



UKSOL



UKSOL Innovation Measure Data Sim Guide

Under the UKSOL Ofgem Innovation Measure approval number IM022, it is a requirement that the systems have the Tigo Cloud Connect fitted so that the property owner can monitor the system. Where the resident does not have internet to connect the Tigo Cloud Connect to, or where the property owner is a landlord wishing to have their own direct connectivity, it is a requirement of the approval that a data sim is provided, enabling the system to be monitored and the sim must come with 10 years' of free data included. In order to simplify this process and to keep costs to a minimum, a solution has been developed which can be purchased alongside UKSOL solar panels, from existing distributors, which consists of all hardware needed, plus the data sim with the 10 years' data pre-purchased. By using this solution, installers can ensure that they are compliant with the Innovation Measure approval and can access a very low cost data option, through the economies of scale achieved through this central purchasing approach.

What hardware is needed when using the data sim?

Unfortunately the Tigo Cloud Connect is not compatible with a USB data dongle, so the internet connection must be provided either through a wireless transmission, or through a Cat5 cable hard wired. In order to ensure a long-term reliable solution, we have selected a small modem that has been recommended by the data sim provider, which can be plugged into the Tigo Cloud Connect using a short Cat5 cable, thereby reducing any issues with the wireless signal.



The modem that has been selected is the [Teltonika RU200](#), which can access mobile signals using the 2G, 3G and 4G wavelengths. This small modem will fit on the din rail inside the electrical enclosure and like the Cloud Connect, will be powered by a din rail mounted power supply, so all equipment will be mounted in the same box together. UKSOL distributors will sell all equipment needed as a bundle, including the data sims pre-loaded with the 10 years' data.

Data Sim

The data sims supplied as part of this package are known as IoT sims, which have been selected due to their ability to work with any mainstream mobile provider and on all wavelengths, giving the best likelihood of finding and maintaining a data signal. Whilst this does not guarantee that you will be able to get connectivity in a very rural or remote area, it will be better than a sim linked to a standard mobile data provider.



Data Sim Security

To avoid residents finding a way to connect to the sim to get free internet, the sims are locked at an account level so that they are only able to have two way communication with two specific IP addresses that are linked to Tigo. The sims come pre-loaded with 10 years' of data, which is based on a maximum of 100mb of data a month. If the sim exceeds this amount, it will automatically be suspended, with data starting again at the start of the following month. Tigo indicate that to use the monitoring system and to allow for updates to be sent to the Cloud Connect, around 50mb per month should be enough, so 100mb should allow enough headroom for the monthly usage. The 10 year contract and any associated data does not start until the sim is connected and receives a signal from a mobile tower.

Installing and Setting up the Modem and Sim

Prepare RUT200

- Connect the mobile data antennas (do not attach Wi-Fi antenna)
- Open SIM tray on RUT200 Modem and put SIM card in face up
- Using patch cable, connect laptop ethernet port to the RUT200's WAN port
- Power up RUT200
- Once RUT200 has booted up, ensure your laptop sees an ethernet connection to the RUT200
- At this point the RUT200 will flash the 2G, 3G and 4G lights in sequence – this means it is searching for a signal
- Open Google Chrome on the laptop
- Type in 192.168.1.1 in the search bar. This should bring up the device login page for the RUT200
- The username and password are printed on the back of the RUT200

Once logged in, use the menu on the left to adjust system settings for mobile.

APN settings need configuring manually:

- APN – custom
- Custom name – soracom.io
- User – sora
- p/w – sora
- Authentication – PAP or CHAP
- Protocol - IPv4
- PIN – 0000
- Save
- Reboot

Upon reboot, the RUT200 will search for a signal. Once found, the appropriate 2G, 3G or 4G light will illuminate (depending on signal) and the signal strength will show. This will take approx. 30-60 seconds.

Install RUT200 and Tigo CCA (via ethernet)

- Install both RUT200 Router and Tigo CCA on a DIN rail in supplied enclosure using the supplied power supplies
- Ensure mains to the power supplies is the same circuit as the solar inverters
- Use patch lead, connect LAN port on RUT200 to ethernet on Tigo CCA
- Connect Tigo CCA to external equipment as per installation instructions
- Power Up
- Configure Tigo CCA via Tigo EI portal

Due to the low cost solution that has been provided, limited technical support will be provided and installers should rely on the websites below for any set up or technical issues.

- [Teltonika Modem](#)
- [Soracom sim support](#)

We recommend that installers take a photo of the sim and include it with the photos as part of the UKSOL system registration, with the sim ID number clearly focussed, to enable it to be read and entered into the registration system. This will enable us to verify that the correct mobile sim has been supplied with the 10 years' free data and will allow any troubleshooting if the sim is later identified as having a fault, as it will link the sim number to the address. You may also wish to configure the modems in the office before sending them to site, to avoid any technical issues caused by the installers potentially lacking the required IT skills to correctly set them up.

RUT200

INDUSTRIAL CELLULAR ROUTER



RUT200 360° VIEW

// RUT200 brings the top-rated features of our all-time bestseller RUT240 and is compatible with networks in Asia, CIS, the Middle East, Africa, and South America.

// Equipped with 4G LTE, Wi-Fi, and two Ethernet ports, this model is perfect to quickly set up primary and backup connectivity with remote management capabilities.

// Due to its compact size, industrial design, and I/Os, this model is very suitable in manufacturing, automation, transportation, and other industrial application scenarios that require mission-critical connectivity in rigorous conditions.



CONNECTIVITY

4G LTE (Cat 4), 3G, 2G

WI-FI

Wireless Access Point with Hotspot functionality

WAN FAILOVER

Automatic switching to available Backup connection

RMS

For remote management, access & VPN services



RMS COMPATIBLE WITH RUT200

MANAGEMENT | ALERTS | CONFIGURATION | ACCESS | FOTA

REMOTE MANAGEMENT SYSTEM

KEY FEATURES

HARDWARE

Mobile	4G/LTE (Cat 4), 3G, 2G
CPU	Mediatek, 580 MHz, MIPS 24KEc
Storage	16 MB Flash
Memory	128 MB RAM
Powering option	4pin power socket, 9-30 VDC
SIM	1 x External SIM holder (2FF)
Antenna connectors	2 x SMA for mobile, 1 x RP-SMA for WiFi
Ethernet	2 x 10/100 Ethernet ports: 1 x WAN (configurable as LAN), 1 x LAN
WiFi	IEEE 802.11b/g/n, Access point (AP), Station (STA)
Inputs/Outputs	On 4pin socket: 1 x Digital input, 1 x Digital open collector output
Status LEDs	3 x Connection type, 5 x Signal strength, 2 x Ethernet, 1 x Power
Operating temperature	-40 °C to 75 °C
Housing	Aluminium housing with DIN rail mounting option, plastic panels
Dimensions (W x H x D)	83 x 25 x 74 mm
Weight	125 g

SOFTWARE

Operating system	RutOS (OpenWrt based Linux OS)
Mobile features	Auto APN, Band lock
Network protocols	TCP, UDP, IPv4, IPv6, ICMP, NTP, DNS, HTTP, HTTPS, FTP, SMTP, SSLv3, TLS 1.3, ARP, PPP, PPPoE, DHCP, Telnet
Network	Failover (Network backup), VLAN, QoS, Load Balancing
Security	DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention), Port scan prevention (SYN-FIN, SYN-RST, X-mas, NULL flags, FIN scan attacks)
VPN and tunneling	OpenVPN, IPsec, GRE, PPTP, L2TP, Stunnel, DMVPN, SSTP, ZeroTier, WireGuard
Monitoring and Management	WEB UI, CLI, SSH, CALL, SMS, TR-069, SNMP, JSON-RPC, MQTT, MODBUS, RMS
Connection monitoring	Ping Reboot, Wget reboot, Periodic Reboot, LCP and ICMP for link inspection
Cloud solutions	RMS, FOTA, Azure IoT Hub, Cloud of Things, Cumulocity, ThingWorx
SMS features	DDOS prevention (SYN flood protection, SSH attack prevention, HTTP/HTTPS attack prevention), Port scan prevention (SYN-FIN, SYN-RST, X-mas, NULL flags, FIN scan attacks)
Services	DDNS, VRRP, Wake On Lan (WOL), WEB filter, UPNP, Traffic Logging

FRONT VIEW

BACK VIEW

