Cell Connect

Datasheet

A-CELL

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CONTENTS

aparian

1. PREFACE

1.1. ABOUT THIS DOCUMENT

This document contains the technical data for the Cell Connect module. The Cell Connect module provides an easy to configure method to exchange tag data between Logix controllers over a cellular network as well as sending messages to user's mobile phones.

1.2. FEATURES

The Cell Connect module can send and receive cellular text messages using Short Message Service (**SMS**) or **Telegram** instant messaging, providing a remote interface between man and machine.

In addition to the on-board 4 digital inputs and 2 relay outputs, the module supports EtherNet/IP and Modbus-TCP, allowing the monitoring of remote devices. Using EtherNet/IP, the module can monitor tags in a Rockwell Automation Logix controller, and initiate a message when the tag value changes.

Similarly, messages can also be initiated when pre-configured Modbus register values change in a Modbus-TCP slave device. The module can also receive messages, which can be used to either change the state of the on-board relays, or write to Logix tags or Modbus registers.

The security of a system is not compromised with the addition of the Cell Connect Module. Only Text Messages received from Phone Numbers listed in the module's configuration are processed. In addition, only configured commands for each specific group will be processed. Attempts to access commands by non-approved users will be shown in the cellular statistics.

The Cell Connect module can also exchange tag data between Logix controllers, registers between Modbus devices, and CIP objects between EtherNet/IP devices securely over a GSM data network using various encryption and security methods. The on-board digital inputs on a remote device can be read over the GSM network and inserted into either a Logix Tag or Modbus Register. Similarly, the relay outputs can be set on a remote module from a Logix Tag or Modbus Register.

In addition to the encryption standards the module also supports passphrases allowing modules to communicate securely over the GSM network. **There is also no need for specific APNs to be set up for the modules to communicate over the GSM network, but rather off-the-shelf SIM cards can be used with very little configuration required**.

The Cell Connect module is configured using the Aparian Slate application. This program can be downloaded from www.aparian.com free of charge.

Hereafter the Cell Connect module will be referred to as the **module**.

1.3. ARCHITECTURE

The figure below provides an example of the typical setup.

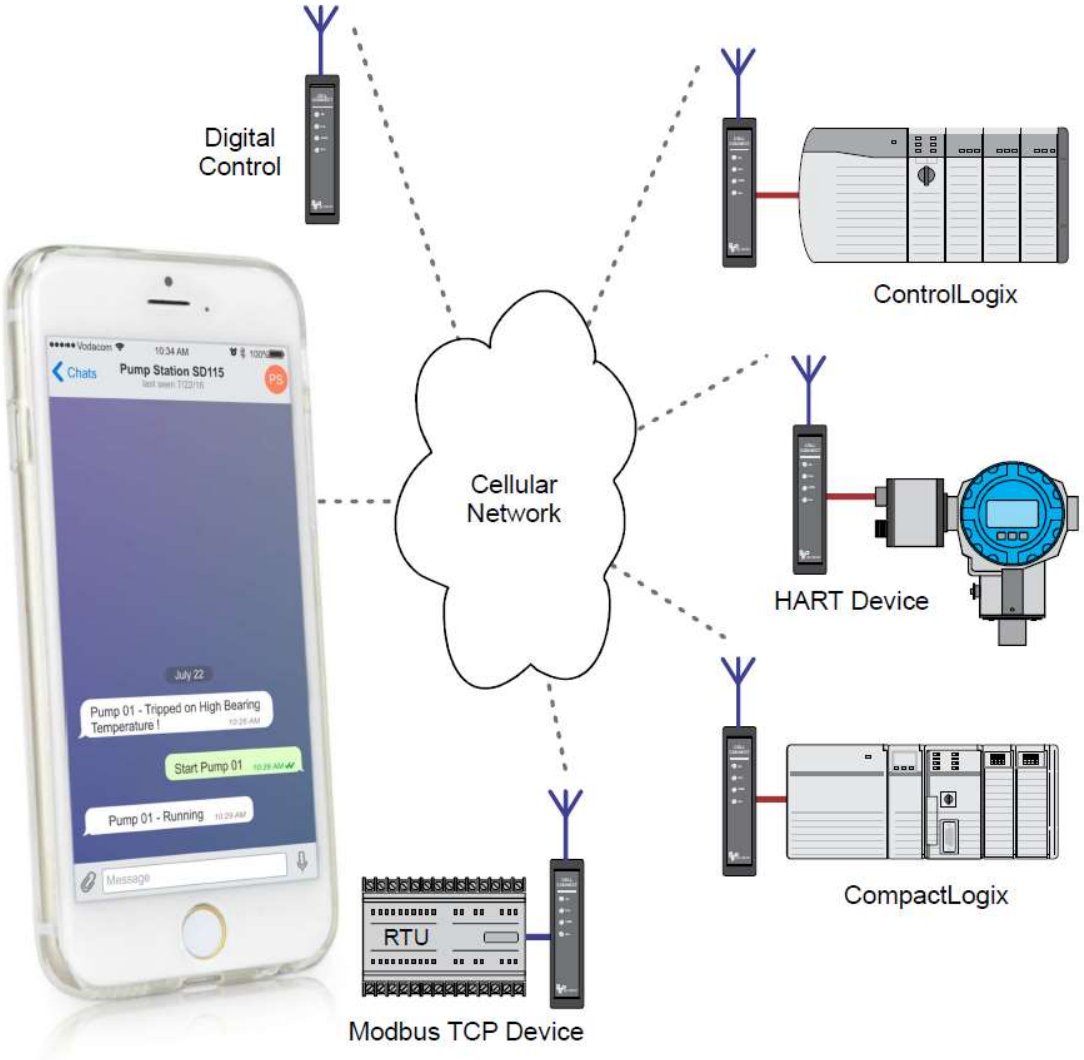

Figure 1.1. - Additional Information

1.4. ADDITIONAL INFORMATION

The following documents contain additional information that can assist the user with the module installation and operation.

Resource	Link
Slate Installation	http://www.aparian.com/software/slate
User Manual, Datasheet Example Code & UDTs	http://www.aparian.com/products/cellconnect
Ethernet wiring standard	www.cisco.com/c/en/us/td/docs/video/cds/cde/cde205_220_420/installation/guide/cde205_220_420_hig/Connectors.html

Table 1.2. - Additional Information

1.5. REFERENCES

Resource	Link
CIP Routing	The CIP Networks Library, Volume 1, Appendix C:Data Management
Modbus	http://www.modbus.org

Table 1.2. – References

1.6. SUPPORT

Technical support is provided via the Web (in the form of user manuals, FAQ, datasheets etc.) to assist with installation, operation, and diagnostics.
For additional support the user can use either of the following:

Resource	Link
Contact Us web link	www.aparian.com/contact-us
Support email	support@aparian.com

Table 1.3. – Support Details

2. TECHNICAL SPECIFICATIONS

2.1. DIMENSIONS

Below are the enclosure dimensions as well as the required DIN rail dimensions. All dimensions are in millimetres.

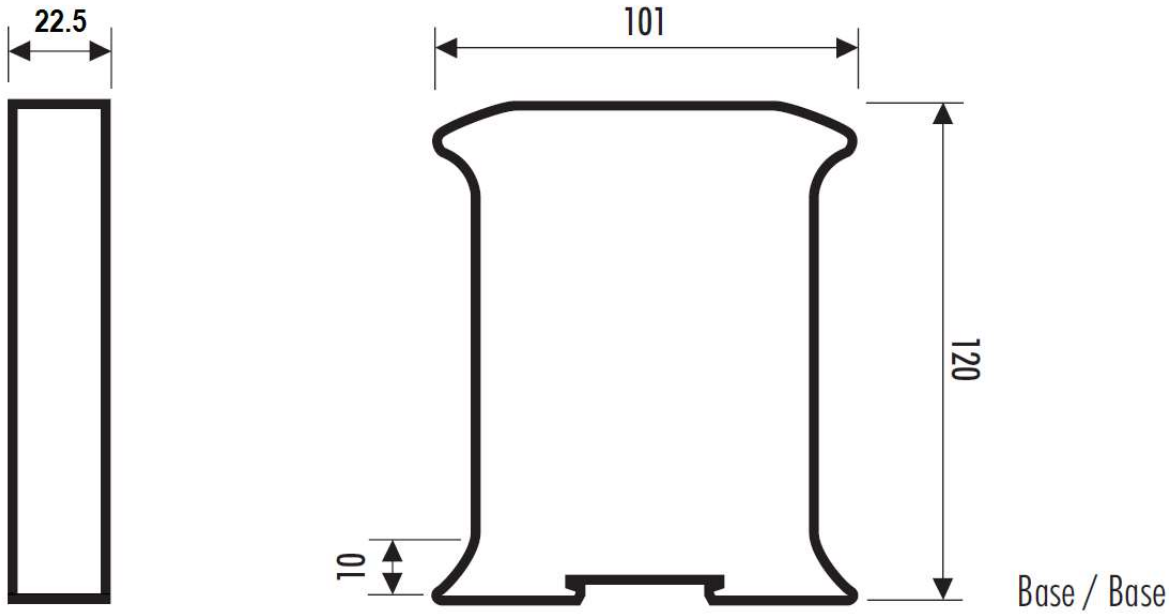

Figure 2.1 - Module Enclosure Dimensions

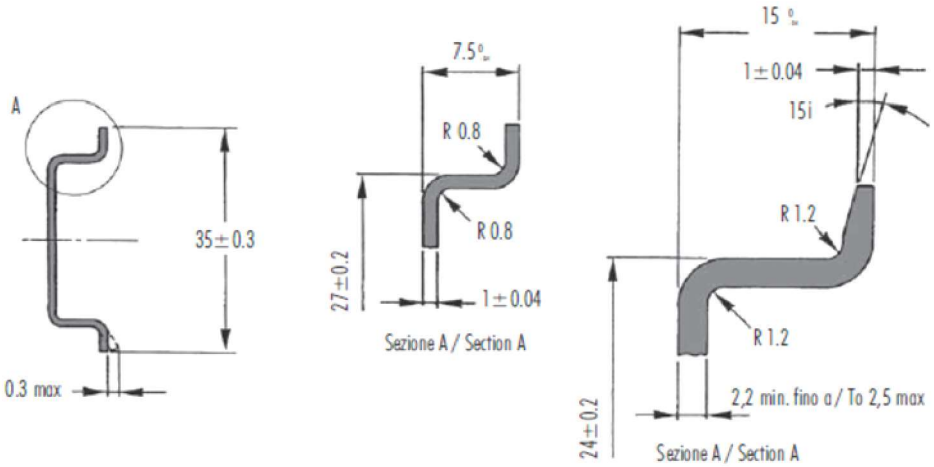

Figure 2.2 – Required DIN Rail Dimensions

2.2. ELECTRICAL

Specification	Rating
Power requirements	Input: 12 – 28V DC, 60mA @ 24 VDC (Typical) 200mA @ 24 VDC (Maximum) 120mA @ 12 VDC (Typical) 400mA @ 12 VDC (Maximum)
Power consumption	1.5 W (Typical) 4.8 W (Maximum)
Connector (Power)	3-way terminal (3.81 mm pitch)
Conductors	24 – 18 AWG
Enclosure rating	IP20, NEMA/UL Open Type
Temperature	-20 – 70 °C
Earth connection	Yes, terminal based
Emissions	IEC61000-6-4
ESD Immunity	EN 61000-4-2
Radiated RF Immunity	IEC 61000-4-3
EFT/B Immunity	EFT: IEC 61000-4-4
Surge Immunity	Surge: IEC 61000-4-5
Conducted RF Immunity	IEC 61000-4-6

Table 2.1 - Electrical specification

2.3. ETHERNET

Specification	Rating
Connector	RJ45
Conductors	CAT5 STP/UTP
ARP connections	Max 20
TCP connections	Max 20
CIP connections	Max 10
Communication rate	10/100Mbps
Duplex mode	Full/Half
Auto-MDIX support	Yes

Table 2.2 - Ethernet specification

2.4. DIGITAL INPUTS

Specification	Rating
Number of channels	4
Connector	5-way terminal (3.81 mm pitch)
Type	Optical Isolation
Input impedance	>2.4 kΩ
Logic 1 Voltage	10 – 32 V

Table 2.3 - Digital Input specification

2.5. RELAY OUTPUTS

Specification	Rating
Number of channels	2
Connector	3-way terminal (3.81 mm pitch)
Type	Solid State - Normally Open Single Pole
Load Current	600 mA (maximum)
Blocking Voltage	60V

Table 2.4 - Relay Output specification

2.6. CELLULAR NETWORK

Specification	Rating
SIM Card	Micro Sim
Frequencies	800/850/900/1700/1900/2100 Mhz
Technology	GSM/GPRS/3G/HSPA

Table 2.5 - Cellular Network specification

2.7. CELLULAR COMMUNICATIONS

Specification	Rating
Remote Station Max	50
Local/Remote Device Max	10
Message Contacts Max	50
Message Groups Max	20
Text Message Max	80

Data Transfer Item Max	50
Data Transfer Security	256-bit symmetric AES encryption 2048-bit RSA encryption Diffie–Hellman secure key exchange
Maximum Data Transfer Size per transaction	600 bytes
Unsolicited clients supported per device	5

Table 2.6 - Cellular Communications specification

2.8. CERTIFICATIONS

Certification	Mark
CE Mark	CE
RoHS2 Compliant	RoHS2
FCC	FC **Contains FCC ID: XPYLISAU200** This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
Industry Canada (IC)	**Contains IC: 8595A-LISAU200N** This Class B digital apparatus complies with Canadian CAN ICES-3 (B)/NMB-3(B) and RSS-210.
ICASA	ICASA TA 2016-2249 APPROVED

ODVA Conformance	EtherNet/IP™ * F/W 1.003

Table 2.7 - Certifications