.2.200			APN		
Serial Gateway Settings	Gateway Ip	192.168.2.1			UserName		
Terminal	Subnet	255.255.255.0			Username		
	🗆 рнср				Password		
	Connection Parameter	ers			WIFI		
	Connection Track	līme (sn)	300		Password WiFi Local Ip		
	Auto Reset Time(s	n)	0		WiFi Gateway Ip WiFi Netmask Ip		
	Configuration Port	:	502		Security		
	□ Send ID After C	Connected			Serial No Password	643512	

**Figure 8 Basic Settings** 

#### 2.3 Serial Gateway Settings

The device has 2 separate routes for RS232 - Ethernet and RS485 - ethernet connections. In route 1, RS232 - Ethernet settings are made and in route 2, RS485 - Ethernet connection settings are made.

On the TCP socket settings side, the TCP socket server is selected, the port is defined. The defined port should not be the same for RS232 and RS485, it should be different. In the IP filter section, you can define the TCP client IP that you want to connect to the device. Only the IP address can be connected to the device. If you do not want to filter, this section should be 0.0.0.0 as shown in the figure (Figure 9).

Buffer settings are set here. The buffer size is used to define the packet size to be sent, and the buffer timeout is used to define the waiting time for sending if the incoming data does not reach the specified buffer size.

In the serial gateway settings section, baud rate, parity, stop bit and databit settings are made for RS232 and RS485. these settings must be made in accordance with the serial device to be connected to the Mikrodev device.

🔅 Mikrodev Assistant v3.12		-		×
<b>Mikrode</b>	Nevice Management Language About			
Connected				
Status			<u> </u>	]
Basic Settings	ROUTE1: TCP to RS232			
Serial Gateway Settings Terminal	TCP Socket Settings         TCP Socket         C client @ server         UsterPort 502         Filterip 0.0.0.0         Buffer Sze         512         Buffer Timeout (ms)         1000			
	ROUTE2: TCP to R\$485			
	TCP Socket Settings         C Client @ Server         ListenPort [503]         Filterip [0.0.0.0         Buffer Sze         [512]         Buffer Timeout (ms)         [1000]		Ţ	

**Figure 9 Serial Gateway Settings** 

#### 2.4 Loading Settings to Device

Click "Device Management" on the Assistant software to send the configuration settings to the device. Then click "Send Configuration" option. (Figure 10)

Mikrodev Assistant v3.12		×
Connected	Device Management Language About	
Status		
Basic Settings	ROUTE1: TCP to RS232	
Serial Gateway Settings Terminal	TCP Socket Settings     Serial Settings       C Clent @ Server     Serial Communication Settings       UsterPort 502     Baudrate 300 Y Parity None Y       Filter/p     0.0.0	
	Buffer State Sending Datable T State Sending data to device (2)	
	ROUTE2: TCP to RS485	
	TCP Socket Settings     Serial Settings       TCP Socket     Serial Communication Settings       LaterPort 503     Baudrate 300 m Perity       Pitter p     0.0.0       Buffer Size     Stop Bt       512     Datable       300     To me	

Figure 10 Load Settings

After completing the configuration, the device must be rebooted in order to register the settings. (Figure 11)

😫 Mikrodev Assistant v3.12	-	
<b>Mikrode</b>	B 🛃 🧔 😝 Device Management Language About	
Connected		
Status		
Basic Settings		
Serial Gateway Settings		
Terminal	Completed	
	SC100 device provide Sending configuration completed. Please restart your device for the applied changes to take effect.	
	ROUTE1: TCP to RS232	
	TCP Socket Settings Serial Settings	
	TCP Socket Serial Communication Settings	
	ListerPort 502 Baudrate 300 V Parity None V	
	FilterIp 0.0.0.0 Stop Bit 1	
	Buffer Size 512 Databit 7	<u>.</u>

Figure 11 Loading Finished

Restart the device by clicking "Restart Device" under "Device Management" on the main screen of the Assistant program. When the device is rebooted, you may need to remove and reinsert the USB cable to reconnect with the serial port. (Figure 12)

Mikrodev Assistant v3.12	® 🏂 😨 🚱 Device Management Language About	- O X
Status Basic Settings Serial Gateway Settings	© Restarting ? X	
Terminal	Restarting Device         Please disconnect and reconnect the usb connector. Your device is will reconnect after restarting. You will not be able to access the device for about 14 seconds.         70%	
	Cancel Reconnect       ICP Socket Settings       ICP Socket     Serial Communication Settings       Colent @ server     Baudrate       Buffer Sze     Stop Bit       512     Databit	~

Figure 12 Serial Connection Reset

The TCP connection between the device and the PC will be established automatically after the device is rebooted, after waiting approximately 20 seconds to reconnect to the device through the TCP connection. (Figure 13)

Mikrodev Assistant v3.12		
Disconnected		
Status Basic Settings Serial Gateway Settings	Restarting     ? ×     Restarting Device	
	Your device is will reconnect after restarting. You will not be able to access the device for about 12 seconds.	
	ICP Socket Settings     Senal Settings       C Clert ® Server     Senal Settings       UsterPort 502     Baudrate 300 Parity None Stop Bt 1 Parity       Filter 522     Databit 7 Parity	Ţ

Figure 13 TCP Connection Reset

#### 2.5 Terminal

Terminal is the section where the command lines for the SC100 series serial device servers are entered. In this section, information coming from the device is listed on the screen. In the "Custom Command Input" section, type the command to be queried (eg AT + VERSION =?) And click "Send" to send the query to the device. The query answer appears on the screen. (Fig. 14) Click "Clear History" in the "Console Window" section to clear the inquiries on the screen.

😟 Mikrodev Assistant v3.12		-		×
<b>Mikrode</b>	Sevice Management Language About			
Connected				
Status	- Console Window -		_	
Basic Settings	Clear History			
Serial Gateway Settings	VERSION=SC100_E_s15.31p51			
Terminal				
	Custom Command Input			
	AT+VERSION=?	Send		

Figure 14 Terminal Page