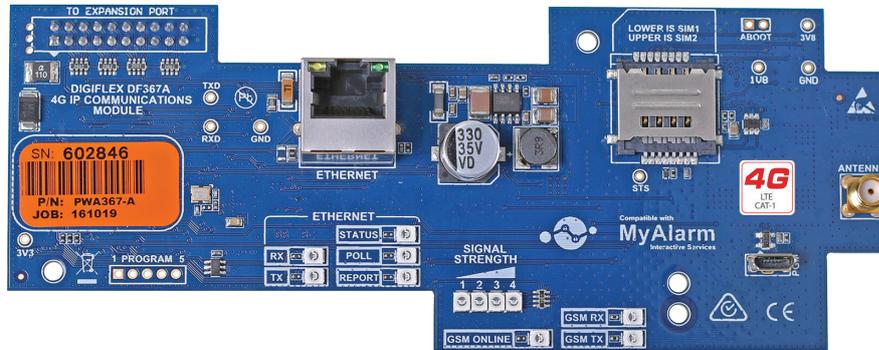


CM368B

IP Combo Module - 4G LTE CAT 1



Security Systems

EN

Installer Reference Guide
Security System

BOSCH

Introduction

The CM368B 4G CAT-1 IP Communication Module allows you to interface compatible security control panels to the cellular data network providing a high reliability reporting path. The module includes a wired Ethernet port providing a dual path reporting solution.

The CAT 1 network is widely supported by all carriers however if the unit is being installed in a remote location, you should insure the carrier you are using has sufficient coverage (signal) for reliable performance. SIM's must be on a plan that includes a data allowance.

The unit is installed onto the main control panel using the supplied plastic standoffs, while the supplied antenna should be mounted onto the outside of the metal cabinet.

Module Compatibility	
Panels Supported	Version
Solution 6000 Series	2.51.04

Table 1: Module Compatibility

Getting Started

There are four main steps required to configure the CM368B for reporting to the control room. The instructions assume that you already have purchased a SIM card and that the card has been charged with credit and activated on the network if necessary.

1. Install the SIM card into the lower card socket. (SIM1)
2. Install the CM368B hardware on the control panel.
3. Install the antenna.
4. Configure the module's features and parameters.
5. Configure the control panel for reporting.

Step 1 - Installing the Radio Module

Ensure that the panel is powered off before proceeding. Plug the 2 short plastic standoffs into the module and then plug it onto the Expansion Port header pins on the panel as shown in.

Install the SIM card into the SIM 1 card position.

Step 2 - Installing the Antenna

Remove the knockout in the top of the cabinet and pass the antenna lead through the hole ensuring the antenna is on the outside of the cabinet. Screw the lead to the socket on the radio module before power the panel.

Do not fix the antenna in place at this stage.

Step 3 - Configuring The Module

Connect the Ethernet port to the customers network using the cable supplied or other suitable cable.

Step 4 - Configuring The Module

Once powered the radio will attempt to connect to the network. This may take up to a minute to complete. During this time the online indicator on the module will be on solid. Once the radio has registered the online indicator will begin to flash and the signal strength indicators will show the current signal condition.

Experiment with the position of the antenna to find the best signal strength before fixing it in place.

Step 5 - Configuring The Panel Reporting

Reporting configuration will vary depending on the required options and whether or not the GSM module is to be used as the primary or secondary reporting route.

Configure the required reporting formats in MENU 5-4-0 and 5-4-1. The system can be configured to report to the

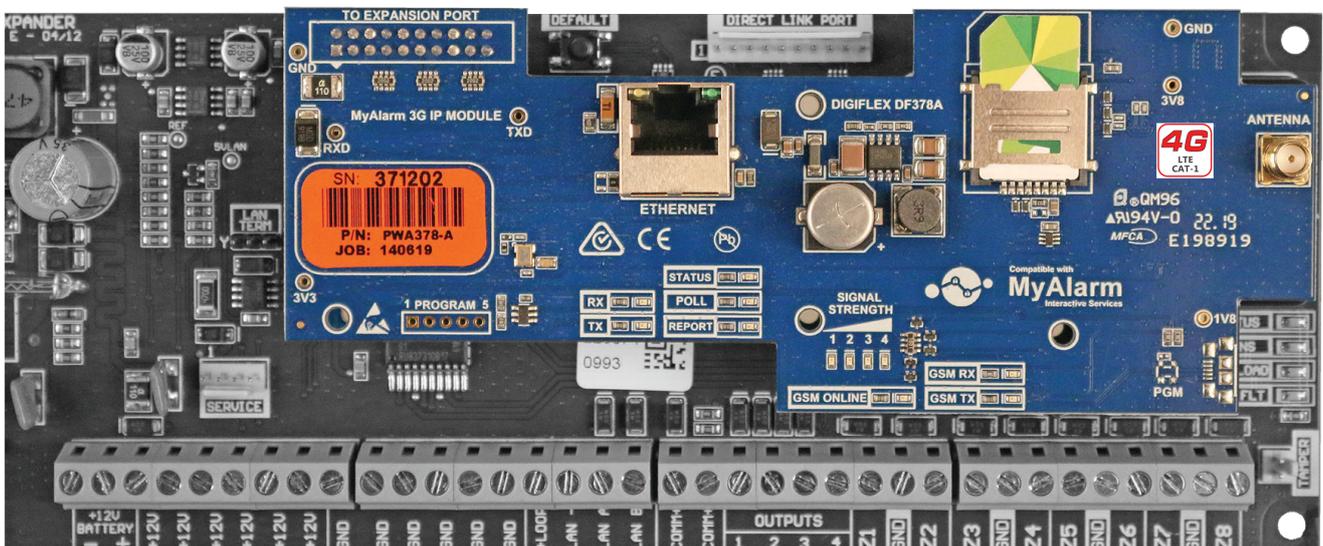


Figure 1: CM368B Module Installed On Solution 6000

base station in Conettix IP, SIA IP, CSV or to selected phone numbers via SMS.

All reporting scenarios are configured by varying the programming of the reporting format and reporting routes configurations options.

Module Indicators

The module includes a total of 12 led indicators which are used to show status and signal strength information. Separate indicators are provided for the GSM and Ethernet systems. Additional feedback is provided through the keypad and via the interactive option in Solution Link. See the tables below.

Module Indicators	
Indicator	Meaning
TX	Module Transmitting Data
RX	Module Receiving Data
Online	ON Steady = Not Registered On Network Pulsing = Registered On Network
Signal 1	Signal strength indicators show relative signal level at the radio. Signal indicator 1 on indicates weak signal and all 4 indicators on indicates stronger signal strength.
Signal 2	
Signal 3	
Signal 4	

Table 2: GSM/GPRS Indicator Meanings

Ethernet Indicators	
Indicator	Meaning
TX	Transmitting Data via Ethernet
RX	Receiving Data via Ethernet
STATUS	ON = Trouble - No Communication between Panel and Module. Slow Flash = Normal Operation Fast Flash = No IP Address or IP Address Conflict - See System Troubles
POLL	Flashes every time the control panel sends a poll packet.
REPORT	Flashes each time the control panel sends an alarm report.

Table 3: Ethernet Indicator Meanings

RJ45 Socket Indicators	
Green LED	Meaning
OFF	No Link / Connection
ON	Link Present
Blinking	Link with TX / RX Activity
Amber LED	Meaning
OFF	Half Duplex Activity
ON	Full Duplex Activity / Off
Blinking	Collision Activity

Table 4: RJ45 Socket Indicator Meanings

Supported Reporting Formats

Version 2.51.04 of the Solution 6000 panel firmware is required to support the CM368B.

The following reporting formats are currently supported by the module.

SMS Format via GSM
 CSV-IP Format via GPRS
 Conettix Format via GPRS
 CSV-IP Format via Ethernet
 Conettix Format via Ethernet

There is no support for Contact ID (CID) over GSM.

CLI Trigger Output Control

The CLI trigger tables in MENU 6-5-5-0 and 6-5-6-1 can be used to store a list of telephone numbers that can trigger an output on the control panel. If you call the GSM unit from a telephone number that matches a number in the CLI list then the appropriate output will be operated.

An output needs to be programmed with an event type of CLI Trigger and event assignment of 1 or 2 depending on which table is to be checked.

Simply call the GSM unit from a telephone number that is programmed in the CLI trigger list to activate the output.

Module Status

MENU 6-5-0 can be used to obtain various information on the radio module. The following information is currently available.

- 1) Connected Network
- 2) Signal Strength in dB
- 3) IMEI Number
- 4) Radio Firmware Revision
- 5) SIM Card Present

SMS Remote Control

The SMS control option in MENU 6-5-6 allows you to program up to 10 telephone numbers that are allowed to send SMS commands to the GSM unit.

Numerous commands can be sent to the panel using the SMS control functions including arming/ disarming areas, controlling outputs and doors or checking system status. The panel can also be requested to send a confirmation SMS if required. The control messages must be sent to the SIM phone number.

The SMS Control phrase table shows the correct method for constructing the SMS messages. Note there are no spaces between the fields only commas as shown.

SMS Control Smartphone App

The MyAlarm SMS Control App for iOS and Android devices is now available and can be used to simplify the configuration and sending of SMS control messages.



You can search for the MyAlarm SMS Control app in the app store or scan the QR codes below using your device's barcode reader for a direct link to the app.



Scan Here (iOS Version)



Scan Here (Android Version)

SIM Balance Recharge Reminder Function

In Solution 6000 version 2.20 firmware, a new SIM expire parameter can be added to the to the SIMBAL setup command when using the GSM module with a pre-paid SIM card. When configured the control panel will send a reminder to the designated SIM owner prompting them to recharge the SIM before it expires.

The SIM Balance string would include the follows parameters including the new optional reminder in weeks (01 to 52 weeks).

The MyAlarm SMS Control smart device app has been updated to include support for this new feature. For more information refer to the example below.

User Code

This field is used to enter your PIN (eg. 2580).

Command Header

The command header field is fixed - SIMBAL.

Access Number

Enter the communication providers access number for SIM card balance enquiries.

- Optus = 9999
- Vodafone = 1555 / 1512
- Telstra = #100#
- Virgin = 225

Text

Enter the text required by the communication providers to obtain your SIM card balance (Max = 16 characters). In Australia, examples may change and include:

- Optus = Balance
- Vodafone = Blank Message
- Telstra = Voice Call
- Virgin = Bal

Preamble

Enter text to search for the credit remaining on your SIM card (eg. if Vodafone Australia displays 'U've Remaining: 365 day: \$35.53 Exp: 09/11/2015' enter 'Day:' as the preamble).

Minimum Amount

Enter the minimum balance to filter GSM module SIM card balance enquiries. This allows the GSM module to only forward an SMS balance alert message to your mobile telephone when the SIM card balance falls below the minimum amount set here.

Days

This parameter sets how often the GSM module will automatically request a SIM card balance. This can be set between 001 and 255 days / 000 = disabled.

Mobile

This parameter allows you to program which mobile telephone number the GSM module will forward the SIM card balance enquiry of the GSM module to.

Expire Reminder

Enter the number of weeks for the GSM module to remind you to recharge your GSM SIM card (01 to 99 weeks / 00 = disabled).

Example

The example below is requesting a SIM Balance of the SIM card connected to the Vodafone network (Australia) with a reminder that the credit available on the SIM card requires a recharge in 25 weeks using a 180 day prepaid SIM card. The SIMBAL requests a balance enquiry every two days when the balance falls below \$20.00.

```
SIMBAL,2580,1555,Day,$20.00,002,0414123456,25
```

After 25 weeks, the GSM module will send the following SMS, 'SIM is about to expire please recharge immediately'.

Information in this example is correct at time of printing. Check with your telco carrier as these options may change.

GPRS Using The CM368B 4G Radio

The APN Server Name, APN User Name and APN Password menu's need to be configured before the 4G radio can establish a GPRS or data connection with the telco provider. Applications such as the MyAlarm iFob control app or reporting back to base over the GPRS connection require the data connection.

Devices > GSM/GPRS Module >

APN Server Name

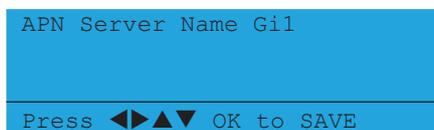
I MENU 6-5-7

APN (Access Point Name)

Enter the appropriate name of your GPRS mobile network provider to connect to the public Internet. For example Telstra APN=telstra.wap

Optus APN=yesinternet

Vodafone APN=live.vodafone.com

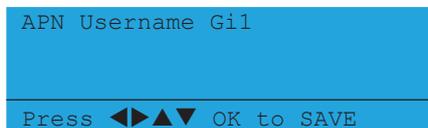


Devices > GSM/GPRS Module >

APN Username

I MENU 6-5-8

This can be used to identify you on a network however is mostly left BLANK.



Devices > GSM/GPRS Module >

APN Password

I MENU 6-5-9

A secret word or phrase that must be used to gain admission to the network however mostly left BLANK.



Description	SMS String
Arming / Disarming Areas	
Turning Area 1 On	<User Code>,AREA,1,ON
Turning Area 1 On With Confirmation	<User Code>,AREA,1,ON,CONFIRM
Turning Area 1 Part 1 On	<User Code>,AREA,1,PART 1
Turning Area 1 Part 1 On With Confirmation	<User Code>,AREA,1,PART 1,CONFIRM
Turning Area 1 Part 2 On	<User Code>,AREA,1,PART 2
Turning Area 1 Part 2 On With Confirmation	<User Code>,AREA,1,PART 2,CONFIRM
Turn Multiple Areas On	<User Code>,AREA,1,2,3,4,ON
Turn All Areas On That the User Belongs To	<User Code>,AREA,ON
Turning Area 1 OFF	<User Code>,AREA,1,OFF
Turning Area 1 OFF With Confirmation	<User Code>,AREA,1,OFF,CONFIRM
Check Area Status	<User Code>,AREA,1,STATUS
Check Status Of Multiple Areas	<User Code>,AREA,1,2,3,STATUS
Turning Outputs On/Off	
Turn Output 1 On	<User Code>,OUTPUT,1,ON
Turn Output 1 On With Confirmation	<User Code>,OUTPUT,1,ON,CONFIRM
Turn Multiple Outputs On	<User Code>,OUTPUT,1,2,3,4,ON
Turn Multiple Outputs On With Confirmation	<User Code>,OUTPUT,1,2,3,4,ON,CONFIRM
Turning Output 1 OFF	<User Code>,OUTPUT,1,OFF
Turning Output 1 OFF With Confirmation	<User Code>,OUTPUT,1,OFF,CONFIRM
Turning Multiple Outputs OFF	<User Code>,OUTPUT,1,2,3,4,OFF
Turning Multiple Outputs OFF With Confirmation	<User Code>,OUTPUT,1,2,3,4,OFF,CONFIRM
Check Output Status	<User Code>,OUTPUT,1,STATUS
Check Status Of Multiple Outputs	<User Code>,OUTPUT,1,2,3,4,STATUS
Locking and Unlocking Doors	
Unlock Door 1	<User Code>,DOOR,1,UNLOCK
Unlock Door 1 With Confirmation	<User Code>,DOOR,1,UNLOCK,CONFIRM
Unlock Multiple Doors	<User Code>,DOOR,1,2,3,UNLOCK
Unlock Multiple Doors With Confirmation	<User Code>,DOOR,1,2,3,UNLOCK,CONFIRM
Lock Door 1	<User Code>,DOOR,1,LOCK
Lock Door 1 With Confirmation	<User Code>,DOOR,1,LOCK,CONFIRM
Lock Multiple Doors	<User Code>,DOOR,1,2,3,LOCK
Lock Multiple Doors With Confirmation	<User Code>,DOOR,1,2,3,LOCK,CONFIRM
Check Status Of A Door	<User Code>,DOOR,1,STATUS
Check Status Of Multiple Doors	<User Code>,DOOR,1,2,3,STATUS
Check System Status	<User Code>,SYSTEM,STATUS
SIM Balance Check - Must have been configured under site settings	
Check Current SIM Balance	<User Code>,SIMBAL,<Access Number>,<Text., <Preamble>,<Min Amount>,<Days>,<Mobile>,<Expire Reminder>

Table 5: GSM SMS String Commands

Ethernet Port Setup

The Ethernet port on the CM368B IP Communication Module - 4G allows you to interface compatible security control panels to the building's hard wired IP connection point using a CAT 5E connection cable. Once configured and operating you will be able to report to monitoring centres that support the available IP reporting formats and to upload/download to the control panel through an internet or intranet connection.

Step 1 - Getting Started

A number of IP connection tools are included in the Solution Link RAS software and it is recommended that you make use of these when configuring the CM368B. At this point you should connect your laptop to the same LAN that the CM368B is connected and then run Solution Link.

If the premises has a Network Administrator you should work with them to complete the installation as a number of steps listed below can be avoided if the administrator can provide you with the required information.



It is important at this point to record the MAC or physical address of the CM368B IP module for future reference. You can record this information in the "Customer Details" on page 12

Ensure that the panel is powered off before proceeding. Plug the 2 short plastic standoffs into the module and then plug it onto the Expansion Port header pins on the panel as shown in "Figure 1: CM368B Module Installed On Solution 6000" on page 2. If you are connecting the CM368B to a panel which also has a CM101B Voice Module fitted then you should use the longer standoffs from the HW750 Riser Kit.

Once the cable is connected and the panel is powered, observe the module's green Status LED. Under normal operation the Status LED will remain on steady for approximately 3 seconds following power up while the system configures the module.

During this process if the connected internal network is DHCP enabled, the module will request an IP address from DHCP server. Once the module receives an address the Status LED will begin to flash slowly.

If the Status LED is flashing fast then the module has not received an IP address or there is a IP address conflict. If this occurs check all LAN wiring to the module and or contact the network administrator for assistance.

Step 2 - Configuring the IP Module's Network Settings

The CM368B module will need a fixed or reserved IP address on the network that it is to be connected to. If the network administrator is available then they should provide you with the Default Gateway, Subnet Mask and IP Address to be used.

If you are trying to determine this information without an administrator then you will need to obtain the Default Gateway and Subnet mask for the network. To do this run the IPCONFIG command on your laptop or another PC which is connected to the same network as the module.

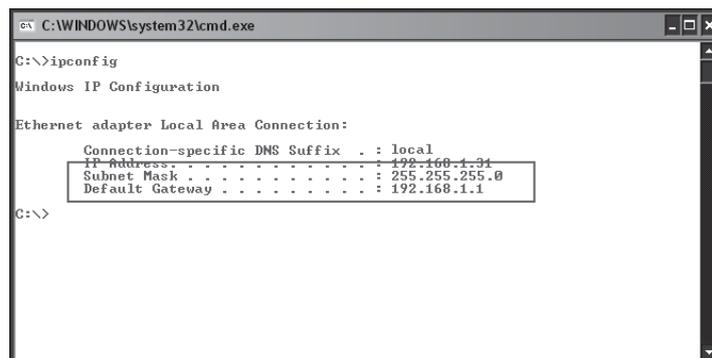


Figure 2: IP Config Showing Gateway and Subnet Mask

IPCONFIG will list the Default Gateway, Subnet Mask as well as the IP address of the PC which executed the command. Note this is not the IP address assigned to the CM368B and is not needed to complete the installation.

You can also access this information by running Control Panel, Network Connections and then double click on Local Area Connection and select the support tab.

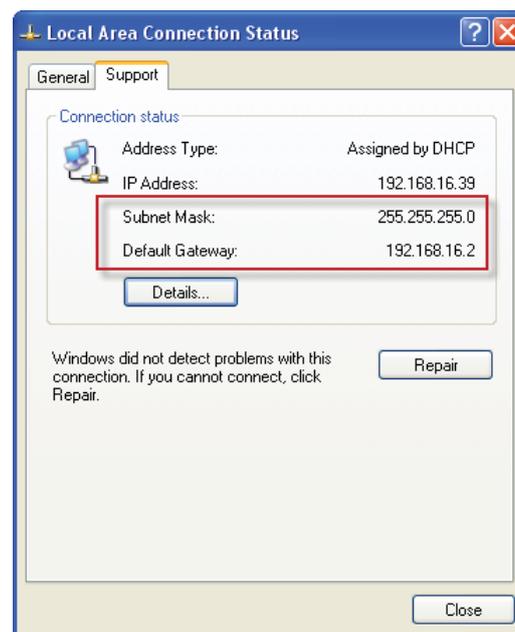


Figure 3: Local Area Connection Status

Once you have this information, create a new customer record in Solution Link or open an existing one if you are adding the CM368B module to an existing customer. From the Customer Panel form, set the default connection method to Ethernet (TCP/IP) and then press the Auto Detect button to launch the Network Assistant.

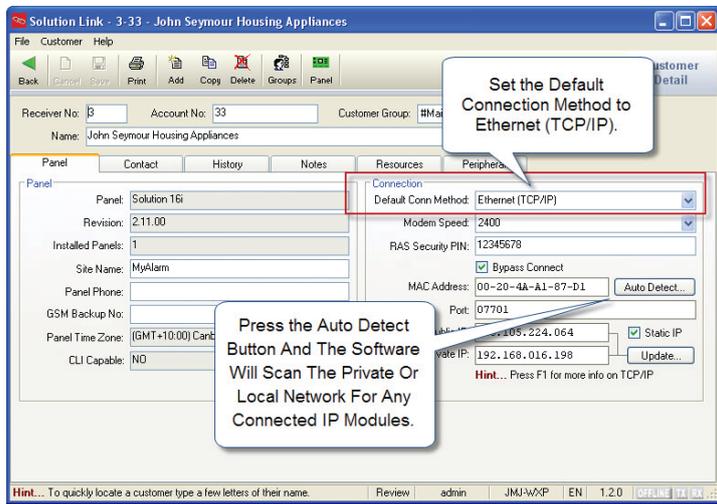


Figure 4: Customer Panel Form

Press the OK button and the assistant will begin scanning the private network LAN for the presence of CM368B modules. If more than one module is found, select the one from the list whose MAC address matches the one you are installing and press the OK button.



Figure 6: Select the Ethernet Connection Method

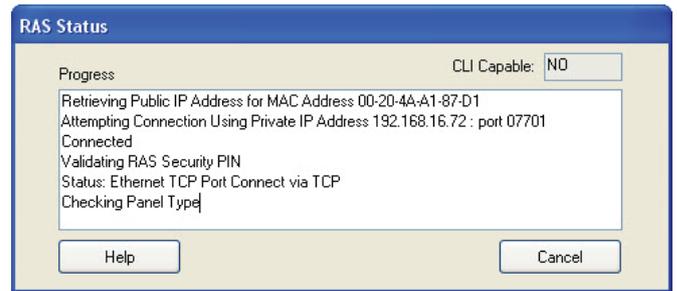


Figure 7: RAS Connection Progress Dialog

Once connected, upload the panel data. Solution Link will compare the panel data with the data in the database and will then display a list of differences similar to those shown in "Figure 8: Uploaded Differences" on page 8.

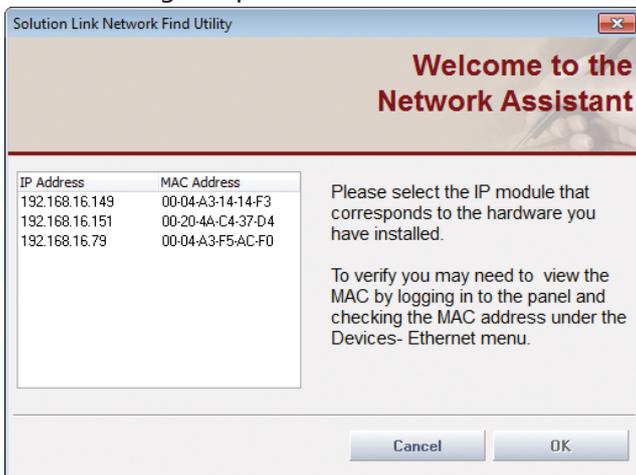


Figure 5: Solution Link Network Assistant

You should now be able to establish a RAS session with the panel over the local or internal network connection. This will only be possible provided that the laptop or PC running Solution Link is on the same network as the CM368B module.

Click the panel button on the tool bar followed by the connect button and then select Ethernet to start the connection.

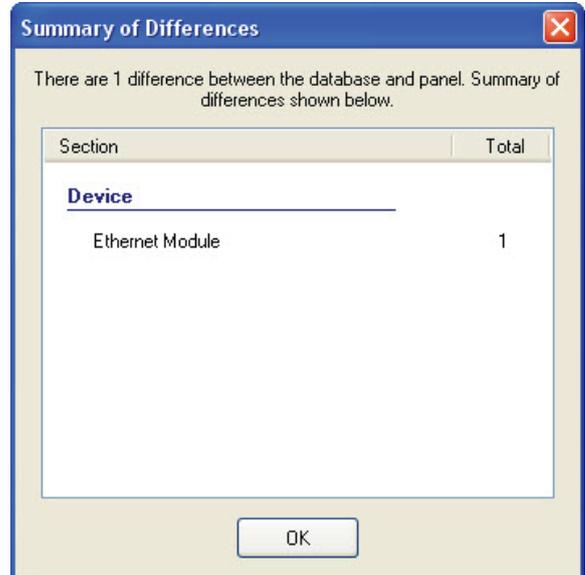


Figure 8: Uploaded Differences

Move to the Devices tab and select detail view, then scroll down or use the navigation tree to locate the Ethernet Module section. Right click on the Physical Address (MAC) field and select the MAC address which is in the database. This should match the MAC Address of the module you are installing.

Review any other highlighted differences and then save the changes to the database.

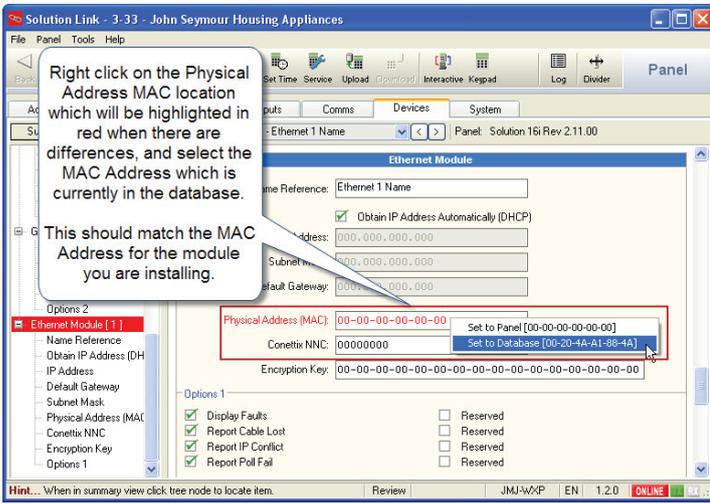


Figure 9: MAC Address Selection

Go to the Ethernet Module section in the Devices tab and uncheck the "Obtain IP Address Automatically" option then enter the IP Address of the CM368B, the Subnet Mask and the Default Gateway in the fields provided and then save the changes.

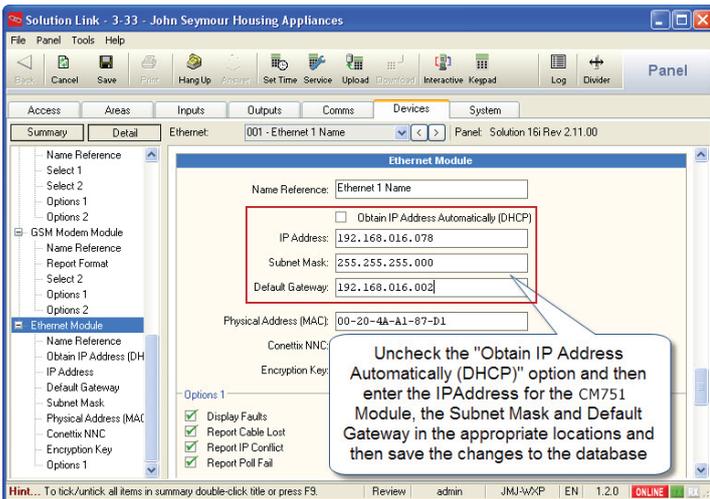


Figure 10: Subnet Mask and Default Gateway Entry

Step 3 - Configuring the Panel for IP Reporting

Before you will be able to configure the panel for IP reporting you will need to make sure you have the relevant information from the control room. The following is required,

1. IP Address for the base station's IP Receiver.
2. IP Port for the base station's IP Receiver.
3. Poll Rate.
4. Acknowledge Wait Time.
5. Reporting Format.
6. If Conettix NNC Anti Replay format is being used, you will need the base station allocated NNC Number.
7. If encryption is required you will need the base station allocated Encryption Key.

Move to the Reporting Route section on the Comms tab and set the transmission format to Ethernet format for Destination 1, 2 or both as required.

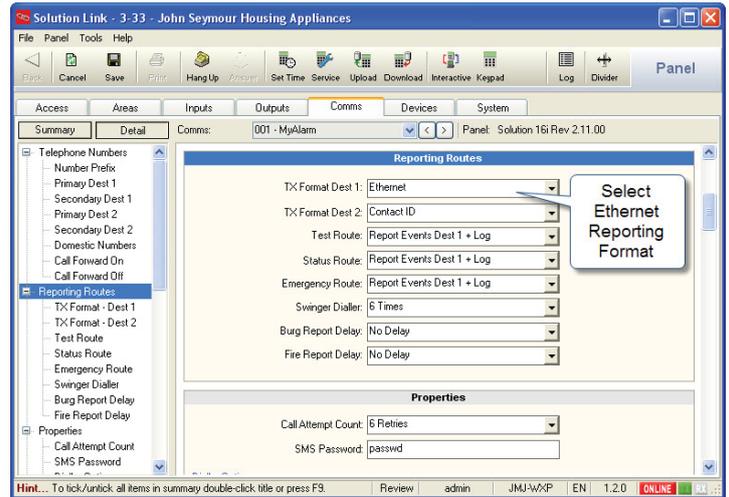


Figure 11: Configuring the Transmission Format

Move to the IP Reporting section on the Comms tab and enter the Base Station Receiver IP Address, IP Port and other parameters as supplied by the control room. Enter the details in the appropriate destination as required.

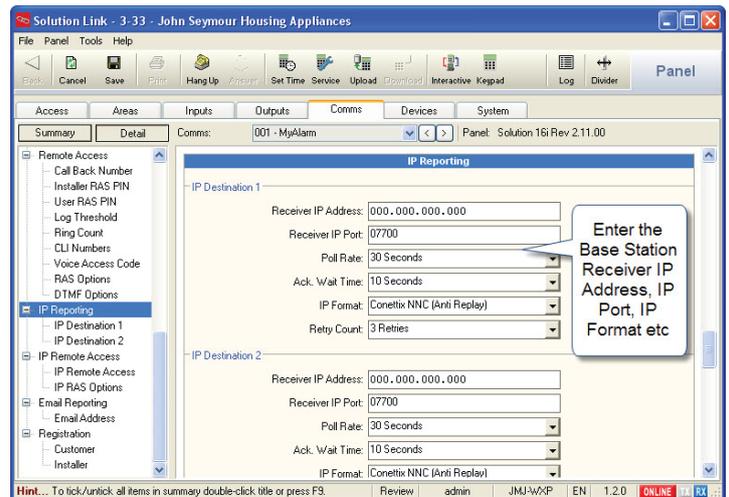


Figure 12: Configuring the Base Station's IP Settings

If you are using the Conettix NNC anti replay feature or data encryption move to the Ethernet Module section on the Devices tab and enter respective information. The values entered here must match those in the base station or communication will fail.

To remove encryption set the key back to all zeros or the factory default settings.

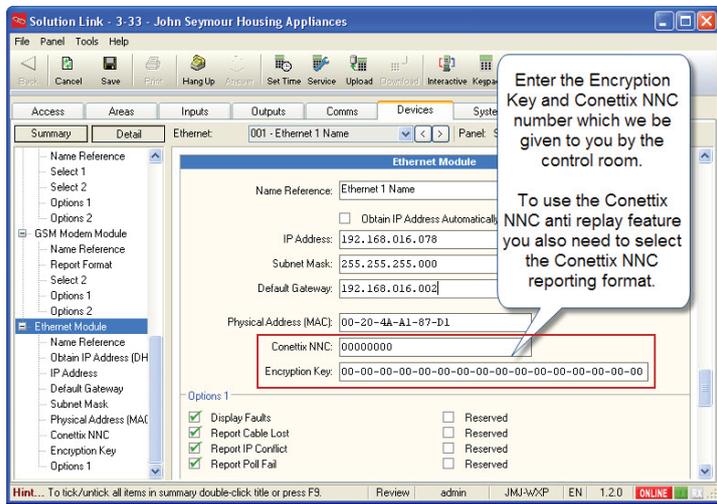


Figure 13: Configuring the Encryption Settings

Step 4 - Configuring IP Remote Access

When attempting a remote connection to a site that has a CM368B module fitted the site's public IP address will be required. In many cases the site's public IP address is dynamically allocated by the ISP and therefore it can change at any time.

To cater for this situation the CM368B module will send a periodic message to a proprietary central IP Resolution Server (IPRS) which maintains a record of the site's current public IP Address. When you attempt the remote connection using Solution Link the software will provide you with the customer's current public IP address.

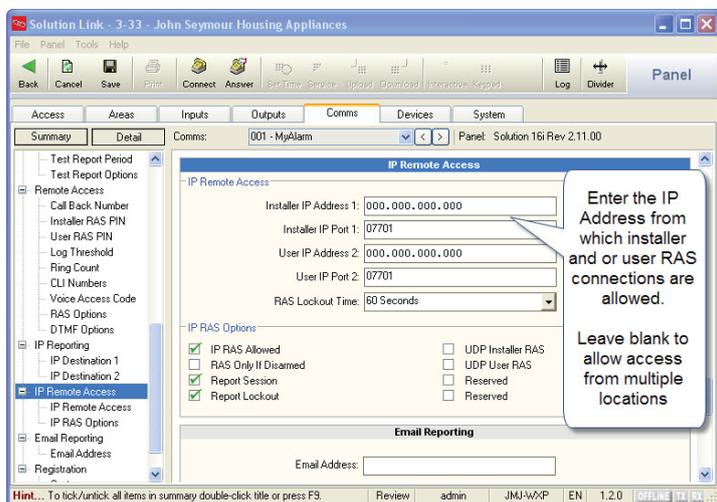


Figure 14: Configuring IP Remote Access

IP Remote Access

If required you can configure the module to only accept incoming connections from a specific IP Address. In the default state the RAS IP Address is set to 000.000.000.000 for both users and installers and this allows a connection to the panel from any IP Address. To limit access so that a RAS connection can only be established from only one IP address enter it here.

This option should be used with caution and should only be used if you have a static public IP address and you only want / need to connect to the panel from one location.

If a UDP connection is necessary for remote access then you will also need to program this option. See "UDP Protocol Options" on page 11 for more information.

The RAS IP port is defaulted to port 07701 for both users and installers. This must be programmed the same in the panel and Solution Link RAS software.

You will need to create a port forwarding rule on the customer's router to direct incoming traffic on this port to the CM368B module's private IP Address.

Note If you attempt an IP connection with an incorrect RAS security PIN then after 6 attempts to panel will lockout for the IP RAS lockout time period programmed in MENU 5-7-3.

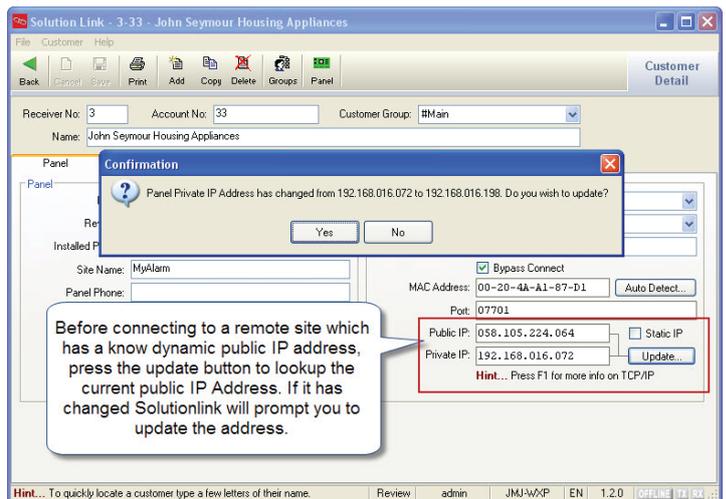


Figure 15: Using the IP Resolution Server Tool

Port Forwarding and IP Address Reservation

This is by far the most likely place where errors can be made due to the fact that there are so many different routers in the market place.

Essentially to gain access remotely to the CM368B for an upload/download session the client's router will require a rule to be created that opens and directs all IP traffic coming into the router for port 07701 (default IP RAS Port) to the internal IP address of the CM368B which is programmed in MENU 6-6-0 on the Solution 6000.

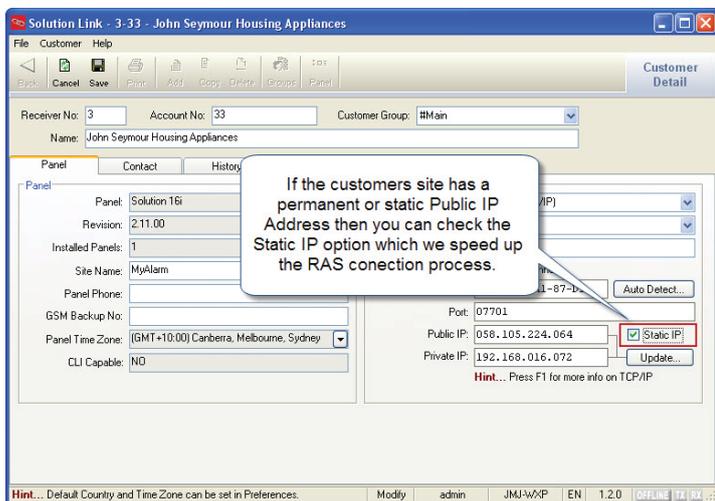


Figure 16: Static Public IP Address Option

You will also need to make sure that the DHCP server is configured to reserve or lock down the IP Address which was assigned to the CM368B module when it was first connected to the LAN. See the Module IP Address location which is MENU 6-6-0 on the Solution 6000 panel.

If the port forwarding is not correctly setup then you will not be able to connect to the panel remotely via IP.

UDP Protocol Options

Before connecting to a remote panel the installer needs to decide between one of two internet protocols UDP or TCP. UDP (User Datagram Protocol) is a connection less protocol.

The packets of exchanged data are smaller and with less overhead however the IP network does not guarantee receipt. Although UDP is connection less, the RAS software application confirms delivery of each packet so although the layer does not guarantee delivery, the application does so there should be no concerns using UDP as a transport method. TCP (Transmission Control Protocol) is one of the main protocols in IP networks. TCP establishes a full connection to exchange streams of data between two points and the network guarantees delivery.

Which protocol should you use? If you are able to allocate and open more than a single port at an installation or If you intend to remote connect to sites using multiple PCs that are part of an office network or behind a fire wall then you would be best served by selecting TCP as your preferred connection method.

If however you are at a site that will only allow you to open a single port and your reporting format is TCP based like the CSV IP format, then you have no choice but to select UDP for RAS connections. UDP transactions are faster but depending on your network you may need to marshal packets (port forward) to the PC running Solution Link RAS software. By default the CM368B is configured for Remote Access using UDP/IP protocol.

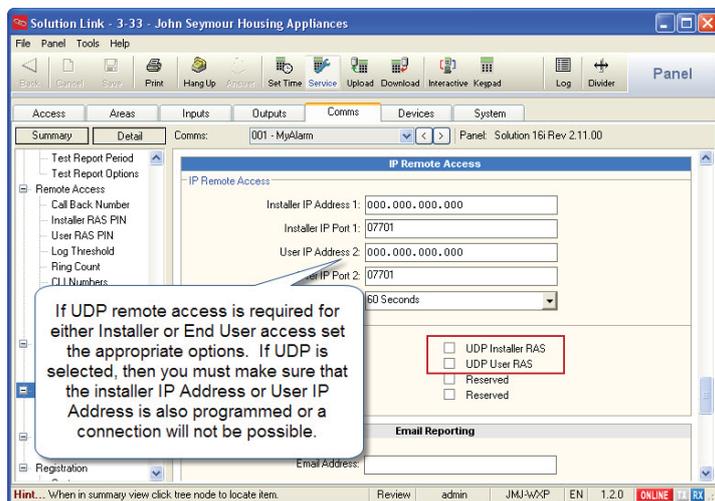


Figure 17: Configuring UDP Remote Connections

Optional AN110 High Gain Outdoor Antenna

For installations where adequate signal strength is not available using the supplied indoor antenna, an optional outdoor antenna can be used.

The AN110 antenna offers up to 10dBi peak gain (4G) and is supplied with a mounting bracket, mast U clamp and a 15m RG58 cable with N-male to SMA - male connectors.

AN110 Specifications	
Frequency Range	698~960Mhz/1710~2700Mhz
Impedance	50 Ohms
VSWR	<1.5
Gain	10dBi Peak
Polarization	Vertical
Radiation	Omni Directional
Colour	White
Operating Temp	-40 ~ +60 Celcius
Size	246mm x 75mm x 82mm

Table 6: AN110 Specifications



Figure 18: AN110 Outdoor Antenna And Cable

Customer Details

Use this section to record the customer details for this CM368B module.
 This information may also be required when seeking technical support.

Customer Name: _____

Module Serial No:

MAC Address:

IP Address Public:

IP Address Private:

IP RAS Port(Installer):

Public IP Is Static Private IP Address Fixed Or Reserved Port Forwarding Setup For IP RAS

Default Gateway:

RAS Security PIN:

IP Poll Rate: Seconds

Ack Wait Time: Seconds

Reporting Format: Conettix Conettix NNC IPCSV

Conettix NNC:

Encryption Key:

Specifications

Part Number:	CM368B - IP Combo Module - 4G LTE CAT 1 with Ethernet
Operating Voltage:	Supplied by Panel - Derate the maximum available 12V accessory power from the panel by 100ma when the module is fitted.
Compatible With:	Solution 6000 Control Panel (Firmware V2.51.04 or higher)
Network Interface:	RJ45 Ethernet 10BASE-T or 100BASE-T (Auto Sensing)
Encryption:	128 bit AES SMS via GSM
Reporting Formats:	CSV-IP, Conettix, SIA IP and MyAlarm formats are supported via GPRS and Ethernet iFob Control app and SolutionLink RAS connections are supported. The CM368B does not support Contact ID (CID) over GSM.
Radio:	4G Quectel EG91 - CAT-1 Network (3G Fallback)
SIM Card Type:	Standard full size SIM card. The SIM card should be installed in SIM 1 socket.
Antenna:	Quad Band Omni Directional with Magnetic Mount, integrated lead and SMA Connector. 3dbi gain - 50 ohm
Module Connection:	The CM368B is mounted directly to the expansion port on the control panel PCB. Two plastic standoffs are supplied to support the module and these should be connected to the control panel before installing the CM368B.
Operating Environment:	0° to 55°C RH 5 to 85% at 30°C non-condensing.
Warranty:	3 years from date of manufacture (return to base)

In the interest of ongoing product development this document is subject to change without notice.

Bosch Security Systems
Level 2, 21 Solent Circuit
Baulkham Hills, NSW 2153
Australia
Phone: 1300 026 724
www.boschsecurity.com.au



© 2021 Bosch Security Systems
BLCC368BIRG
Issue FTR1.0

BOSCH