

RYC1001_Application_note



Telxt LE910C1 4G Cellular module



RYC1001 Example Account

<URL>	iot.reyax.com
<Username>	e22e0f401d
<Password>	password
<Network_ID>	6
<Device_ID>	euqco7P4Sjh0zF1berWlw1NbiAmsOctsnXbF

Demo terminal software : Docklight

Please visit website to obtain the software.

<https://docklight.de>

LE910C1 Operating procedures

Module Info:

```
// Request Manufacturer Identification
AT+CGMI

AT+CGMI

Telit

OK

// Request Model Identification
AT+CGMM

AT+CGMM

LE910C1-AP

OK

// Request Software Package Version
AT#SWPKGV

AT#SWPKGV

25.20.288-B017-POF.280201
MOF.280008-B017
POF.280201
A0F.280008-B017

OK

// Operator Selection
AT+COPS?

AT+COPS?

+COPS: 0,0,"TW Mobile",7 // +COPS: <mode>[,<format>,<oper>,< AcT>]

OK

// EPS Network Registration Status
AT+CEREG?

AT+CEREG?

+CEREG: 0,1 // +CEREG: <n>,<stat>

OK

// PDP Context Read Dynamic Parameters
AT+CGCONTRDP=

AT+CGCONTRDP=

// +CGCONTRDP:<cid>,<bearer_id>,<apn>[,<ip&subnet>[,<gw_addr>[,<DNS_prim_addr>[,<DNS_sec_addr>[,<P-
CSCF_prim_addr>[,<P-CSCF_sec_addr>]]]]]]][<CR><LF>
+CGCONTRDP: 1,5,internet,"10.108.61.124.255.255.255.248"
"36.2.117.0.4.134.52.38.0.0.0.0.15.86.211.116.255.255.255.255.255.255.255.0.0.0.0.0.0.0.0.", "10.108.61
.125" "254.128.0.0.0.0.0.0.0.0.0.0.0.0.0.1", "61.31.1.1"
"32.1.69.70.0.1.0.0.0.0.0.0.0.0.0.1", "61.31.233.1" "32.1.69.70.0.2.0.0.0.0.0.0.0.0.0.1"

OK
```

```
// USB composition configuration
AT#usbcfg?

AT#usbcfg?

#USBCFG: 0

OK

at#usbcfg=1 // AT#USBCFG=<composition> Set the RNDIS parameter = 1 to be used MQTT correctly

at#usbcfg=1

OK
```

-----[rebooting]-----

```
// USB composition configuration
AT#usbcfg?

AT#usbcfg?

#USBCFG: 1

OK

// EPS Network Registration Status
at+cereg?

at+cereg?

+CEREG: 0,1 // +CEREG: <n>,<stat>

OK

// RNDIS - Remote Network Driver Interface Specification setup
at#rndis=1,0 // AT#RNDIS=<Cid>,<Did>

at#rndis=1,0

OK

// PDP Context Activate Or Deactivate
at+cgact?

at+cgact?

+CGACT: 1,1 // +CGACT: <cid>, <state>[<CR><LF>+CGACT: <cid>,<state>[...]]
+CGACT: 2,0
+CGACT: 3,0
+CGACT: 4,0

OK
```

MQTT Init:

```
// Enable MQTT Feature
at#mqen=1,1 // AT#MQEN=<instance_number>,<enable>

at#mqen=1,1

OK

// Configure timeout parameters for MQTT transmission
at#mqtcfg=1,60 // AT#MQTCFG=<instance_number>,<packet_timeout>

at#mqtcfg=1,60

OK

// This sets the optional connection parameters for the selected MQTT client
```

```

at#mqcfg2=1,80,1 // AT#MQTCFG2=<instance_number>,<keepalive>,<clean_session>

at#mqcfg2=1,80,1

OK

// This sets the connection parameters for the selected MQTT client
AT#MQCFG=1,"iot.reyax.com",1883,1 // AT#MQCFG=<instance_number>,<host_name>,<port>,<cid>

AT#MQCFG=1,"iot.reyax.com",1883,1

OK

// Connect and log in the MQTT broker
AT#MQCONN=1," e22e0f401d0001","e22e0f401d","password" // AT#MQCONN=<instance_number>,<client_id>,<
user_name >,<password > client_id           Must not exceed 32 characters

AT#MQCONN=1," e22e0f401d0001","e22e0f401d","password"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/notification/6/#" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/notification/6/#"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/command/6/#" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/command/6/#"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/command_update/6/#" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/command_update/6/#"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/response/command/get@e22e0f401d0001" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/response/command/get@e22e0f401d0001"

OK

// Performs the subscription to a MQTT topic
AT#MQSUB=1,"api/response/notification/get@e22e0f401d0001" // AT#MQSUB=<instance_number>,<topic>

AT#MQSUB=1,"api/response/notification/get@e22e0f401d0001"

OK

```

Command publish:

```

// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,{"action":"command/insert","deviceId":"euqco7P4Sjh0zFlberWlwlNbiAmsOctsnXb
F","command":{"command":"Control Temperature","parameters":{"Control":"Temperature"},"status":"to
do","result":{"temperature":"27"}}}

AT#MQPUBS=1,"api/request",1,0,{"action":"command/insert","deviceId":"euqco7P4Sjh0zFlberWlwlNbiAmsOctsnXb
F","command":{"command":"Control Temperature","parameters":{"Control":"Temperature"},"status":"to
do","result":{"temperature":"27"}}}

OK

```

```
// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>
```

```
AT#MQREAD=1,1
```

```
#MQREAD: 1,"api/command/6/4/euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF/Control Temperature",391
<<<
{"action":"command/insert","command":{"id":57369931,"command":"Control Temperature","timestamp":"2020-11-27T06:50:27.391","lastUpdated":"2020-11-27T06:50:27.391","userId":6,"deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","networkId":6,"deviceId":6,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"todo","result":{"temperature":"27"}},"subscriptionId":1606459781118231}
```

```
OK
```

Command_update_publish:

```
// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,{"action":"command/update","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","commandId":57369931,"command":{"status":"done!","result":{"temperature":"28"}}}
```

```
AT#MQPUBS=1,"api/request",1,0,{"action":"command/update","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","commandId":57369931,"command":{"status":"done!","result":{"temperature":"28"}}}
```

```
OK
```

```
// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,{"action":"command/get","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","commandId":57369931}
```

```
AT#MQPUBS=1,"api/request",1,0,{"action":"command/get","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","commandId":57369931}
```

```
OK
```

Command_update_subscribe:

```
// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>
```

```
AT#MQREAD=1,1
```

```
#MQREAD: 1,"api/command_update/6/4/euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF/Control Temperature",391
<<<
{"action":"command/update","command":{"id":57369931,"command":"Control Temperature","timestamp":"2020-11-27T06:50:27.391","lastUpdated":"2020-11-27T06:51:50.751","userId":6,"deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","networkId":6,"deviceId":6,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"done!","result":{"temperature":"28"}}, "subscriptionId":1606459789893232}
```

```
OK
```

Command_query_publish:

```
// Publish ASCII string
// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]
AT#MQPUBS=1,"api/request",1,0,{"action":"command/get","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","commandId":57369931}
```

```
AT#MQPUBS=1,"api/request",1,0,{"action":"command/get","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","commandId":57369931}
```

```
OK
```

Command_query_subscribe:

```
// Read messages received from the MQTT broker
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>
```

AT#MQREAD=1,1

#MQREAD: 1,"api/response/command/get@e22e0f401d0001 ",390

<<<

```
{"action":"command/get","requestId":null,"status":"success","command":{"id":57369931,"command":"Control Temperature","timestamp":"2020-11-27T06:50:27.391","lastUpdated":"2020-11-27T06:51:50.751","userId":6,"deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","networkId":6,"deviceId":"28"},"parameters":{"Control":"Temperature"},"lifetime":null,"status":"done!","result":{"temperature":"28"}}
```

OK

Notification publish:

// Publish ASCII string

// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]

AT#MQPUBS=1,"api/request",1,0,"{"action":"notification/insert","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","notification":{"notification":"temp","parameters":{"temperature":"25"}}}"

AT#MQPUBS=1,"api/request",1,0,"{"action":"notification/insert","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","notification":{"notification":"temp","parameters":{"temperature":"25"}}}"

OK

Notification subscribe:

// Read messages received from the MQTT broker

AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

#MQREAD: 1,"api/notification/6/4/euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF/temp",274

<<<

```
{"action":"notification/insert","notification":{"id":2088563719,"notification":"temp","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","networkId":6,"deviceId":"25","timestamp":"2020-11-27T06:52:56.113","parameters":{"temperature":"25"},"subscriptionId":1606459772266230}
```

OK

// Publish ASCII string

// AT#MQPUBS=<instance_number>,<topic>[,retain[,qos[,message]]]

AT#MQPUBS=1,"api/request",1,0,"{"action":"notification/get","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","notificationId":1789764272}"

AT#MQPUBS=1,"api/request",1,0,"{"action":"notification/get","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","notificationId":1789764272}"

OK

// Read messages received from the MQTT broker

AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

#MQREAD: 1,"api/response/notification/get@e22e0f401d0001 ",273

<<<

```
{"action":"notification/get","requestId":null,"status":"success","notification":{"id":1789764272,"notification":"temp","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","networkId":6,"deviceId":"25","timestamp":"2020-10-27T09:27:15.522","parameters":{"temperature":"25"}}}
```

OK

// Read messages received from the MQTT broker

AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>

AT#MQREAD=1,1

#MQREAD: 1,"api/notification/6/4/euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF/temp",274

<<<

```
{"action":"notification/insert","notification":{"id":565324961,"notification":"temp","deviceId":"euqco7P4Sjh0zF1berWlwlNbiAmsOctsnXbF","networkId":6,"deviceId":"25","timestamp":"2020-11-
```



```
27T06:53:26.286", "parameters": {"temperature": "250"}, "subscriptionId": "1606459772266230}
```

OK

UNSUBTOPIC:

```
// Unsubscribe from a Topic  
AT#MQUNS=1,"api/notification/6/#" // AT#MQUNS=<instance_number>,<topic>
```

```
AT#MQUNS=1,"api/notification/6/#"
```

OK

```
// Unsubscribe from a Topic  
AT#MQUNS=1,"api/command/6/#" // AT#MQUNS=<instance_number>,<topic>
```

```
AT#MQUNS=1,"api/command/6/#"
```

OK

```
// Unsubscribe from a Topic  
AT#MQUNS=1,"api/command_update/#" // AT#MQUNS=<instance_number>,<topic>
```

```
AT#MQUNS=1,"api/command_update/#"
```

OK

```
// Unsubscribe from a Topic  
AT#MQUNS=1,"api/response/command/get@e22e0f401d0001" // AT#MQUNS=<instance_number>,<topic>
```

```
AT#MQUNS=1,"api/response/command/get@e22e0f401d0001"
```

OK

```
// Unsubscribe from a Topic  
AT#MQUNS=1,"api/response/notification/get@e22e0f401d0001" // AT#MQUNS=<instance_number>,<topic>
```

```
AT#MQUNS=1,"api/response/notification/get@e22e0f401d0001"
```

OK

```
// Read messages received from the MQTT broker  
AT#MQREAD=1,1 // AT#MQREAD=<instance_number>,<message_id>
```

```
AT#MQREAD=1,1
```

```
ERROR // Unsubscribe can't read messages
```

CLOSE:

```
// Log out and disconnect from the MQTT broker  
AT#MQDISC=1 // AT#MQDISC=<instance_number>
```

```
AT#MQDISC=1
```

OK

PC MQTT.FX APP DEMO

Command publish:

```
{  
  "action": "command/insert",  
  "deviceId": "JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL",  
  "command": {  
    "command": "Control Temperature",  
    "parameters": {"Control":"Temperature"},  
    "status":"to do",  
    "result": {"temperature": "27"}  
  }  
}
```

Command subscribe:

```
{"action":"command/insert","command":{"id":451757241,"command":"Control  
Temperature","timestamp":"2020-10-23T02:36:29.634","lastUpdated":"2020-10-  
23T02:36:29.634","userId":3,"deviceId":"JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL","n  
etworkId":3,"deviceId":4,"parameters":{"Control":"Temperature"},"lifetime":null,"st  
atus":"to do","result":{"temperature":"27"}},"subscriptionId":1603420528163529}
```

Command_update publish:

```
{  
  "action": "command/update",  
  "deviceId": "JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL",  
  "commandId": 451757241,  
  "command": {  
    "status": "done!",  
    "result": {"temperature": "28"}  
  }  
}
```

Command_update subscribe:

```
{"action":"command/update","command":{"id":451757241,"command":"Control  
Temperature","timestamp":"2020-10-23T02:36:29.634","lastUpdated":"2020-10-  
23T02:48:42.714","userId":3,"deviceId":"JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL","n  
etworkId":3,"deviceId":4,"parameters":{"Control":"Temperature"},"lifetime":null,"st  
atus":"done!","result":{"temperature":"28"}},"subscriptionId":1603420544271531}
```

Command query publish:

```
{  
  "action": "command/get",  
  "deviceId": "JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL",  
  "commandId": 451757241  
}
```

Command query subscribe:

```
{"action":"command/get","requestId":null,"status":"success","command":{"id":451757241,"command":"Control Temperature","timestamp":"2020-10-23T02:36:29.634","lastUpdated":"2020-10-23T02:48:42.714","userId":3,"deviceId":"JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL","networkId":3,"deviceId":4,"parameters":{"Control":"Temperature"},"lifetime":null,"status":"done!","result":{"temperature":"28"}}}
```

Notification publish:

```
{  
  "action": "notification/insert",  
  "deviceId": "JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL",  
  "notification": {  
    "notification": "temp",  
    "parameters": {"temperature": "25"}  
  }  
}
```

Notification subscribe:

```
{"action":"notification/insert","notification":{"id":1563790640,"notification":"temp","deviceId":"JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL","networkId":3,"deviceId":4,"timestamp":"2020-10-23T02:51:00.790","parameters":{"temperature":"25"}}, "subscriptionId":1603420537072530}
```

Notification query publish:

```
{  
  "action": "notification/get",  
  "deviceId": "JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL",  
  "notificationId": 1563790640  
}
```

Notification query subscribe:

```
{"action":"notification/get","requestId":null,"status":"success","notification":{"id":1563790640,"notification":"temp","deviceId":"JFjNmVQHIB4oAOZIZtGRWffQDjhSQ00y1BtL","networkId":3,"deviceId":4,"timestamp":"2020-10-23T02:51:00.790","parameters":{"temperature":"25"}}}
```