



# Getting started with the IOX44

The IOX44 adds isolated input and relay output capability to a SPLat microPLC. It contains 4 optically isolated inputs circuits and four output relays. The isolated inputs convert any switched input voltage between 12V and 240V AC or DC into a low voltage sinking (NPN) signal. The relays are driven off regular low voltage dc outputs such as those found on OEM32/36, SL88 or MMI88. The relay contacts can then be connected to higher voltage ac or dc loads up to 5A.

## Power supply

The board needs a dc power supply of between 12V and 26V and draws max 180mA. Refer to the diagram for connection details..

## Connection to SPLat microPLC board

The IOX44 connects to a SPLat microPLC via the 10-pin plastic connector. This connector provides power to the board, plus the 8 signal lines. The connector is designed to line up with one of the two connectors labelled I/O on a SPLat OEM36 microPLC. The cable supplied can go straight from the IOX44 connector to either I/O 8-15 or I/O 16-23 on an OEM36, giving the following connections and pin usages.

On IOX44	Function	OEM36 I/O 8-15	OEM36 I/O 16-23	Used as
R1	Output relay 1	8	16	Output
R2	Output relay 2	9	17	Output
R3	Output relay 3	10	18	Output
R4	Output relay 4	11	19	Output
I1	Isolated input 1	12	20	Input
I2	Isolated input 2	13	21	Input
I3	Isolated input 3	14	22	Input
I4	Isolated input 4	15	23	Input

If you are using the IOX44 with boards other than the OEM36 (or non-SPLat controllers) you will need to cut the connector off one end of the cable and connect the individual wires appropriately.

The relays pins (R1-R4) need to be driven off sinking (NPN) outputs such as those on the SL88 or MMI88. Connecting the pin to common will turn on the relay, with 35mA max flowing through the connection. Note that the relays circuits rely on there being a catch diode in the driving devices, as is the case with SPLat boards.

The I1-I4 pins have open collector NPN drivers capable of sinking 25mA, and need to connect to controller inputs designed for NPN sensors such as those on the SL88 or MMI88.

## Relay outputs

The IOX44 has 4 output relays. These are grouped into one pair and two singles. The pair is relays 3 and 4, which share a common terminal and have their normally open (N/O) terminals brought out. The singles are relays 1 and 2, which each has its common and both normally open and normally closed contacts brought out.

The relays contact ratings depend on whether they are switching AC or DC, and differ for normally open and normally closed contacts.

Normally open: 5A @ 125VAC, 3A @ 250VAC, 5A @ 30VDC

Normally closed: 2A @ 125VAC, 1A @ 250VAC, 1A @ 30VDC

These ratings are for resistive loads.

## Inductive loads

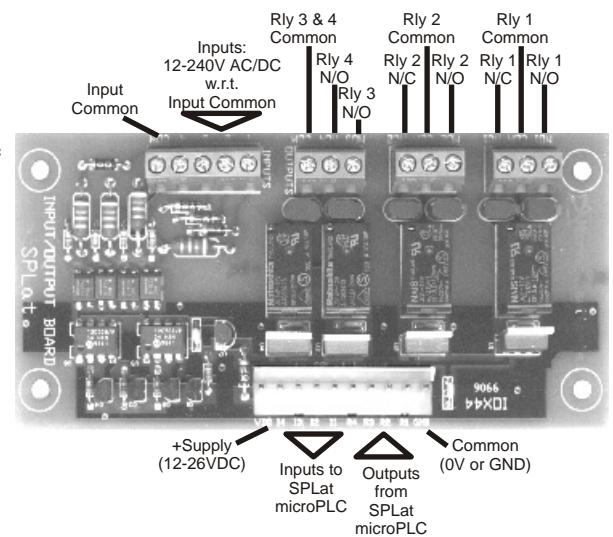
The relays on the IOX44 are rated for use with resistive loads. If you use the board with inductive loads such as motors or solenoids, there will be additional strain placed on the relay contacts by the spark generated when the contact opens. Derate the contacts by 40%.

## Capacitive loads

The relays on the IOX44 are not suitable for capacitive loads such as power factor corrected fluorescent lights.

## Inputs

Inputs on the IOX44 are opto-isolated bidirectional circuits. That means that current flowing in either direction will turn the input on (no current turns it off). The inputs will respond to anything between 12V and 240V AC or DC. All 4 inputs share a single common terminal.



The voltage to drive the input must be provided externally to the board, between the input common and the input terminal.

Each input has a timer associated with it, so that even with AC input the signal seen by the SPLat microPLC will be a steady ON signal. This means there is necessarily an Off delay, which is approximately 20mS.

## Safety issues

The IOX44 should be wired into any circuit carrying voltages over 32V AC or DC only by a suitably qualified person. Input and output isolation notwithstanding, if any hazardous voltage is connected to any part of the IOX44 then the whole IOX44 should be treated as if it is at a hazardous voltage and all regulatory requirements in your country must be complied with.

In any machinery where an emergency stop button is required, this *must not* be wired into the IOX44. Emergency stops should always be wired independently of any other control system, be it a SPLat or any other electronic or electro-mechanical system. If necessary you should consult a suitably qualified or licenced machine safety consultant.

## Technical support

If you are experiencing problems using your SPLat, feel free to ask us for help. We will do our best to answer your questions as quickly and accurately as possible.

The best way to contact us is by email. Most emails are answered as soon as we read them, which is morning and evening each working day.

You may also 'phone us. Our working hours are 9am to 5pm Monday to Friday, though we are frequently available later than 5pm and on Saturdays. We are located in the Melbourne/Sydney (Australia) time zone, which is Universal time +1000 (plus daylight saving).

## 24 Month Warranty

All SPLat products carry a 24 month limited warranty covering defects in manufacturing, dated from the date of manufacture. Damage caused by misuse, including over-stressing of varistors, is not covered.

## 30 days money back guarantee

For your *first purchase* of a SPLat board we will refund the full purchase price within 30 days of purchase if you are unsatisfied with the product. Naturally the product must be undamaged and re-sellable. Software is excluded. Applies only to product purchased directly from us (or as extended by individual dealers). Return freight must be paid by you.

## "Oops, I nuked it!" repair policy

We will repair or replace any damaged SPLat board, irrespective of the nature of the damage, and providing no attempt has been made by you to repair it, for a fixed published price of approximately half the one-off price. (Conditions apply).

*Thank you for using SPLat. I trust you will find it a useful and productive tool in your work.*

*David Gibson, Marketing Director & SPLat co-designer*



**SPLat Controls Pty Ltd**

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Notice to all SPLat users: This product is not warranted as being suitable for any particular purpose. Applications examples and assistance notwithstanding, this is a programmable controller component which you must yourself program and otherwise adapt to your intended purpose, and it remains entirely your responsibility to ensure that it will perform as intended in your application. The use of this product in any life support application or any application where failure may result in death or injury is expressly prohibited. Emergency shutdown switches should always be wired independently of the control system, and must not rely on the SPLat controller for safe functioning. Our liability in the event of any failure of this product shall be limited to replacing any defective goods supplied by us.