# SYUR03N-U1 UHF TCP/IP fixed Reader Manual



Version 01.01 2015/12/31



#### I. Features & Specification

Features:

- Support for full 860 to 960 MHz UHF RFID carrier frequency range to accommodate worldwide regulations
- Compatible with EPC Class 1 Gen 2;ISO-18000-6C
- Multi communication interface
- IP65 splash resistant case
- Provide protocol to develop.

#### Specifications:

Frequency	860~960MHz
Interface	Ethernet / Wi-Fi / RS485 / Wiegand
Wiegand	1 Wiegand output
RS485 baud rate	19,200 bits/sec (4,800~460,800)
Ethernet	10M/100M Ethernet Port
Wi-Fi	802.11 b/g/n
Indication	LED & Beeper (Extend 2W Speaker)
DI / DO	4 DI \ 4 RELAY
Protocols	EPC Class 1 Gen 2; ISO 18000-6C
Built-in antenna	8 dbi circularly polarized antenna
Read range	Up to 6 m (depends on tag's antenna)
*Optional extend module	Xtive RFID module, 13.56MHz HF RFID module, Bluetooth module
Power Supply	9 ~28 VDC (12 VDC)
Power consumption	2W~4W
Dimensions (mm)	231 x 231 x70 mm
Operating temperature	-20°C to 60°C
Storage temperature	-40°C to 85°C
Sealing	IP65 splash resistant case

# **II. Wiring Diagram**

# SYUR03N-U1 WIRING DIAGRAM



# **III. Network Parameter Setting**

1. Execute "NET\_Discover\_V0110.exe" and press Discover

to search SYUR03N product.

2. Factory default IP is "192.168.1.101". User can check the MAC address from product sticker with IP to confirm the device.

 NET_	Discover Version	1.1		
NUM	IP	MAC	INFO	Discover
3	192.168.1.221	44:33:4C:C4:8A:26	HLK-RM04(V1.78(Jul 23 2013))	
2	192.168.1.101	AC:A2:13:85:5A:71	HLK-RM04(V1.78(Jul 23 2013))	
1	192.168.1.181	AC(A2)13(85)5A(D9	HLK-RMU4(V1.78(Jul 23 2013))	

Double click IP (192.168.1.101) to open the web configure page(<u>http://192.168.1.101</u>)
 Default login ID / Password : admin / admin



4. Default Net Mode is the same as the following. User can modify Net Mode and other parameters. If device cannot communicate properly after setting, user can reset NET module via Micro USB.

NetMode:	ETH-SERIAL	T
ІР Туре:	STATIC •	
IP Address:	192.168.1.101	
Subnet Mask:	255.255.255.0	
Default Gateway:	192.168.1.254	
Primary DNS Server:		
Secondary DNS Server:		
	Current	Updated
Serial Configure:	230400,8,n,1	230400,8,n,1 *
Serial Framing Lenth:	1050	1050
Serial Framing Timeout:	10 milliseconds	10 milliseconds (< 256, 0 for no timeout)
Network Mode:	server	Server •
Remote Server Domain/IP:	192.168.11.245	192.168.11.245
Locale/Remote Port Number:	5001	5001
Network Protocol:	tcp	TCP 🔻
Network Timeout:	0 seconds	0 seconds (< 256, 0 for no

Communication Parameter	Factory Default
Serial Configure	230400,8,n,1
Serial Framing Length	1050
Locale/Remote Port Number	5001

# **IV. Network Mode Switch**

Default	Ethernet (DHCP) +Wi-Fi AP mode	HLK-RM04 Serial2Net Setting	
ETH-SERIAL	Ethernet only (Factory Default)	NetMode:	Default •
WIFI(CLIENT)-SERIAL	Wi-Fi client mode	SSID:	ETH-SERIAL
WIFI(AP)-SERIAL	Wi-Fi AP mode	Password:	WIFI(AP)-SERIAL

SYUR03N device support 4 network modes: Dual mode < ETH(Ethernet) < Wi-Fi AP < Wi-Fi client.

1. ETH-SERIAL : Factory default is ETH-SERIAL. ( Standard TCP/IP Reader )



When user modify the IP and click on Apply button, device will reboot and apply the setting after 30 seconds.

# HLK-RM04 Serial2Net Settings

NetMode:	ETH-SERIAL •
IP Туре:	STATIC V
IP Address:	192.168.1.206
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.1.254
Primary DNS Server:	
Secondary DNS Server:	

2. Wi-Fi client mode : SYUR03N can be set to communicate via Wireless AP without Ethernet.



HLK-RM04 Serial2Net Settings				
letMode:	WIFI(CLIENT)-SERIAL V			
SID:	HI-LINK_0508	* Scan		
encrypt Type:	WPA2 AES			
assword:	12345678			
P Type:	DHCP .			

Enter the SSID from AP you will connect to network.

Scan: User can scan AP in range of SYUR03N and select one to connect. But user cannot scan the AP after changing default network mode (Ethernet only) to Wi-Fi (Client). SYUR03N need to power off / on to enable the scan function.

**Encrypt Type** : Select Encrypt type for AP connection.

Password: Enter password for AP.

**IP Type**: DHCP is default mode. If user has to setup a static IP, please select Static.

3. Wi-Fi AP mode : Setup SYUR03N as AP (Wireless Access Point) for client device to communicate. This mode is usually for setting device.



#### HLK-RM04 Serial2Net Settings

NetMode:	WIFI(AP)-SERIAL
SSID:	HI-LINK_0508 *
Encrypt Type:	WPA2 AES 🔹
Password:	12345678
IP Address:	192.168.1.206
Subnet Mask:	255.255.255.0

**SSID**: Setup device's SSID.

Encrypt Type : Select Encrypt Type for the AP.

Password: Setting device's Wi-Fi password.

IP address: Setting device's Wi-Fi IP address.

Subnet Mask: Setting device's Wi-Fi subnet mask.





SSID: Setup device's SSID.

Password: Setting device's Wi-Fi password.

# V. USB Connection

Setup SYUR03N parameter via micro USB.



- 1. Install USB driver "CDC\_USB\_Driver\_VCP\_V1.4.0\_Setup.exe"
- 2. System will generate a virtual COM port.

For example. Check port in device manager.(below picture is COM 3)



User also can update driver manually. The driver is saved in the folder that is same as following.

🕼 l 💽 🕼 👳 l		Virtual comport driver			×
File Home Share	View				~ <b>?</b>
🔄 🌛 🔻 🕆 퉬 C:\Pro	ogram Files (x86)\STMicroelect	ronics\Software\Virtual comport driver	✓ C Sea	rch Virtual comport driver	Q
			🔲 👗 🖣	à 📋 🗙 🗸 🖃	
☆ Favourites	Name	Date modified	Туре	Size	
Desktop	퉬 Win7	7/27/2015 9:43 AM	File folder		
🗼 Downloads	퉬 Win8	7/27/2015 9:43 AM	File folder		
🗐 Recent places	version	10/19/2014 12:13	TXT File	3 KB	
~					
3 items 1 item selected 2.31 KB					
Type: TXT File, Size: 2.31 KB, Da	ate modified: 10/19/2014 12:13	PM	2.31 KB	🖳 Computer	.::

3. Get device Model information and serial number by using V7 Tools with correct COM port or TCP connection.

🕜 V7 Tools V0780		
File Language About		
COM NET		Close
1 IP: 192.168.1.216	Port 5001 2	Connect
🔽 Response 🗖 ID 🛛 1	S/N 00000000 PIN 0000 CRC BCC Encrypt(None)	Direct
COMMON COMM. DI/DO	READER UHF KEYPAD 86 Serial BT Card Controller CARD LOG CLOCK/M	
3 Get S/N	4 Model: 0652 SYUR03N-HBXU1 S/N: 00000000	
Get ID	ID: 1 Special: 0000 Set ID	ID: 1
Get Version	Name: F/W version: 0781	
Warm Start		
Initial	NET Initial(6 Sec)	
Command ok.	Connect IP: 192.168.1.216:5001	Default

4. V7 Tools also provides Ethernet mode. User only needs to fill-in correct IP and Port and click Connect to setup.

COM	NET		Close
	IP: 192.168.1.218	Port 5001	Connect



# VI. V7 Tools configuration

#### 1. Common:

🕜 V7 Tools V0780						
File Language About						Class
COM NET					_	Close
IP: 192.168.1.216	Port:	5001				Connect
Response DID	1 🗆 S/N 0000000	D PIN	0000 E C	RC 🗖 BCC	Encrypt(None)	Direct
	READER UHF KEYP	AD   86 Serial   E	3⊤ Card   Controll	ler CARD LO	og ∫clock/I	
Get S/N	Model: 0652	SYUR03	N-HBXU1	S/N: 0000	00000	
Get ID	ID: 1	Spec	ial: 0000	Set	ID	ID: 1
Get Version	Name:		F/W	version: 078	31	
Warm Start						
Initial	NET Initial(6 Sec)					
			Conr	nect IP: 192.168.	1.216:5001	Default

Get device serial number \ device ID and firmware version.

Warm Start: Reboot device.

Initial: Restore device to factory default (It is NOT including network setting).

NET Initial (6 sec): Restore network parameter of device to default mode. User has to setup by referring the following information after restore device to factory default.

Communication Parameter	Factory Default
Serial Configure	230400,8,n,1
Serial Framing Length	1050
Locale/Remote Port Number	5001



#### 2. Reader

V7 Tools V0780  File Language About	_
COM NET	Close
IP: 192.168.1.216 Port: 5001	Connect
Response       ID       I       S/N       00000000       PIN       0000       CRC       BCC       Encrypt         COMMON       COMM.       DI/DO       READER       UHF       KEYPAD       86 Serial       BT Card       Controller       CARD       LOG       CL	(None) Direct
Set Interface Interface: WEGAND & RS485 VIEGAND: 26 bits RS485: 64 bits	R-UID Get
Set Message Mode Active Blue(Power) LED Card LED: 30 x10ms Card BEEP:	30 x10ms Get
ISO14443A/B/ISO15693       Card test         Same Card Delay:       10       x100ms       ☑ Green Mode       ☑ Reset	
Card Type: IZ UID(A)	Auto Read
	Test Messgae
Connect IP: 192.168.1.216:500	1 Default

Set Interface: Setup reader's communication interface. Default is "Wiegand & RS485".

#### 3. **DI/DO**

🕜 V7 Tools V0780	_ 🗆 🗡
File Language About	
COM NET	Close
IP: 192.168.1.216 Port 5001	Connect
Image: Provide the system         I	ne) Direct
COMMON COMM. DVDO READER UHF KEYPAD 86 Serial BT Card Controller CARD LOG CLOC	K/MASTER   MIF/ 🚺 🕨
DI NO/NC DI Mode: Hold DI DI1 DI2 DI3 DI4 DI5	
Set DI DO Mode: Normal T D01 D02 D03 D04	
	Set D0
<ul> <li>DI1</li> <li>DI2</li> <li>DI3</li> <li>DI4</li> <li>DI5</li> </ul>	Delay: 100 ms Auto Test
Connect IP: 192.168.1.216:5001	Default

SYUR03 support 4 digital inputs and 4 relay outputs.

Click "auto test" to test DI/DO command.



#### 4. UHF

TV7 Tools V0780	X
COM NET	Close
IP: 192.168.1.216 Port: 5001	Connect
Response     □ ID     1     □ S/N     00000000     □ PIN     0000     □ 0	CRC BCC Encrypt(None) Direct
COMMON   COMM.   DI/DO   READER UHF   KEYPAD   86 Serial   BT Card   Contro Set ID block/byte Write data to Blo	Iler CARD LOG CLOCK/MASTER MIF
Auto Read: EPC  Addr. 2	TID OUSER
Length: 4 + Start 0 + Addr: 2	
Byte: 8 • • Same: 50 • • Length: 4	
Err Msg:LED T ID Reverse Set ID Block Get Read Block Date	a:
Reader power Frequency Range	Read block
25     (-2 <sup>2</sup> 25dBm)       Set     Get         Set     Get	c Write block
Con	inect IP: 192.168.1.216:5001 Default

**Set ID block/byte**: Select correct bank (EPC, TID or USER), address and length to setup SYUR03N auto read data.

Auto read: Support read EPC, TID and USER block. (Only EPC is available now.)

Length: Setup auto read data's length.

Byte: Setup auto read data's byte.

ID Reverse: Reverse read data.

Addr: Setup auto read data's address.

Start: Setup auto read data's address start byte.

Same: Same card time. Default is 50 (50 x 0.1=5 seconds)

**Reader power**: Setup UHF RFID power (-2~25 dbm) to control reader's read range.

Frequency Range: Setup UHF frequency range for different RF regulation.

Country	Frequency range
US	902~928 MHz
TW	922~928 MHz
CN	920~925 MHz
CN2	840~845 MHz
EU	865~868 MHz

Write data to block: Test read/write EPC tag data in this area.

# VII. SYUR03N Controller extend slave reader.

#### Extend slave reader via RS-485

1. Connect RS485 wire (4R+ to 4R+, 4R- to 4R-)

#### SYUR03 Master controller

# Xilve

#### SYUR03 slave reader









2. Select "READER" tab to setup interface to RS485.

🖸 V7 Command Tools V0780	
File Language About	
COM NET	Close
IP: 192.168.1.214 Port: 5001	Connect
Image: Image	) Direct
COMMON COMM. DI/DO READER KEYPAD 86 Serial BT Card Controller CARD LOG DISPLAY CLOC	
Set Interface Interface: RS485 VIEGAND: 26 bits RS485: 64 bits VIEGAND	R-UID Get
Set Message Mode Active WEGAND & RS485 Card LED: 30 x10ms Card BEEP: 30	x10ms Get
ISO14443A/B/ISO15693	
Same Card Delay: 10 x100ms 🔽 Green Mode 🔽 Reset	
Card Type: 🔽 UID(A) 🗖 Block 🖾 UID(B) 🖾 GUID(B) 🖾 ISO15693	
T Byte Set Card Mode Get Delay: 100 ms A	uto Read
None	Test Messgae
Request 05 00 04 80 00 02 02	
Response: 06 00 0C 00 00 02 02 01 00 03 00 00 00 00 00	Default
Connect IP: 192.168.1.214:5001	

- 3. Check controller and reader's RS485 communication rate are the same (Default is 64 bits).
- 4. Select "86 Serial" tab to setup "Controller mode" and "RS485 Master Mode".

🖸 V7 Command Tools V0780	_ 🗆 🗡
Eile Language About	
COM NET	Close
IP: 192.168.1.214 Port 5001	Connect
Image: Proceeding and the system         Image: Proceeding and	e) Direct
COMMON COMM. DI/DO READER KEYPAD 86 Serial BT Card Controller CARD LOG DISPLAY CLO	CK/MASTER M
Touch IR Sensor	
HF/LF Read: Auto	
Touch Key: CALL  BT Mode Auto BT PIN: 888	8 BT 4.0 💌
IR Sensor: DI4 IR Power: 100% SYBT_99999999	BT Same: 50
Set Touch IR Sensor Get Set Xtive TAG/BT	Get
DI/DO Mode	
Set DI/DO Mode       RS485 Mode       WIEGAND Mode       Controller         Set DI/DO Mode       Controller Mode       BCard Free Mode       DO Time (Unit0.1 Sec)         Patrol Mode       RXive Direct Mode       D01:50       D03:60	) 50 DO5: 50
Get DO2: 50 DO4: 5	50 DO6: 50
Request         05 00 04 80 00 02 07           Response:         06 00 2C 00 00 02 07 01 00 00 00 00 00 00 00 00 00 00 00 00	32 00 3
Connect IP: 192.168.1.214:5001	