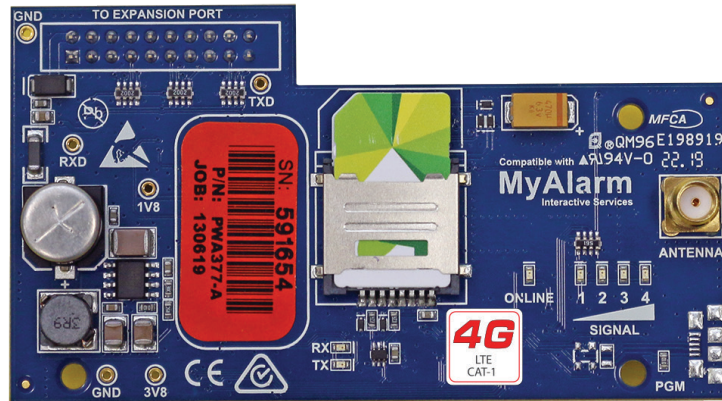


# CM746B

## 4G LTE CAT 1 Radio Module



Security Systems

EN

Installer Reference Guide  
Security System

# BOSCH

## Introduction

The CM746B 4G CAT 1 radio module allows you to interface compatible security control panels to the CAT 1 cellular network providing a high reliability primary or backup reporting path.

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 designed to plug onto the main control panel PCB using the supplied plastic standoffs.

Module Compatibility	
Panels Supported	Minimum Firmware Version Required
Solution 6000 Series	2.51.04

Table 1: Module Compatibility

## Getting Started

There are four main steps required to configure the CM746B 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 CM746B 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 3 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.

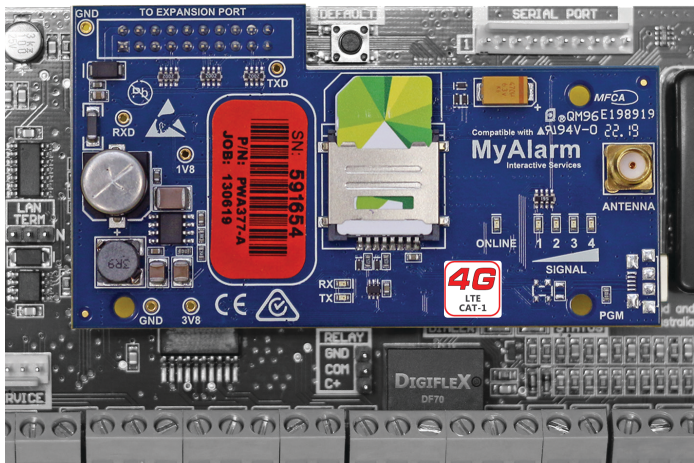


Figure 1: CM746B Module Installed On Solution 6000

### 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 powering the panel.

### Step 3 - Configuring The Module

Once powered the radio will attempt to connect to the network. This may take up to ten minutes 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 4 - Configuring The Panel Reporting

Reporting configuration will vary depending on the required options and whether or not the 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 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 7 led indicators which are used to show status and signal strength. See table 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

## Supported Reporting Formats

Version 2.51.04 or higher of the Solution 6000 panel firmware is required to support the CM746B.

The following reporting formats are currently supported by the module.

SMS Format via GSM  
 CSV-IP Format via GPRS  
 Conettix Format via GPRS  
 SIA IP Format via GPRS  
 MyAlarm Format via GPRS

There is no support in the 4G module 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.

## Smart Device Apps

Smart device apps are available to enhance alarm reporting and provide real time control of system areas, outputs and doors etc. More information can be found in the app stores or on the MyAlarm web site at [www.myalarm.com.au](http://www.myalarm.com.au).



SMS Control



iFob Control



## 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 following 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 provider's 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.

Description	SMS String
<b>Arming / Disarming Areas</b>	
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
<b>Turning Outputs On/Off</b>	
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
<b>Locking and Unlocking Doors</b>	
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
<b>SIM Balance Check - Must have been configured under site settings</b>	
Check Current SIM Balance	<User Code>,SIMBAL,<Access Number>,<Text.,<Preamble>,<Min Amount>,<Days>,<Mobile>,<Expire Reminder>

Table 3: GSM SMS String Commands



### GPRS Using The CM746B 4G Radio

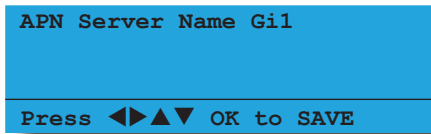
The APN Server Name, APN User Name and APN Password menu's need to be configured before the 4G radio can establish a GPRS data connection with the telco provider. Applications such as the MyAlarm iFob control app or reporting back to base over the GPRS connection require a data connection.

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**APN Server Name** i **MENU 6-5-7**

APN (Access Point Name)

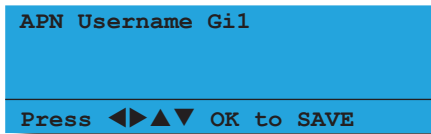
Enter the appropriate name of your 3G/4G GPRS mobile network provider to connect to the public Internet. For example Telstra APN=telstra.wap, Optus APN=yesinternet, Vodafone APN=live.vodafone.com



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**APN Username** i **MENU 6-5-8**

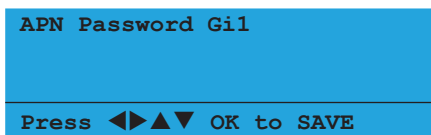
This can be used to identify you on a network however is mostly left BLANK.



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**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.



No SIM card is supplied with this module. A SIM card is required for operation. It is the customers responsibility to make sure that SIM credit is charged and that sufficient data is available at all times. The SIM card should be installed in the lower SIM socket (SIM 1).

### 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 4: AN110 Specifications



Figure 2: AN110 Outdoor Antenna And Cable

## **CM746B Specifications**

<b>Part Number:</b>	CM746B - 4G GSM/GPRS/SMS Radio Module SMS via GSM , CSV-IP via GPRS and Conettix Format via GPRS are supported.
<b>Reporting Formats:</b>	MyAlarm iFob Control and MyAlarm SMS Control apps and SolutionLink RAS are supported. The CM746B does NOT support Contact ID (CID) over GSM.
<b>Operating Voltage:</b>	Supplied by Panel - Derate the maximum available 12V accessory power from the panel by 100ma when the module is fitted.
<b>Compatible With:</b>	Solution 6000 Control Panel (Firmware V2.51.04 or higher)
<b>SIM Card Type:</b>	Standard size SIM cards The SIM card should be installed in SIM 1 socket.
<b>Radio:</b>	4G Quectel EG91 - CAT-1 Network (3G Fallback)
<b>Antenna:</b>	Quad Band Omni Directional Magnetic Base Antenna with integrated lead and SMA Connector. 3dbi gain - 50 ohm. Optional high gain outdoor antenna is available. (P/N AN110)
<b>Module Connection:</b>	The CM746B is mounted directly to the expansion port on the control panel PCB. Three plastic standoffs are supplied to support the module and these should be connected to the control panel before installing the CM746B.
<b>Operating Environment:</b>	0° to 55°C RH 5 to 85% at 30°C non-condensing.
<b>Warranty:</b>	3 years from date of manufacture (return to base)

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

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