



DIGIPLUS INSTRUCTION MANUAL

DigiPlus Instruction Manual

Introduction

DigiPlus is a converter for use with Digital Communicators (and Control Panels with built-in Digital Communicators) that use Fast Format DTMF signalling on PSTN telephone lines for alarm reporting.

DigiPlus is suitable for use in systems installed to conform to EN50136 standard for ATS 1-3, and is suitable for EN50131 Security Grade 1-3 installations. In addition, it is suitable for use in systems installed to conform to PD 6662:2010 at Grades 1-3 and for EN50136 environmental classifications 1&2.

The DigiPlus will ensure that increased transit delays found on New Generation Networks (NGN), e.g. BT's 21CN, will not inhibit correct operation of alarm, open/close and other messages sent by the Digital Communicator to ARC PSTN receivers.

Alarm and other messages may be passed via the Gemini Network to the Alarm Receiving Centre via 'free-phone' telephone numbers, thus ensuring no individual call charges. Alternately, calls can also go directly to the ARC's PSTN receivers.

In addition, regular polling calls are sent to the Gemini Network (also via a 'free-phone' telephone number) so that telephone line failures and equipment faults may be detected and reported.

DigiPlus is suitable for use with Control Panels with built-in Digital Communicators that use up/downloading features.

Up/download may be used for remote programming of the DigiPlus by CSL Tech Support.

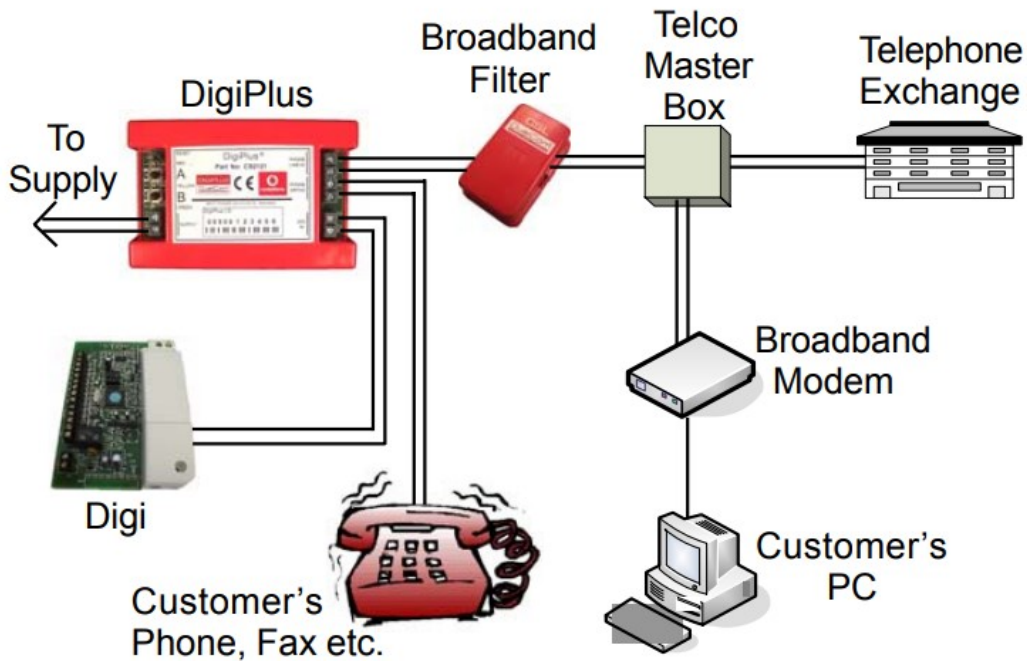
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Installation

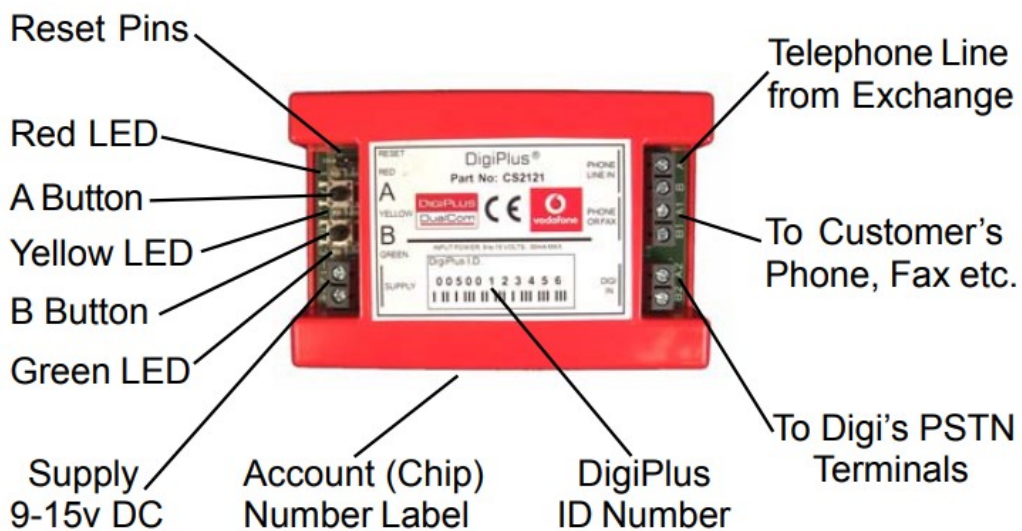
1. Where a Digital Communicator (or Panel) is connected to a telephone line, disconnect the telephone line from the Digital communicator.
2. Now, connect the telephone line to the 'PHONE LINE IN' terminals (A & B) on the DigiPlus (see diagrams on page 3). Note: Where there is a broadband signal on the telephone line then a broadband filter must be connected between the telephone line and the 'PHONE LINE IN' terminals (A & B) on the DigiPlus. The CSL CS0720 is an ideal cost-effective Broadband Filter. Do not connect the customer's broadband (ADSL) modem on any of the DigiPlus or Digital Communicator connections because the broadband filter will ensure that there will be no broadband signals at this point (see diagrams on page 3).
3. Using a short length of 2 core wire, connect the Digital Communicator (or Panel) PSTN terminals to the 'DIGI IN' terminals (A2 & B2) on the DigiPlus.
4. Where the customer's phone, fax etc. is connected to the Digital Communicator (or Panel) or the telephone line, disconnect it.
5. Now connect the customer's phone, fax etc. to the 'PHONE OR FAX' terminals (A1 & B1) on the DigiPlus. **Note:** Other PSTN equipment (phone, fax etc.) must not be connected to the telephone line that is connected to the DigiPlus' 'PHONE LINE IN' terminals (A & B), because use of that equipment may inhibit the DigiPlus from sending alarm & other messages.
6. Using a short length of 2 core wire, connect the power supply (9 to 15v DC) to the 'SUPPLY' terminals (- 12v +) on the DigiPlus. The 3, Red, Yellow and Green LEDs will all be on for 1 or 2 seconds.
7. You are ready to set up the DigiPlus. See page 4 & 5.

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Connection



Telephone line connection diagram



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Setup - Fully Programmed DigiPlus

See the tick-box on the front of this manual.

If this is a 'Fully Programmed' DigiPlus then:

1. Install and connect the DigiPlus (see page 2). When the supply is first connected, all 3 LEDs will be on solid for 1 or 2 seconds.
2. Put the DigiPlus in 'Self Learning' mode by pressing and holding the A and B buttons together (about 3 seconds) until the LEDs flash quickly one after the other (Red then Yellow then Green).

You now have 10 minutes to complete this step.

On the Digital Communicator (or the Panel), trigger a call. This may be an Open, Close, Intruder, Fire etc. call.

During Self Learning, the call may be repeated by the Digital Communicator several times. The DigiPlus will learn the telephone number(s) being dialled by the Digital Communicator and its account/chip number.

When Self Learning is complete, the call made by the Digital Communicator will stop and the DigiPlus LEDs will change to: Red off, Yellow off and the Green LED on with a 'blink' every 2 seconds.

The ARC will not receive any call during Self Learning.

3. Test both paths to the ARC (see page 6).

Factory Default

To return the DigiPlus to the factory programming state, remove power, press & hold A&B buttons, then power-up and continue to hold the buttons for 6+ seconds. After 4 secs, all LEDs will flash fast, then change to green only. Release buttons, operation has been completed.

Unsure / Don't Know ?

If you are unsure about the DigiPlus programming then call CSL Tech Support who will use up/downloading to check and program the DigiPlus as required (see page 6).

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Setup - Generic DigiPlus

See the tick-box on the front of this manual.

If this is a 'Generic' DigiPlus then:

1. Install and connect the DigiPlus (see page 2). When the supply is first connected, all 3 LEDs will be on solid for 1 or 2 seconds. The Red and Yellow LEDs will then change to fast alternate flashing. This shows that the NVM is not fully programmed.
2. Do Self Learning. This is described in step 2 on page 4.
3. When Self Learning is complete and the only LED indication is the Green LED on with a 'blink' every 2 seconds then programming is complete. Go to step 7.
4. When Self Learning is complete and the Red and Yellow LEDs are still alternate fast flashing then the DigiPlus needs to have new telephone number(s) and/or an Account/chip number programmed to its NVM.

Make DigiPlus contact CSL Tech Support by pressing and holding the A button (about 3 seconds) until the Red LED indicates that dialling has started. (A pre-digit '9' will be automatically added to the telephone numbers where required.)

The Red LED will show the call progress to CSL Tech Support via the Gemini Network (see page 7).

5. Call CSL Tech Support (see page 6). The Tech Support engineer will require a). the DigiPlus ID (printed on the DigiPlus), b). the required ARC receiver telephone number(s) and c). the Account/chip numbers.
6. When complete, make the DigiPlus contact CSL Tech Support again by pressing and holding the A button (about 3 seconds) until the Red LED indicate that dialling has started. The new programming details will be downloaded to the DigiPlus. When downloading is complete the DigiPlus LEDs will change to: Red off, Yellow off and the Green LED on with a 'blink' every 2 seconds.
7. Test both paths to the ARC (see page 6).

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Test Calls

Test calls will ensure that all connections, programming, the ARC account, and both reporting paths to the ARC are all set up and operating correctly. (A pre-digit '9' will be automatically added to the telephone numbers where required.)

1. Ensure that Installation, Connection, and Setup of the DigiPlus is complete (See pages 2 - 5).
2. Trigger the DigiPlus to send test calls by pressing and holding the B button (about 3 seconds) until the Red LED indicates that dialing has started.

The DigiPlus will send two calls. One test call will go to the ARC's X25 receiver via the Gemini Network and one test call to the ARC's PSTN receiver via the PSTN path. The progress of each call may be seen on the Red LED (See page 7).

3. Call the ARC to confirm the successful reception of both test calls.
4. When test calls & installation has been completed, test the whole alarm system and ensure all calls are delivered to the ARC, e.g. open, close, alarm, and restore.

Note: Where DigiPlus is forwarding several Digital Communicator messages that are triggered rapidly one after another, e.g. during installation tests, then it is normal that the ARC may report that duplicate messages (sometimes called 'unexpected' messages) have been received.

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LED Indications

Red, Yellow & Green LEDs	Meaning	Action
There are no LEDs on	No supply voltage	Check the supply
Red, Yello, Green. All on solid	Power-up & reset routine	Wait for a few seconds
Red, Yellow. 50:50 Slow Alternate Flash	NVM Absent or plugged-in incorrectly	Check the NVM socket
Red, Yellow. 50:50 Fast Alternate Flash	NVM blank or contains missing or faulty data	Call Tech Support
Red, Yellow, Green. Fast Sequence	Selft learning is selected	Trigger the Digi. Wait for it to complete. See step 2 on this page

Red LED, 1	Meaning	Action
1 flash per second	Faulty PSTN telephone line	Check line and connections
Slow Speed 50:50 On-Off	Dialling or waiting for the Handshake from the ARC (PSTN or Gemini)	Watch the call sequence. Look for errors.
Fast Speed 50:50 On-Off	Sending message to the ARC (PSTN or Gemini)	Watch the call sequence. Look for errors.
Six Slow Speed 50:50 On-Off	Message successfully sent to the ARC	Call ARC. Confirm correct reception of the message
On with 3 'blinks' every second	Call in progress with the DigiPlus Up/download Server	Call CSL Tech Support for programming service

Yellow LED, 2	Meaning	Actions
Slow Speed 50:50 On-Off	The Digi is dialling or waiting for the Handshake from the DigiPlus	Watch the call sequence. Look for errors.
Fast Speed 50:50 On-Off	The Digi is sending a message to the DigiPlus	Watch the call sequence. Look for errors.
Six Slow Speed 50:50 On-Off	Message sent successfully from the Digi to the ARC via DigiPlus	Call ARC. Confirm correct reception of the message

Green LED, 3	Meaning	Action
On with a 'blink' every 2 seconds	DigiPlus - Quiescent. Power = OK, Power-up/Reset = completed.	
50:50 On-Off. Once per second	Supply voltage present but too low.	Check the supply voltage

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Specification

Model	CS2121 DigiPlus
Dimensions	(h x w x d) 20 x 94 x 62 mm
Weight	75 grams
Temperature	-20C to +60C transit, -4C to +50C operating
Humidity	0 - 80% non-condensing
Mounting	Any orientation
Warranty	5 years
Power Requirement	9.0 - 15.0volts DC, 0.1volt max ripple
Current Consumption	30mA max. at 12 volt supply
Telephone Path	PSTN technology. CTR21 approved.
REN	0.3
User Servicable Parts	There are no user servicable parts within the DigiPlus.
European Directives	CE. Meets the requirements of current European Directives.
Standards: Security Grade	Suitable for use in alarm systems complying to: EN50136 Security Grade 1,2 & 3
ATS Classification	EN50136 ATS classification 2 & 3 ATS 2 parameters: D2 M2 T2 S0 I0 ATS 3 parameters: D2 M2 T2 S1 I1
Environmental	EN50136 Environmental classifications 1 & 2.
Emissions	EN55022
Installation	PD6662:2010

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Regulatory Constraints

Before attempting to install DigiPlus, the installer must be aware that the CS2121 may only be installed by a professional installer.

The Ringer Equivalence Number (REN) of the apparatus is 0.3. The sum of RENs of the individual items connected to one PSTN line should not exceed 4.

DigiPlus is a registered trade mark of CSL DualCom Limited.

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How it works - Alarm Calls

This is how it works.

During installation of the DigiPlus, the 'Self Learn' step enables the DigiPlus to detect and record the telephone number(s) that the digi (or Panel with a built-in digi) dials when it wants to send an alarm call.

When the system is operational, every telephone number dialed by the digi is detected by the DigiPlus. The dialed number is then compared with the number(s) learnt during Self Learning.

Where the number(s) are the same then the call is an alarm call and the DigiPlus handles it by sending a 'handshake' signal to the digi. The digi then sends its Fast Format message to the DigiPlus. The DigiPlus does not send a 'kissoff' (acknowledge) signal to the digi at this stage.

Now that the DigiPlus knows the message to be sent, it dials on the PSTN and sends the message to the ARC via its primary path. This may be the Gemini Network to the ARC's X25 receivers or the telephone lines to the ARC's PSTN receivers. In both cases the protocol is 21CN compatible.

Depending upon the settings in the DigiPlus NVM, the telephone numbers dialled on the PSTN may be the same as that dialled by the digi, or different. Also the account/chip number in the message to the ARC may be the same as that in the message from the digi, or different.

When the DigiPlus receives the 'kissoff' (acknowledge) signal from the ARC it stores it. By this time, the digi will have timed-out and will be redialling to send the same message again (because it has not received the 'kissoff' (acknowledge) signal yet). The DigiPlus will detect the same message from the digi and will now send the stored 'kissoff' (acknowledge) signal. Note: some panels may display that the first call attempt failed.

Failure to pass the message to the ARC will result in subsequent call attempts to alternative telephone numbers and calls via the alternate path.

Where a PABX is used and a '9' needs to precede the dialled telephone number, the DigiPlus will automatically learn this during calls that are initiated by manually pushing the A and B buttons.

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How it works - Panels with Up/downloading

DigiPlus can be used with a Control Panel that uses up/download.

This is how it works.

During installation of the DigiPlus, the 'Self Learn' step enables the DigiPlus to detect and record the telephone number(s) that the Panel's digi dials when it wants to send an alarm call.

When the system is operational, every telephone number dialed by the Panel's digi is detected by the DigiPlus. The dialled number is then compared with the number(s) learnt during Self Learning.

Where the number(s) are the same then the call is an alarm call and the DigiPlus handles it. (See page 9.)

Where the numbers are different then the call is not an alarm call. It may be a Panel up/download call or any other call, but it means that the DigiPlus will not need to handle it.

In this case, the DigiPlus will dial on the PSTN the same number as it detected from the Panel's digi and then connect the Panel's digi directly to the PSTN line. Thus the Panel can make an outgoing call to its up/downloader.

So that up/downloading to the Panel may also work, whenever the DigiPlus detect a ringing signal on the PSTN line, it will immediately connect the Panel's digi directly to the PSTN line so that the Panel may answer the incoming call.

Note: Self Learning must be done on all DigiPlus installations. Self Learning also records and tests other items and thus must be done on all DigiPlus installations.