# INCA

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# INCA MODEL


# SPJ3


# TRIPLEX PUMP-OUT CONTROL PANEL


## USER MANUAL
## Inca Reference SPJ3

**Software Version 1.0**


Technical Support
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# Control Panel Overview

The triplex Pumps-out Control panel controls the operation of 3-off mains powered submersible pumps with the use of either control float switches or constant level monitoring within the wet well. The panel is manufacture to comply with Australian Standards & for the pumping & float control to be housed Class 1 Zone 2 Hazardous areas as long as the field equipment is approved for that area

*Panel Connections:*

Isolator Terminals
T1, T2, T3, & N - 415VAC Supply

Field Terminals
Pump 1 – Overload 1, Terminals T1, T2, & T3
Pump 2 – Overload 2, Terminals T1, T2, & T3
Pump 3 – Overload 3, Terminals T1, T2 & T3
Terminals 10 & 15 – Low level Float Switch. Float switch up Alarm on, float switch down alarm off. (Close on Fall)
Terminals 10 & 11 – Duty Float Switch. Float switch up pump on, float switch down pump off. (Close on Rise)
Terminals 10 & 12 – Standby Float Switch. Float switch up pump on, float switch down pump off. (Close on Rise)
Terminals 10 & 13 – High Level Float switch. Float sw up alarm on, float switch down alarm off. (Close on Rise)
Terminals 10 & 14 – Option level transducer.
Terminals 2 & N – Optional 240V Remote Alarm

*Panel Facia:*

The front of the control panel houses an Inca Model JAZZ PLCHMI controller which houses all control buttons & indication allowing the operator to see what is happening within the pit in regards to pump operation & alarm conditions.

*Indication:*

Is all shown on the jazz OPLC. Displays system status.

*Control Switches*:

These switches are activated via pressing the appropriate button to operate the selector as required. To access the button first press & hold any numbered button from 1 to 9 for 3seconds, If keypad locked has been selected in set-up, an unlocked symble will be displayed to advise that the switches are now accessible. The key pad will again relock after 1minute of no key pad use.

Pump No1  Manual/off/auto controls the operation of Pump No1.
      Manual, the pump will run continuously & is not under the control of float switches
      Off, the pump will not operate.
      Auto, the pump will run when told to start via the float switch in the pit.

Pump No2  Manual/off/auto controls the operation of Pump No2.
      Manual, the pump will run continuously & is not under the control of float switches
      Off, the pump will not operate.
      Auto, the pump will run when told to start via the float switch in the pit.

Pump No3  Manual/off/auto controls the operation of Pump No3.
      Manual, the pump will run continuously & is not under the control of float switches
      Off, the pump will not operate.
      Auto, the pump will run when told to start via the float switch in the pit.


Duty Selector  Pump 123/231/312/Auto, will select the pump duty.


*Audible alarm:*

The panel has an audible alarm that sound when a fault condition has been registered, Pump 1 fail/Pump 2 fail/ Pump 3 fail/High level. Once an alarm sounds it can be silenced by pressing the alarm mute pushbutton (Key 0). If a second fault condition is registered during this period the alarm will once again sound to warn of this fault.
The audible alarm has a time feature to comply with noise regulation, once the alarm sounds it will sound for 5minutes & then silence itself for a further 15minutes before sounding again. This cycle will continue until the fault is rectified or the mute pushbutton pressed.

*Float Switch Operation (Factory default):*

The pumps are controlled via float switches in the collection pit of which there are 4.
Low Level float switch or the bottom float switch operates the low level alarm & pumps shutdown. The alarm will start when the float falls & stop when the float rises.
Duty float switch or the 2$^{nd}$ lowest float switch controls the duty pump. The pump will start when the float rises & stop when the float falls.
Standby float switch or the 3$^{rd}$ lowest float switch controls the 1st standby pump. The pump will start when the float rises & stop when the float falls.
High Level float switch or the top float switch operates the high level alarm and activate the 2$^{nd}$ standby pump. The alarm will start when the float rises & stop when the float falls.

Low level is an option & if not connected will not affect the panel controls.

*Constant Level Monitoring (Site adjusted):*

The pumps are controlled via a submersible 4-20Ma Level transducer. To operate under this control the PLCHMI need to be programmed to use this input & not the float switch control. This is achieved by inputting the following.
Press & hold the right arrow key for 5seconds,

Floats=0  Alog=1  0 will be displayed with the curser blinking under 0.
To change to Analogue control (constant Level Monitoring) simply press 1.
The screen will now read Float=0  Anog=1  1. Press the RETURN ARROW (enter) key to accept.
Press the RETURN ARROW key to return to the main screen
To return to float switch control repeat the above pressing 0 to select float control

Once analogue control has been selected you will need to set your operating heights.
Press & hold the RIGHT ARROW button for 5seconds. Low pressure On will be displayed
Enter your low level on Height example Press 0, Press arrow down (decimal point), press 5, press 0, press 0, press RETURN ARROW. You have entered 0.500m for low level on.
Press the RIGHT ARROW button to move on. The screen will now display Low pressure Off .
Enter your low level Off Height example Press 0, Press arrow down (decimal point), press 6, press 0, press 0, press RETURN ARROW. You have entered 0.600m for low level off
Press the RIGHT ARROW button to move on. The screen will now display Duty Level On Height.
Enter your duty level On Height example Press 0, Press arrow down (decimal point), press 8, press 0, press 0, press RETURN ARROW. You have entered 0.800m for duty level on.
Press the RIGHT ARROW button to move on. The screen will now display Duty Level Off Height.
Enter your duty level Off Height example Press 0, Press arrow down (decimal point), press 6, press 0, press 0, press RETURN ARROW. You have entered 0.600m for duty level off.

Press the RIGHT ARROW button to move on. The screen will now display Standby Level On Height.
Enter your Standby level On Height example Press 1, Press arrow down (decimal point), press 0, press 0, press 0, press RETURN ARROW. You have entered 1.000m for standby level on.
Press the RIGHT ARROW button to move on. The screen will now display Standby Level Off Height.
Enter your Standby level Off Height example Press 0, Press arrow down (decimal point), press 6, press 0, press 0, press RETURN ARROW. You have entered 0.600m for standby level off.

Press the RIGHT ARROW button to move on. The screen will now display High Level On Height.
Enter your High level On Height example Press 1, Press arrow down (decimal point), press 5, press 0, press 0, press RETURN ARROW. You have entered 1.500m for High level on.
Press the RIGHT ARROW button to move on. The screen will now Display high Level Off Height.
Enter your high level Off Height example Press 0, Press arrow down (decimal point), press 4, press 0, press 0, press RETURN ARROW. You have entered 1.400m for high level off.

Press the RIGHT ARROW button to move on. The screen will now display Sensor level. This is the height at which the level transducer is reading at 20Ma (maximum height)
Enter your Sensor Level Height example Press 2, Press arrow down (decimal point), press 0, press 0, press 0, press RETURN ARROW. You have entered 2.000m for High level on.
Press the RIGHT ARROW button to move on. The screen will now display the main page

*Key Pad Lock:*

Off =0 On =1 0 will be displayed with the curser blinking under 0.
To change to ON simply press 1.
The screen will now read Off =0 On =1  1. Press the RETURN ARROW (enter) key to accept. Press the RETURN ARROW key to return to the main screen
To unlock keypad Lock simply press any number from 1 to 9 For 3 seconds.

*Low Pressure time:*

If the pressure is low for the set amount of time it will then indicate and alert you of the low pressure after the time limit. Eg M 1:30 S. Press 0, press 1, press 3, press 0, You have now entered 1 minute and 30 seconds.

*Pump #1 Min Run Time:*

Set to stop short cycling of the pump. EG: M 5:00 S. press 0, press 5, press 0, press0, you have now entered 5:00 mins For your pump #1 min run time.

*Pump #2 Min Run Time:*

Set to stop short cycling of the pump. EG: M 5:00 S. press 0, press 5, press 0, press0, you have now entered 5:00 mins For your pump #2 min run time.

*Pump #3 Min Run Time:*

Set to stop short cycling of the pump. EG: M 5:00 S. press 0, press 5, press 0, press0, you have now entered 5:00 mins For your pump #3 min run time.

*Voltage Free Contact:*

The control panel is fitted with voltage free contracts.
For more information please refer to the wiring diagram provided!

# NOTES: