Deep Sea Electronics Plc

P130 input expansion module /
549 remote annunciator

Operators manual

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TABLE OF CONTENTS

Section	Page

1   INTRODUCTION

The P130 is used to expand the input capability of the 53xx series of DSE controllers. It provides the controllers with 8 additional digital inputs and 2 additional analogue inputs.
Also provided is support for the DSE Model 549 remote annunciator, used to help system manufacturers meet the requirements of the NFPA110 level 1 specifications (USA).

2   CLARIFICATION OF NOTATION USED WITHIN THIS PUBLICATION.

⚠**NOTE:**	Highlights an essential element of a procedure to ensure correctness.
⚠**CAUTION!:**	Indicates a procedure or practice which, if not strictly observed, could result in damage or destruction of equipment.
☠**WARNING!:**	Indicates a procedure or practice which could result in injury to personnel or loss of life if not followed correctly.
©	Deep Sea Electronics Plc owns the copyright to this manual, which cannot be copied, reproduced or disclosed to a third party without prior written permission.
NFPA110	National Fire Protection Authority (USA). NFPA110 covers emegency power systems (EPS) including generating systems. NFPA110 Level 2 is met by most DSE controllers. NFPA Level 1 requires additional remote indication of some control and alarm conditions.

3   P130 INPUT EXPANSION MODULE

3.1   DESCRIPTION OF OPERATION

The P130 connects to the expansion port of the 53xx series controllers. This port is also used for 157 relay expansion and 545/548 LED expansion.
Each DSE 53xx series controller can support one P130 input expansion and up to two output expansions.
Where both input and output expansions are used with the same 53xx controller, the modules are connected in 'daisy chain' fashion. It does not matter which expansion is 'first' in the chain.
Additionally, the P130 has support for the DSE 549 Remote Annunciator. For details on this, refer to the section headed 549 Remote Annunciator elsewhere in this manual.

When DC power is applied to the P130, the 'power on' LED will illuminate.

The 130 sends data containing the states of the analogue and digital inputs to the host controller. The host controller then decides what action (if any) is to be taken, depending upon the module's configuration and the states of the expansion inputs.

3.1.1   TYPICAL CONNECTION SCHEMATIC :
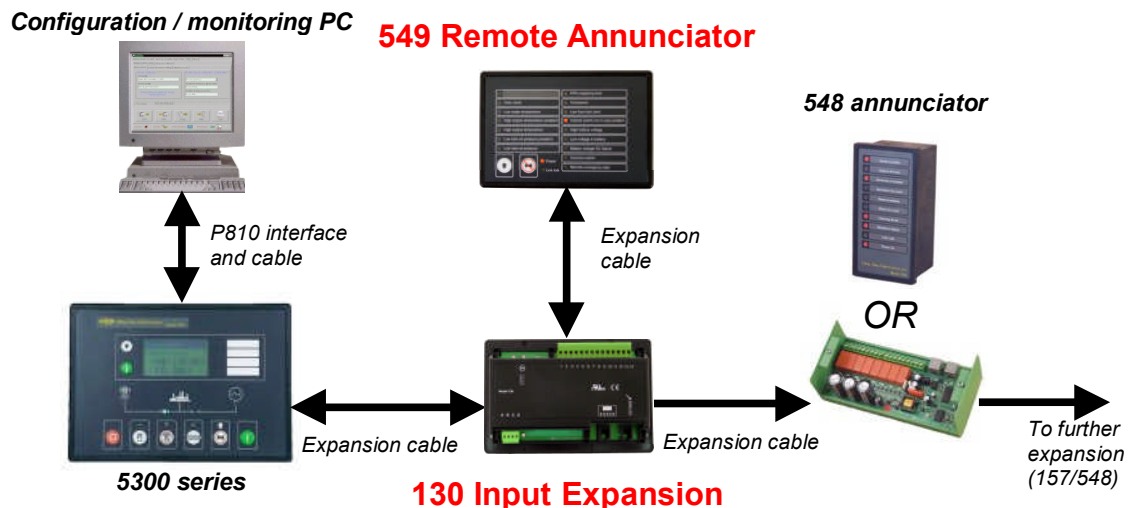
NOTE:- Previously, the 53xx expansion port was used solely for output expansion. For this reason, modules manufactured prior to the release of the P130 input expansion module may be marked as : **157/548 ✓**
These 'early' modules are NOT compatible with the P130 input expansion module.

NOTE:-When using 549 annunciator, 157 relay boards or 548 annunciators may still be connected to give voltsfree (dry) contacts or secondary indication of the items annunciated by the 549. Ie Only 16 unique expansion outputs/Leds can be configured.

3.2 INPUT CONFIGURATION

Configuration of the expansion inputs is performed by configuring the master controller module. This instructs the controller how to interface with the expansion modules. The input expansion module is not directly configurable.

For further details on module configuration, you are referred to the relevant configuration software manual.

3.3 PANEL LAYOUT
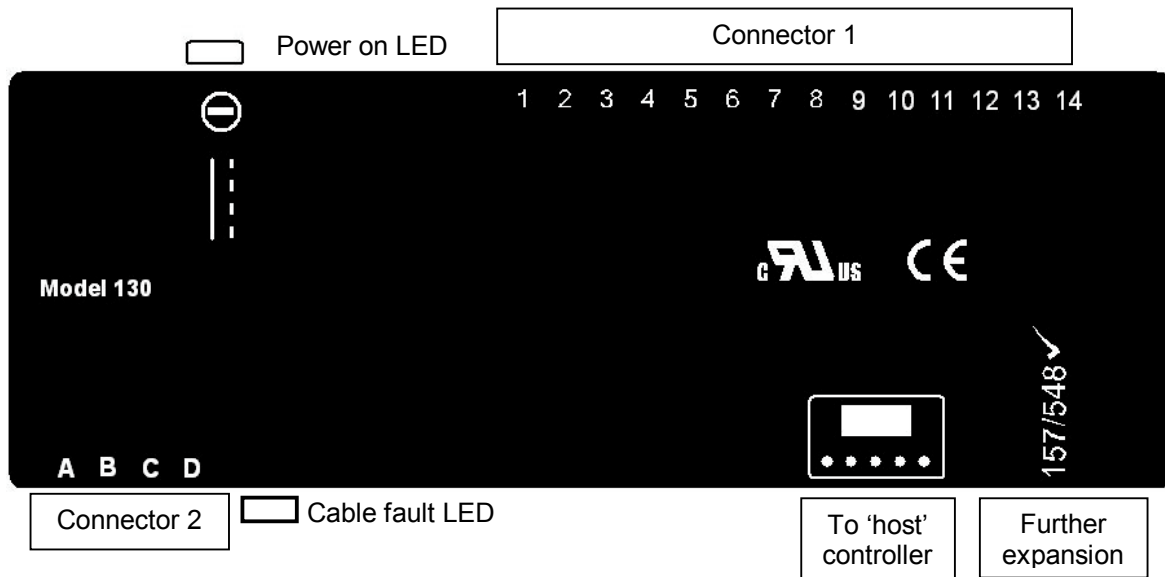
3.4 TERMINAL DESCRIPTION

3.4.1 CONNECTOR 1

PIN No	DESCRIPTION	CABLE SIZE	NOTES
1	Plant supply negative	1.0mm^2	
2	Plant supply positive	1.0mm^2	Recommended fuse 2A anti-surge
3	Digital input expansion 1	0.5mm^2	Requires a contact to plant supply negative.
4	Digital input expansion 2	0.5mm^2	Requires a contact to plant supply negative.
5	Digital input expansion 3	0.5mm^2	Requires a contact to plant supply negative.
6	Digital input expansion 4	0.5mm^2	Requires a contact to plant supply negative.
7	Digital input expansion 5	0.5mm^2	Requires a contact to plant supply negative.
8	Digital input expansion 6	0.5mm^2	Requires a contact to plant supply negative.
9	Digital input expansion 7	0.5mm^2	Requires a contact to plant supply negative.
10	Digital input expansion 8	0.5mm^2	Requires a contact to plant supply negative.
11	Analogue input expansion 1	0.5mm^2	Connect to plant supply negative if unused
12	Analogue input expansion 1 return	0.5mm^2	Connect to plant supply negative if unused
13	Analogue input expansion 2	0.5mm^2	Connect to plant supply negative if unused
14	Analogue input expansion 2 return	0.5mm^2	Connect to plant supply negative if unused

3.4.2 CONNECTOR 2

PIN No	DESCRIPTION	CABLE SIZE	NOTES
A	0V	0.5mm^2	Thinner cable will reduce the maximum allowable cable length
B	A	0.5mm^2	
C	B	0.5mm^2	
D	+12V	0.5mm^2	

⚠**CAUTION!: Connector 2 is only intended for connection to the DSE 549 annunciator. Connection to any other device may cause damage and will invalidate the warranty.**

3.5 130 INPUT EXPANSION SPECIFICATION

DC Supply	8.0 to 35 V Continuous.
Cranking Dropouts	Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5V
Max. Operating Current	150mA at 12V. 81mA at 24V. This maximum current includes connection of the P549 remote annunciator, which is powered by the P130.
Dimensions	171mm x 115mm x 49mm (6¾" x 4½" x 2")
Operating Temperature Range	-30°C to +70°C
IP Rating of P130	IP20
Connector 2 max cable length to 549 remote annunciator	• 1000m with cable of 0.5mm^2 cross section • 500m with cable of 0.2mm^2 cross section (typical 4 core burglar alarm/telephone wire)

3.6 TYPICAL WIRING DIAGRAM
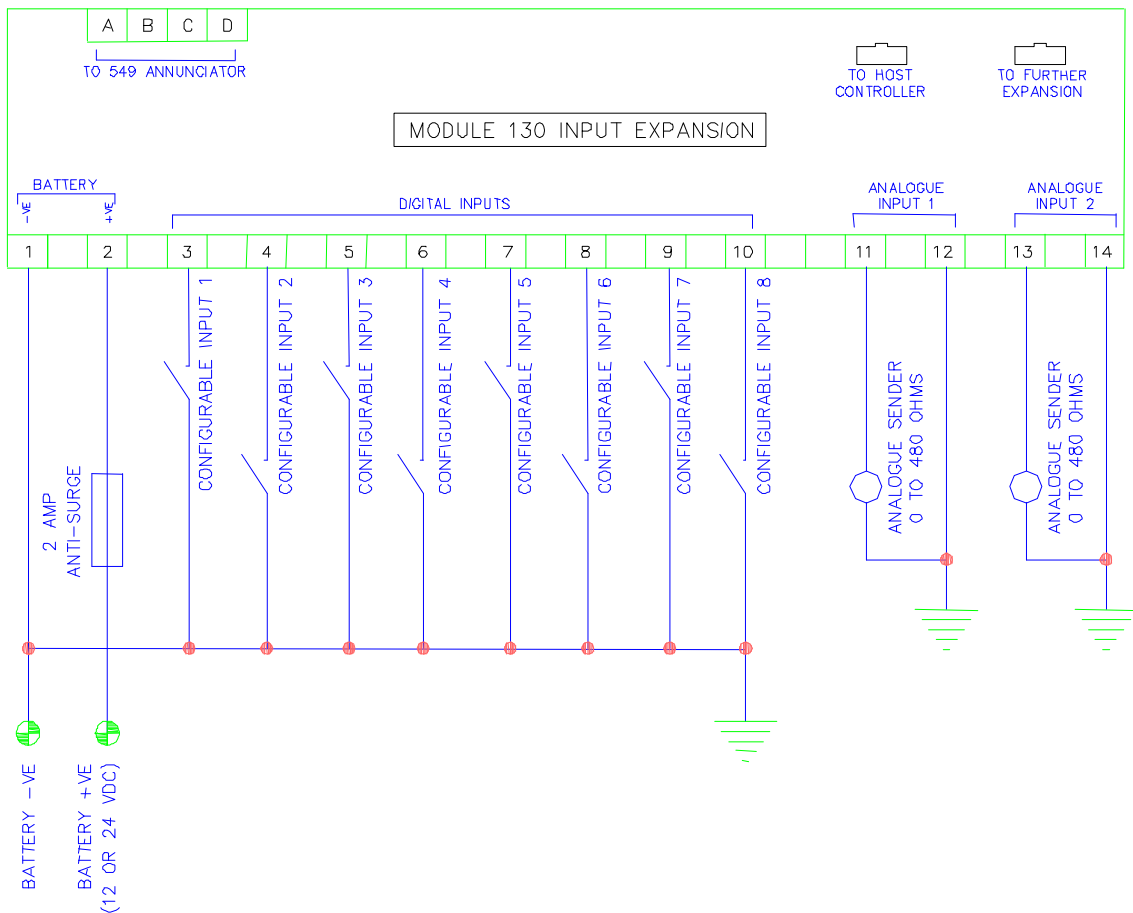
4   549 REMOTE ANNUNCIATOR

4.1   DESCRIPTION OF OPERATION

The model 549 remote annunciator is intended to help system manufacturers meet the requirements of the NFPA110 level 1 specification by providing indication of the required control/alarm status. A 'spare' channel is provided that be configured to one of a number of choices to help the system manufacturer meet more complex specifications.

The 549 is connected via a 4 core cable to the connector 2 socket of the DSE P130 input expansion module.
For connection details, see the sections headed Terminal Description and Typical Wiring Diagram elsewhere in this manual.

Correct connection of the 4 core cable to a correctly connected and operating P130 input expansion module will illuminate the Power LED.
If the P130 input expansion module does not have DC power connected to it, or the 4 core cable is not correctly terminated, the 549's Power LED will remain extinguished.
Failure of the data signal to the 549 from the P130 (terminals B & C) will cause the Link Lost LED to flash.

The 549 features an internal sounder that is activated upon detection of any of the channels (with the exception of *'EPS supplying load'*).

The sounder can be muted by pressing the integral alarm mute   button. Once muted, any subsequent alarm condition will retrigger the sounder.

Pressing the lamp test   button will illuminate all LEDs to prove their operational state.

4.1.1   FRONT PANEL LAYOUT
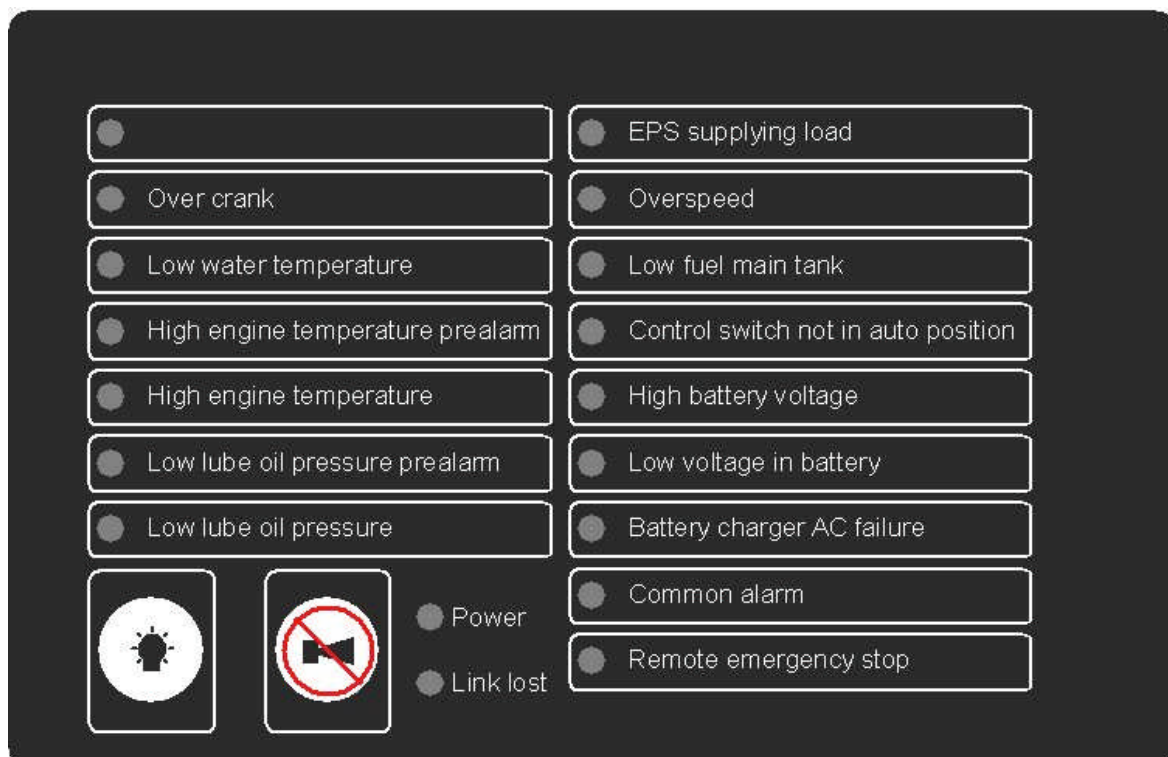
Panel cutout : 154mm x 98mm (6.1" x 3.9")

4.1.2   REAR PANEL LAYOUT

Connector 1

4.2   TERMINAL DESCRIPTION

4.2.1   CONNECTOR 1

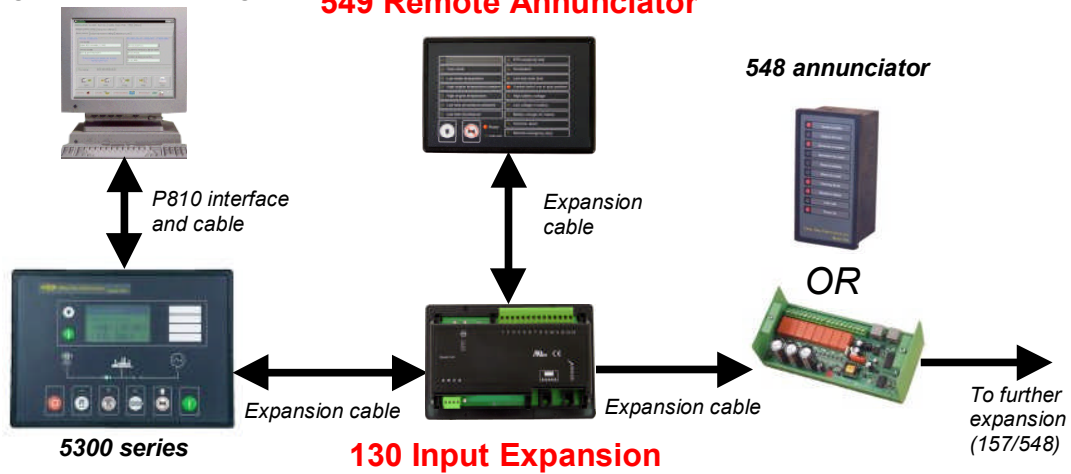| PIN No	DESCRIPTION	CABLE SIZE	NOTES
A	0V	0.5mm^2	Thinner cable will reduce the maximum allowable cable length
B	A	0.5mm^2	
C	B	0.5mm^2	
D	+12V	0.5mm^2	

⚠ **CAUTION!: Connector 1 is only intended for connection to the DSE 549 annunciator. Connection to any other device may cause damage and will invalidate the warranty.**

4.2.2 TYPICAL CONNECTION SCHEMATICS :

Configuration / monitoring PC   **549 Remote Annunciator**

548 annunciator

P810 interface and cable

Expansion cable

Expansion cable

OR

5300 series

Expansion cable   **130 Input Expansion**   *Expansion cable*
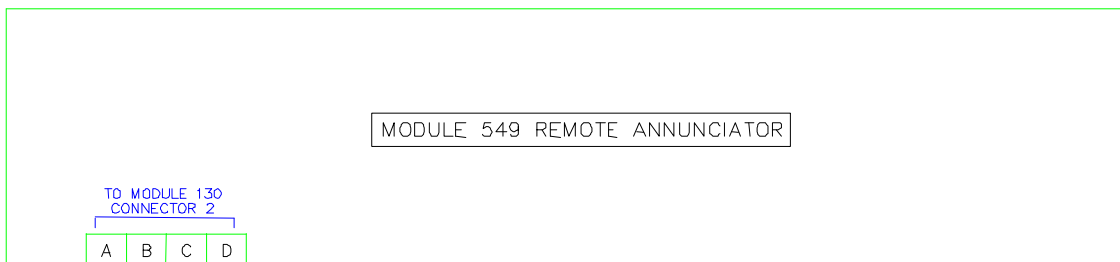
To further expansion (157/548)

⚠ **NOTE:- Previously, the 53xx expansion port was used solely for output expansion. For this reason, modules manufactured prior to the release of the P130 input expansion module may be marked as : 157/548 ✓ These 'early' modules are not compatible with the P130 input expansion module.**

4.3   549 REMOTE ANNUNCIATOR SPECIFICATION

DC Supply	8.0 to 35 V Continuous.
Cranking Dropouts	Able to survive 0 V for 50 mS, providing supply was at least 10 V before dropout and supply recovers to 5V
Max. Operating Current	150mA at 12V. 81mA at 24V. This maximum current includes the P130, which provides power to the P549.
Dimensions	171mm x 115mm x 49mm (6¾" x 4½" x 2")
Operating Temperature Range	-30°C to +70°C
IP Rating of P549 fascia	IP55 when fitted into control panel with supplied gasket
Connector 1 max cable length to P130 input expansion module	• 1000m with cable of 0.5mm^2 cross section
	• 500m with cable of 0.2mm^2 cross section (typical 4 core burglar alarm/telephone wire)

4.4   TYPICAL WIRING DIAGRAM

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MODULE 549 REMOTE ANNUNCIATOR
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```
TO MODULE 130
CONNECTOR 2
```

A	B	C	D

5 TYPICAL WIRING DIAGRAM OF P130 WITH P549

MODULE 549 REMOTE ANNUNCIATOR

TO MODULE 130
CONNECTOR 2

| A | B | C | D |

| A | B | C | D |

TO 549 ANNUNCIATOR

TO HOST
CONTROLLER

TO FURTHER
EXPANSION

MODULE 130 INPUT EXPANSION

BATTERY

-VE   +VE

DIGITAL INPUTS

ANALOGUE
INPUT 1

ANALOGUE
INPUT 2

| 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | | 10 | | | 11 | | 12 | | 13 | | 14 |

CONFIGURABLE INPUT 1
CONFIGURABLE INPUT 2
CONFIGURABLE INPUT 3
CONFIGURABLE INPUT 4
CONFIGURABLE INPUT 5
CONFIGURABLE INPUT 6
CONFIGURABLE INPUT 7
CONFIGURABLE INPUT 8

2 AMP
ANTI-SURGE

ANALOGUE SENDER
0 TO 480 OHMS

ANALOGUE SENDER
0 TO 480 OHMS

BATTERY -VE

BATTERY +VE
(12 OR 24 VDC)