



FIRE PRODUCTS

WELLING & CROSSLEY P/L - Australian owned & operated since 1926

www.wellcross.com.au

AS 2941-2013 DIGITAL ELECTRIC FIRE PUMP CONTROLLER

COMPLIANT WITH AS2941-2013
CLAUSES 8.2 – 8.2.21

OPERATION MANUAL



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INTRODUCTION

W&C is a leading provider of Diesel and Electric Fire Pump Controllers and components to the fire protection industry. Using only the finest quality components, we design and engineer fire pump controllers that promote fire-safe performance every time. Supplying products for automated fixed fire sprinklers and hydrant installations, all of our fire pump controllers are fully compliant with strict internationally recognised Australian standards. What's more, our fire pump controllers are completely factory wired, assembled and operation tested prior to shipment.

All W&C fire controllers feature easy to read indicators, cabinets and instruments that are designed for easy access, maintenance and protection. Our range of Electric Fire pump Controllers and control systems are manufactured to meet a wide variety of industrial, rural, civil and domestic applications. They have been developed to operate efficiently and reliably with minimum maintenance and attention. It is our wish that you obtain the best possible service from your Electric Fire Pump Controller and therefore suggest the following are carefully adhered to.

1. Probably the most important factor contributing to satisfactory and trouble free operation is correct installation. Ensure that the Electric Fire Pump Controller is installed in accordance with the Installation instructions.
2. Take time to learn and understand the operation of the controller and its load capacity. This will enable maximum usage of appliances without overloading.
3. If any doubts exist, contact us for additional information 1300 656 276.

AS 2941-2013 REQUIRES

An individual fire pump motor controller shall be provided for each fire pump, and shall have a degree of protection not inferior to IP54 in accordance with AS 60529.

The controller shall be certified by the manufacturer as complying with Clauses 8.2 to 8.2.19 including specific requirements for: General, Location, Controller cabinets, Isolating and Overcurrent protection, Motor starter, Variable speed control, Equipment segregation, Control devices, Indicator lights, Remote alarm contacts, Aural alarm, Alarm power supply, Test facility, Ammeter, Conductor terminations, Monitor battery, Battery chargers, Wiring diagrams, Marking, Access for inspection, and Pre-delivery testing.

For more information regarding compliance to the Australian standard AS 2941-2013 please refer to the relevant section/s within the standard, or contact our offices on (0)3 9316 9700.

FIRST AID IN CASE OF ELECTRIC SHOCK

DO NOT TOUCH THE PERSON with your bare hands until the circuit is broken. SWITCH OFF. CALL 000 and ask for an AMBULANCE

D Danger
Ensure the area is safe for yourself, others and the patient

R ↓
Response
Check for a response - ask name - squeeze shoulders
NO RESPONSE
RESPONSE
Make comfortable
Monitor response



S ↓
Send for help
Call tripple zero (000) ask for an ambulance

A ↓
Airway
Open mouth - if foreign material present
Place in the recovery position, clear airways with fingers



B ↓
Breathing
Check for breathing - look, listen, feel
NOT NORMAL BREATHING
Start CPR



NORMAL BREATHING
Place in recovery position
Monitor breathing

C ↓
CPR
Start CPR - 30 Chest compressions: 2 breaths
Continue CPR untill help arrives or patient recovers



D ↓
Defibrillation
apply defibrillator if available and follow voice prompts



The above is a general guide, first aid should be performed to your level of first aid training.

GENERAL CONSTRUCTION

Welling & Crossley Electric Fire Control Panels boxes are made from robust steel plates, folded and seam welded. It has a customised lock with double grip for easy opening of the door and for added security and protection. Body, door and gland plates are all finished to RAL 7035 polyester powder structure paint.

INSTALLATION

The controller should be mounted in a position away from vibration, heat and hot exhaust pipes and potential diesel fuel and water spills. If located outdoors considerations must be given to a sun shade. Direct sunlight combined with high ambient temperatures will cause controller failure.

Note: PVC insulated motor and control wiring will also fail if continually subjected to UV radiation (i.e. sunlight).

The controller is certified to IP54 AS 1939 and has a “Lexan” membrane fascia. Continual UV radiation on fascia will cause permanent damage and possibly controller failure. External start signal and alarm circuits are wired using the schematic drawings and termination diagrams supplied with the controller.

Note: Even though the controller has a DC fuse, various components of the controller can suffer permanent damage if incorrectly connected.

The battery should be installed as close to the Controller as practicable and connected using the leads provided. Ensure battery is charged ready prior to operation. The frame should be electrically bonded to an approved earth. Before connecting AC supply, double check all wiring and stated voltage.

FOLLOW SAFETY INSTRUCTIONS

Carefully read all safety messages in this manual and on your machine safety signs. Learn how to operate the machine and how to use controls properly. Do not let anyone operate without instruction.

If you do not understand any part of this manual and need assistance, feel free to contact Welling & Crossley.

TECHNICAL SPECIFICATIONS

This controller is a dedicated microprocessor.

It has specific input, output and display capabilities that have been designed to meet all the requirements of AS 2941-2013 (The Australian Fire Pump Standard).

FUNCTION

The Electric Fire pump Controller is designed to automatically operate an electric fire pump motor when contacts of a remote water pressure switch close.

POWER SUPPLY

415 volt, 3 phase neutral and earth and 12V DC.

INDICATORS

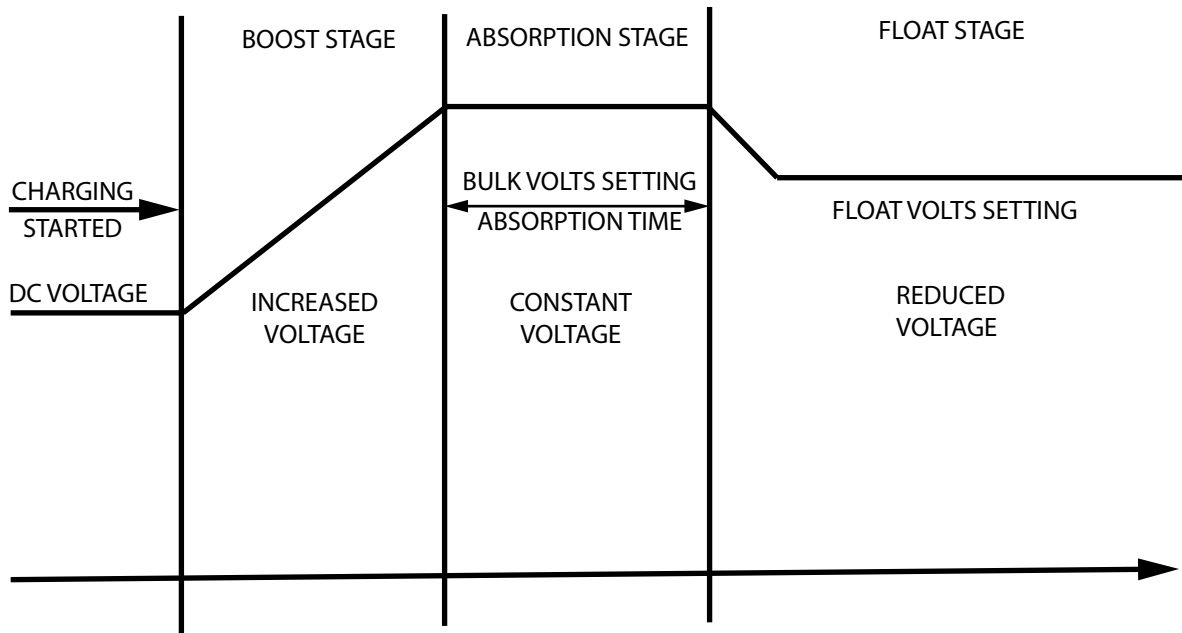
- Power available (Green) indicates that local electricity supply is present.
- Temp High (Red), if connected, indicates motor has exceeded its temperature rating.
- Alarm Muted (Red) indicates that alarm mute button has been pushed silencing external alarm(s) and bell(s).
- Battery Fault (Red) indicates that DC battery has failed.
- Mains Failure (Red) indicates that local electricity supply has failed.
- Motor Over Current (Red) indicates that electric motor exceeded its maximum running current.
- Pump Run (Red) indicates that the electric pump motor is running and up to speed.
- General warning (Red) indicate a common fault i.e. battery fault, motor over current, mains failure, high temperature, etc.

PUSH BUTTONS

- **Alarm Mute** Silences all external alarms (see alarm mute indicator).
- **Mode** Changes display LCD screen.
- **Select** When in Jockey pump display, settings can be changed from Auto, Off & Manual and Star / Delta delay time (sec).
- **Clear & Indicator test** To clear any alarm indicators and to test all indicator lights.
- **Pump Start / Stop** Push manually to start pump, push to stop pump manually.

BATTERY CHARGER

Battery chargers are three stage charging consisting of boost, absorption and float stages. See diagram below.



ACTUAL BATTERY VOLTAGE DURING CHARGING CYCLE

The charging cycle uses three stages. During the initial boost charge stage, the battery charges at a maximum rate regulated by the charger's current limit settings. This causes the battery voltage to rise over time. After the battery voltage nears the absorption voltage setting, the charger starts the second or absorption stage. During this phase, the charge rate gradually reduces while the battery voltage is held near the boost voltage setting. This ensures that the battery is fully charged. The final float stage is initiated when the battery has been held at the boost charge setting for the adjustable absorption period, which is determined by the amp-hours capacity of the battery. After that period, the battery voltage is maintained at the lower float voltage setting, where it is maintained to provide current for the quiescent system load and to compensate for the battery's self-discharge.

Note: All associated control wiring for battery chargers must be connected correctly. Without correct connection battery charger will not operate.

FUSES

A fuse has been fitted to protect the controller components from abnormal load conditions and unusual transients. If the fuse “blows”, replace only with size and rating specified. Fitting a larger fuse than that specified will eventually lead to permanent irreplaceable damage to controller and/or components. Before replacing the fuse or removing plug in cards, turn off AC supply and disconnect batteries.

(a) VOLT FREE SUPPLIED PCB CONNECTIONS

- Pump Star C / NC / NO
- Pump Delta C / NC / NO
- Alarm Muted C / NC / NO
- General warning C / NC / NO
- Over Current C / NC / NO
- Mains Fail C / NC / NO
- Battery Fail C / NC / NO

(b) EXTERNAL CONNECTIONS FOR BELL & FLASHING LIGHT

- PCB Connections
 - ± } Bell 12V DC
 - ± } Alarm 12V DC (Flashing Light)

CONTROLLER SETUP

STAR / DELTA TIME DELAY SETUP

- Depress *Select* + *Clear* / Indicator Test buttons together.
- Screen will display “Setup”.
- Depress *Select* button to change time (sec).
- Depress *Mode* button to return to main screen.

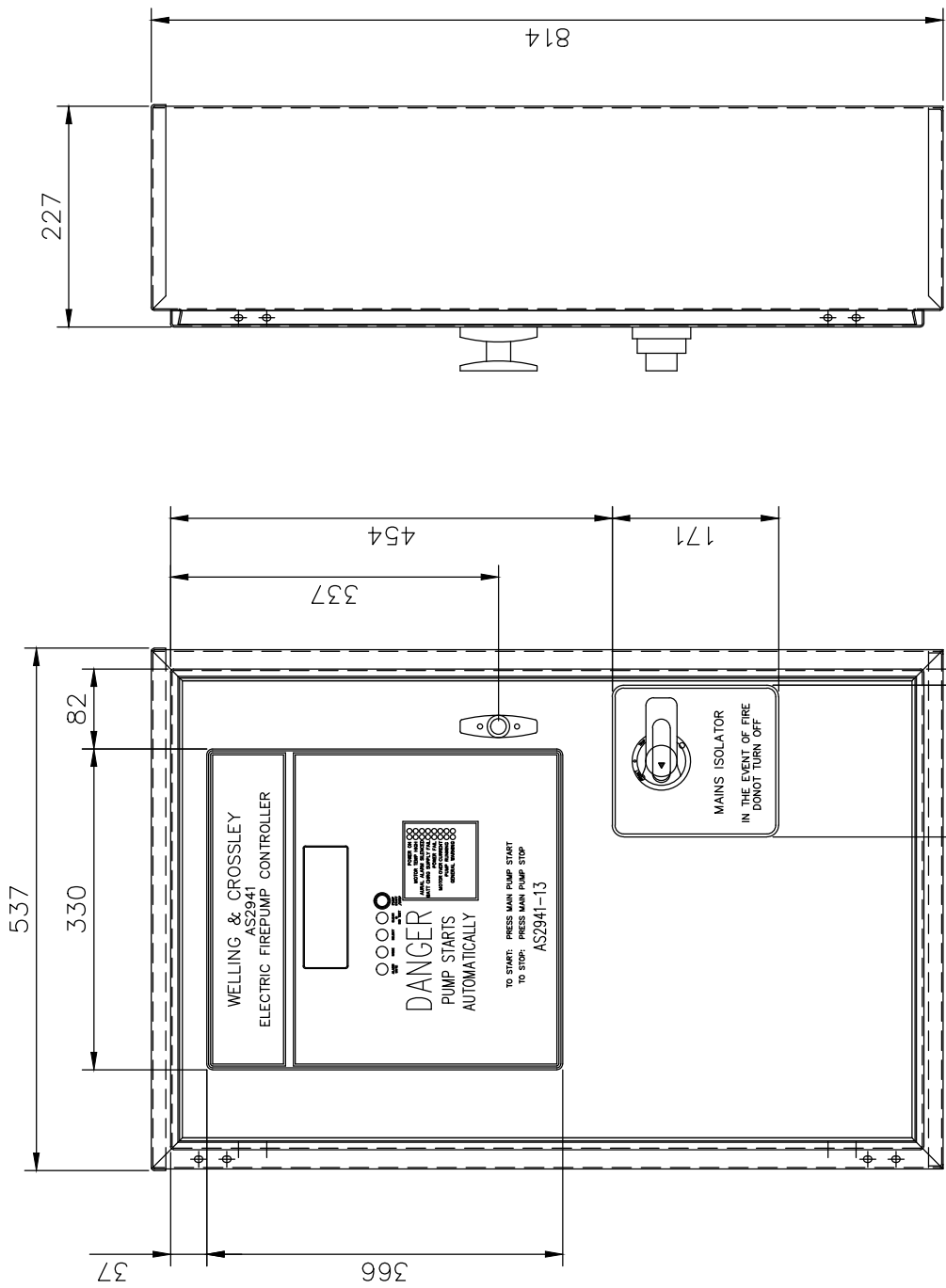
OVER CURRENT DISPLAY

- Depress *Alarm Mute* and *Mode* button together.
- Screen will display “Registered startup max current and time”.
- Depress *Mode* button to return to main screen.

MODE DISPLAY

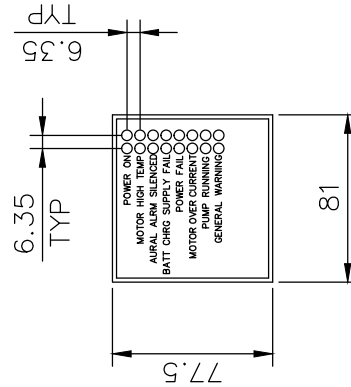
- Depressing Mode button will display the following screens
 - Mains power FAIL / OK
 - Main pump ON / OFF
 - Battery OK / FAIL
 - Main pump current
 - Battery Volts / Amps
 - Software version
 - Serial Number
 - Ready

ELECTRICAL DRAWINGS



SIDE VIEW

FRONT VIEW

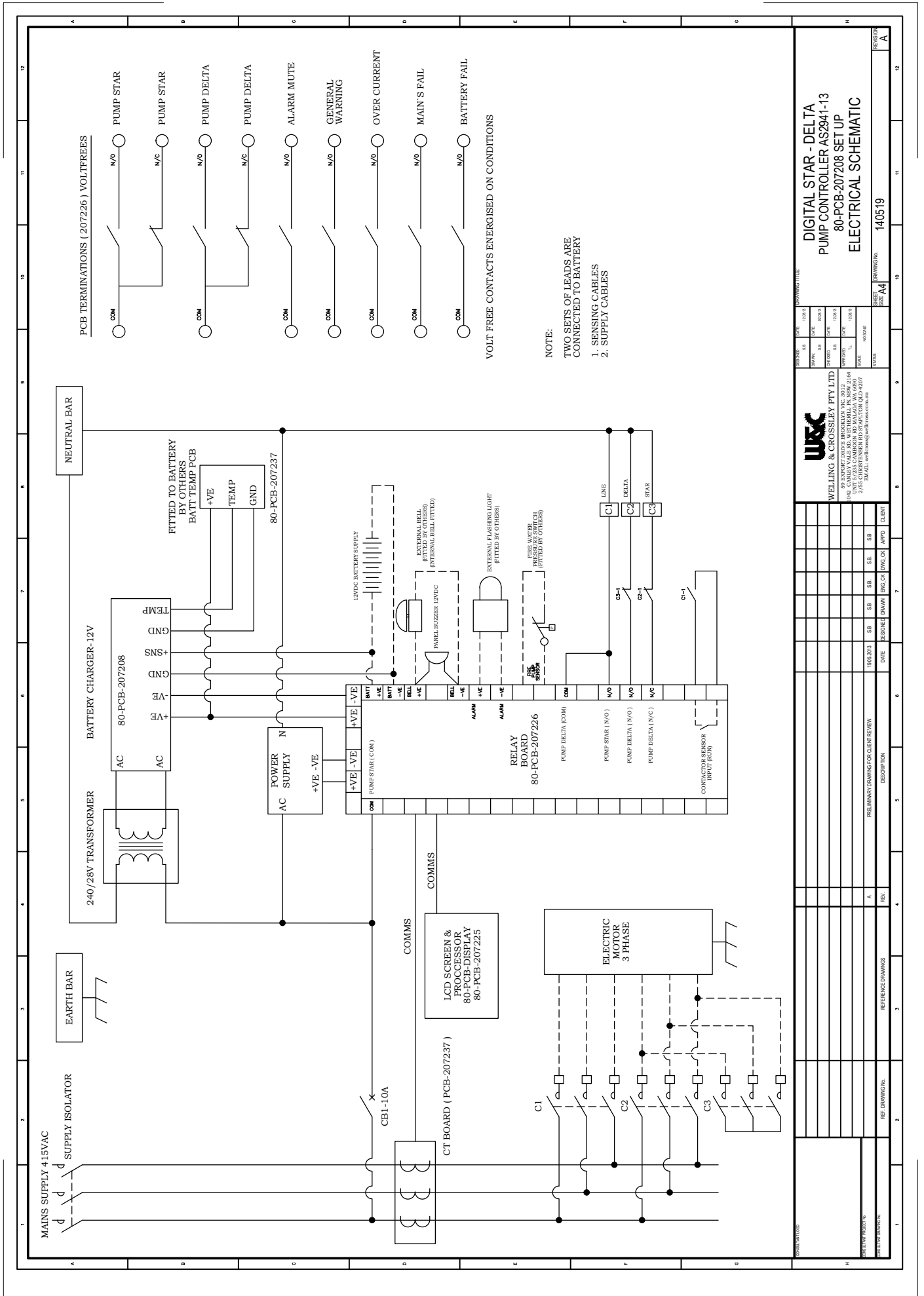


SCALE: 2:1

REV.	DESCRIPTION	DRN	DATE	CHK.	DATE	S.B.	APP.	ENG.	S.B.	CHK.	S.B.	DRN.	TO BE MODIFIED ON CAD ONLY	PLOT SCALE	DRAWN SCALE
-	-	-	-	-	-	20.03.17	-	-	20.03.17	-	-	-	-	-	-
-	-	-	-	-	-	20.03.17	-	-	20.03.17	-	-	-	-	-	-
-	-	-	-	-	-	20.03.17	-	-	20.03.17	-	-	-	-	-	-
A	ISSUED FOR APPROVAL	-	-	-	-	20.03.17	-	-	20.03.17	-	-	-	-	-	-
REV.	DESCRIPTION	DRN	DATE	CHK.	DATE	S.B.	APP.	ENG.	S.B.	CHK.	S.B.	DRN.	TO BE MODIFIED ON CAD ONLY	PLOT SCALE	DRAWN SCALE
A3	170320	-	-	-	-	-	-	-	-	-	-	-	-	-	-
A	ASSEMBLY DRAWING	-	-	-	-	-	-	-	-	-	-	-	-	-	-
REV	DRG No:	TITLE : AS2941 ELECTRIC CONTROL BOX 0-75 KW 2013													
A	170320	ASSEMBLY DRAWING													

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 UNIT 5/235 CAMBOON RD MALAGA WA 6090
 UNIT 11/1909 IPSWICH ROCKLEA QLD 4106
 E-MAIL: welling@wellingcrossley.com.au

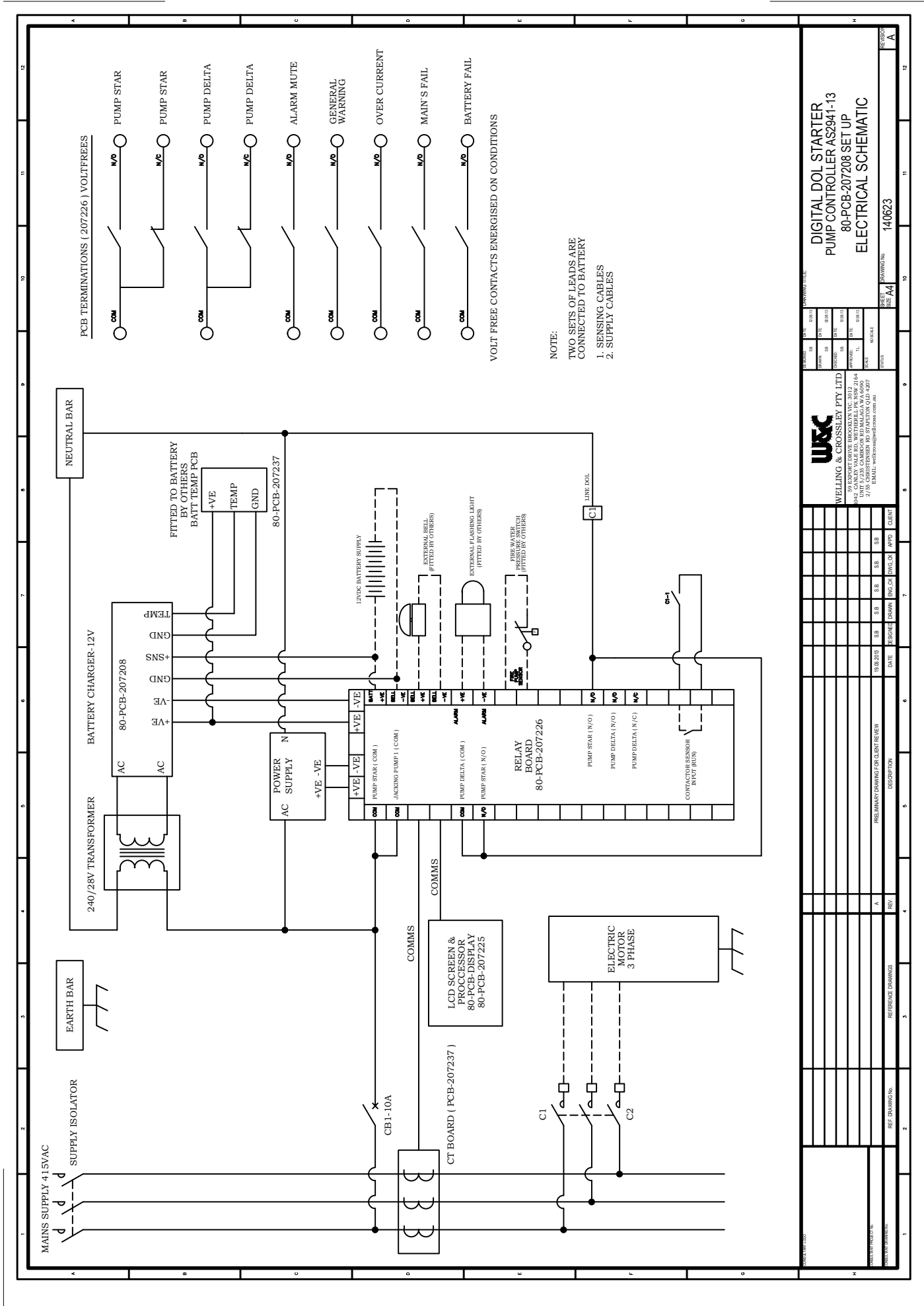
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NOTE:
TWO SETS OF LEADS ARE CONNECTED TO BATTERY
1. SENSING CABLES
2. SUPPLY CABLES

VOLT FREE CONTACTS ENERGISED ON CONDITIONS

DATE	DESIGNED BY	CHECKED BY	DATE	DATE	DATE	DATE
10/03/2013	SB	SB	SB	SB	SB	SB
PRELIMINARY DRAWING FOR CLIENT REVIEW						
REV	REV	REV	REV	REV	REV	REV
A	A	A	A	A	A	A
REFERENCE DRAWINGS						
REF DRAWING NO.						
REV						
DATE						
DESIGNED BY						
ENG. CHK						
DWG. CHK						
APPD						
CLIENT						
WELLING & CROSSLEY PTY LTD 89 EXPORT DRIVE BROOKLYN VIC 3012 PO BOX 266 BROOKLYN VIC 3012 4/40 GLENVALE ROAD AND BRIDLEWAY NSW 2164 2/85 CHRISTMAS ISLAND STATION QLD 4907 TEL: (08) 9499 9999 FAX: (08) 9499 9988 WWW.WELLINGANDCROSSLEY.COM.AU						
DRAWING TITLE						
DIGITAL STAR - DELTA PUMP CONTROLLER AS2941-13 80-PCB-207208 SET UP ELECTRICAL SCHEMATIC						
DRAWING NO. 140519						
SHEET 44						
REVISED						



		DIGITAL DOL STARTER PUMP CONTROLLER AS2941-13 80-PCB-207208 SET UP ELECTRICAL SCHEMATIC	
WELLING & CROSSLEY PTY LTD 89 ESPLANADE DRIVE BROOKLYN VIC 3012 1042 CANLEY VALE RD, WYTHILL PARK NSW 2114 2/18 CHRISTIE RD STURTON QLD 4877 EMAIL: welling@welling.com.au		SHEET 140623	DRAWING NO 140623
PRELIMINARY DRAWING FOR CLIENT REVIEW DATE: 10.06.2010 REV: A	REFERENCE DRAWINGS 80-PCB-207208 80-PCB-207209 80-PCB-207210 80-PCB-207211 80-PCB-207212 80-PCB-207213 80-PCB-207214 80-PCB-207215 80-PCB-207216 80-PCB-207217 80-PCB-207218 80-PCB-207219 80-PCB-207220 80-PCB-207221 80-PCB-207222 80-PCB-207223 80-PCB-207224 80-PCB-207225 80-PCB-207226 80-PCB-207227 80-PCB-207228 80-PCB-207229 80-PCB-207230 80-PCB-207231 80-PCB-207232 80-PCB-207233 80-PCB-207234 80-PCB-207235 80-PCB-207236 80-PCB-207237 80-PCB-207238 80-PCB-207239 80-PCB-207240 80-PCB-207241 80-PCB-207242 80-PCB-207243 80-PCB-207244 80-PCB-207245 80-PCB-207246 80-PCB-207247 80-PCB-207248 80-PCB-207249 80-PCB-207250	DESCRIPTION REFERENCE DRAWINGS REV APPD CENY	DATE 10.06.2010 REV A

TROUBLE SHOOTING GUIDE

Problem	Probable Cause	Remedy
Control panel is not switching on	No AC supply	Check AC supply
LCD screen is not switching on	No DC supply to panel	Check connections to controller
Pump will not stop	Pressure switch signal closed	Isolate pressure switch
Pump will not start	AC supply not present	Check isolator is in ON position

If you require further assistance, please call Welling & Crossley Head Office 03 9316 9700.

ELECTRIC FIREPUMP CONTROLLER WARRANTY

Welling & Crossley Electric Fire pump Controllers are warranted against defects in material and workmanship for a period of 12 months. This warranty coverage is applicable to the first end user of the Controller only.

Our Responsibility

If a defect in material or workmanship arises during the warranty period the company will:

- Replace or at the company's discretion repair the defective parts.

Users Responsibility

The user is responsible for:

- Installing and operating the control panel in accordance to the manufacturer's instructions.
- Accepting the company's sole judgement as to whether the faulty part is defective in material or workmanship.
- The costs and risks for transportation/shipping and other changes associated with the replacement of the control panel and/or the repair parts.
- Other miscellaneous costs including but not limited to travel, mileage, lodging, taxes, telephone calls, overtime, etc.

Limitations

This warranty does not cover:

- Defects due to the user's improper installation, maintenance or use.
- Alterations or repairs by the owner or any third party that are not authorized by Welling & Crossley P/L in writing.
- Any operation in excess of the company's rating or outside the stated site conditions.
- Normal wear and tear.
- Supply of, or payment for any replacement equipment while repairs or replacement are taking place.



FIRE PRODUCTS



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AS 2941-2013 DIGITAL ELECTRIC FIRE PUMP CONTROLLER

INSPECTION & TEST SHEET



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**DIGITAL ELECTRIC FIRE PUMP PANEL
INSPECTION & TEST SHEET**

DESCRIPTION: AS2941-2013 DIGITAL ELECTRIC PANEL

DATE: _____

TYPE: _____

S/N: _____

CUSTOMER: _____

CUSTOMER O/ N: _____

LOCATION: _____

TESTED BY: _____

SOFTWARE REVISION: _____

12V DC: _____

PAINT: SIGNAL RED

KEY NO: 003

DESCRIPTION / MODIFICATION:

PROCEDURE	TASK COMPLETED		INDEPENDENT INSPECTION CHECK
	DATE	SIGN	
Inspect Components			
Assembly			
Programming			
Bench Test			
Field Test			

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South Australia

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