

# S2BACLIGHTDP

Aromat /Panasonic/Douglas Lighting Relay Controller

## Introduction

The S2BACLIGHTDP is an intelligent lighting relay controller designed to control twenty-four (24) Aromat/Panasonic/Douglas Lighting Relays (WR-6221, WR-6161, etc) used primarily in commercial lighting control applications. The S2BACLIGHTDP also provides support for eight (8) configurable Group Inputs, two (2) HVAC and DC Compatible Binary Inputs, along with multiple communication interfaces for standalone and/or integration in the site's Bus Building Management System (BMS).

## Hardware Features

The S2BACLIGHTDP has the following hardware features and functionality:

Part Number:	S2BACLIGHTDP-24
Power Requirements:	24VAC @ 500mA (varies with connected relays and relay states)
Environment:	
Temperature	0 C to +70 C
Humidity	10 – 95 % RH (non-condensing)
Dimensions:	16.4cm L x 10.0cm W x 5.5cm H (6.5”L x 4.0”W x 2.2” H)
Packaging:	DIN Rail Mountable
Interfaces:	<ul style="list-style-type: none"> <li>One (1) 10/100 Mb/s Ethernet Interface</li> <li>One (1) Electrically isolated Half-Duplex RS-485 Interface</li> <li>One (1) DALI – Digital Addressable Lighting Interface (Controller)</li> <li>One (1) High Speed USB Interface (Initial Configuration)</li> <li>Real Time Clock with Battery Backup for local scheduling</li> <li>- Includes Astrological clock functionality for automatic daily calculation of Sunrise and Sunset Times</li> </ul>
Protocols:	<ul style="list-style-type: none"> <li>BACNet MS/TP (Current Release)</li> <li>JCI N2 Open and TCP/IP Web Interface support (Available upon request)</li> <li>BACNet / IP and Modbus will be offered in the future.</li> </ul>

Electrical:

Outputs: Twenty-four (24) 2-Wire Pulse Relays with associated LED Status Display  
Outputs are sequentially switched to minimize in-rush load current(s)

Supported Relays: Douglas Lighting/Aromat WR-6221, WR-6161, or equivalent

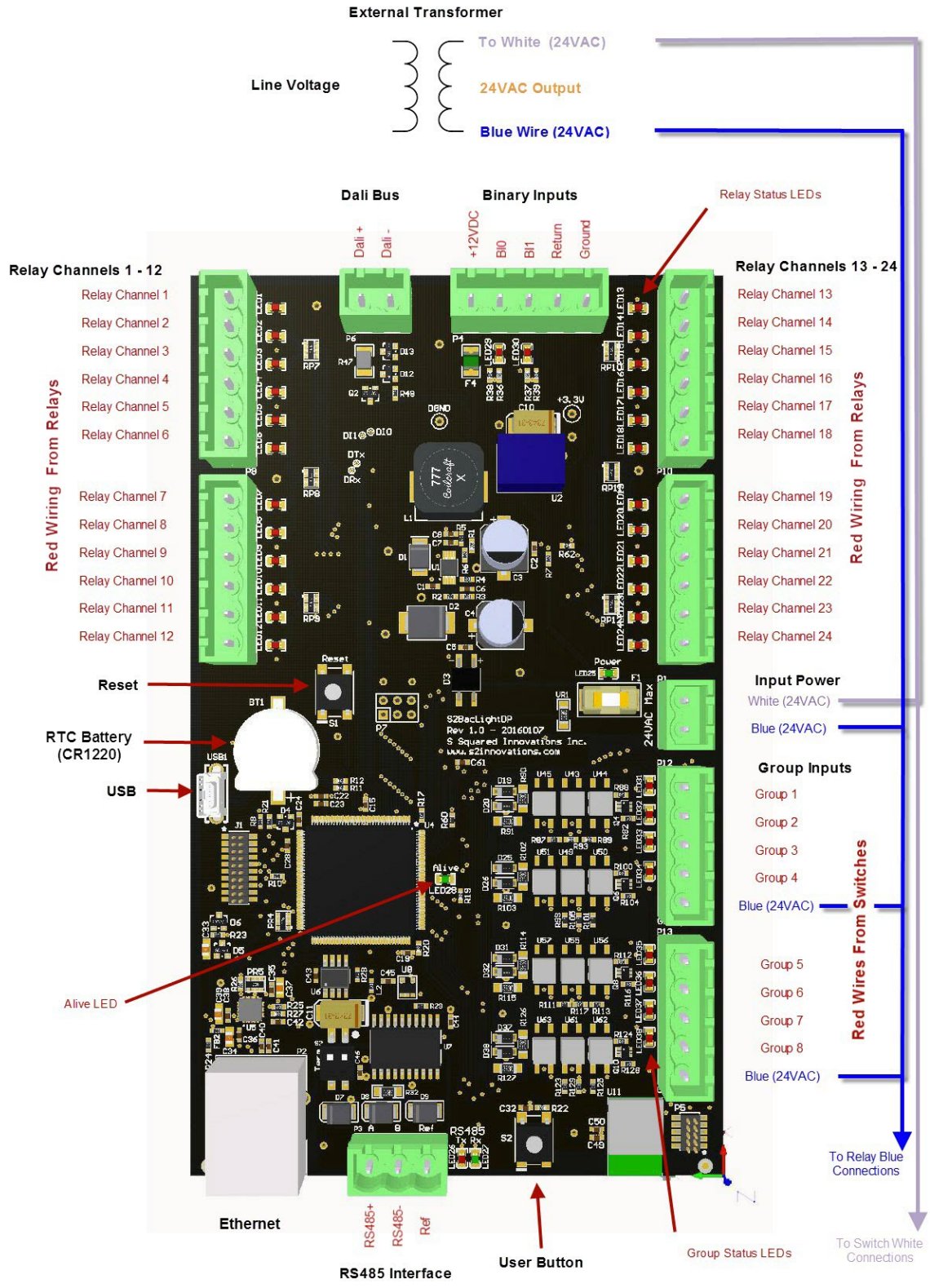
Inputs: Each Input has a Programmable Group or Zone which allows control of one or more of the 24 Relay Outputs  
Eight (8) 2-wire Douglas Lighting WR-8xxx or compatible Switch Inputs  
Two (2) Binary Inputs (12-24V AC/DC or dry contact)  
programmable as Maintained, Momentary On or Off  
One (1) On-board User configurable switch  
Default Configuration is for Master Relay Toggle On/Off

Building Automation: Thirty-Two (32) Binary Values (BV)  
(One BV per Relay and Group Input)  
Twenty-four (24) Multi-State Inputs (MSI)  
(One MSI per Relay)  
Eight (10) Binary Inputs (BI)  
(One BI per Group and Hardware Inputs)  
Additional Objects can be added upon request

## S2BACLightDP - Bacnet Object Map

Object	Name	Type	Values
BI0	Group_Status01	Binary	0 = Off, 1 = On
BI1	Group_Status02	Binary	0 = Off, 1 = On
BI2	Group_Status03	Binary	0 = Off, 1 = On
BI3	Group_Status04	Binary	0 = Off, 1 = On
BI4	Group_Status05	Binary	0 = Off, 1 = On
BI5	Group_Status06	Binary	0 = Off, 1 = On
BI6	Group_Status07	Binary	0 = Off, 1 = On
BI7	Group_Status08	Binary	0 = Off, 1 = On
BI8	BI-00	Binary	0 = Off, 1 = On
BI9	BI-01	Binary	0 = Off, 1 = On
BV0	Relay01	Binary	0 = Off, 1 = On
BV1	Relay02	Binary	0 = Off, 1 = On
BV2	Relay03	Binary	0 = Off, 1 = On
BV3	Relay04	Binary	0 = Off, 1 = On
BV4	Relay05	Binary	0 = Off, 1 = On
BV5	Relay06	Binary	0 = Off, 1 = On
BV6	Relay07	Binary	0 = Off, 1 = On
BV7	Relay08	Binary	0 = Off, 1 = On
BV8	Relay09	Binary	0 = Off, 1 = On
BV9	Relay10	Binary	0 = Off, 1 = On
BV10	Relay11	Binary	0 = Off, 1 = On
BV11	Relay12	Binary	0 = Off, 1 = On
BV12	Relay13	Binary	0 = Off, 1 = On
BV13	Relay14	Binary	0 = Off, 1 = On
BV14	Relay15	Binary	0 = Off, 1 = On
BV15	Relay16	Binary	0 = Off, 1 = On
BV16	Relay17	Binary	0 = Off, 1 = On
BV17	Relay18	Binary	0 = Off, 1 = On
BV18	Relay19	Binary	0 = Off, 1 = On
BV19	Relay20	Binary	0 = Off, 1 = On
BV20	Relay21	Binary	0 = Off, 1 = On
BV21	Relay22	Binary	0 = Off, 1 = On
BV22	Relay23	Binary	0 = Off, 1 = On
BV23	Relay24	Binary	0 = Off, 1 = On
BV24	Group01	Binary	0 = Off, 1 = On
BV25	Group02	Binary	0 = Off, 1 = On
BV26	Group03	Binary	0 = Off, 1 = On
BV27	Group04	Binary	0 = Off, 1 = On
BV28	Group05	Binary	0 = Off, 1 = On
BV29	Group06	Binary	0 = Off, 1 = On
BV30	Group07	Binary	0 = Off, 1 = On
BV31	Group08	Binary	0 = Off, 1 = On
MSI0	Relay_Status01	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI1	Relay_Status02	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI2	Relay_Status03	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI3	Relay_Status04	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault

MSI4	Relay_Status05	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI5	Relay_Status06	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI6	Relay_Status07	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI7	Relay_Status08	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI8	Relay_Status09	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI9	Relay_Status10	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI10	Relay_Status11	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI11	Relay_Status12	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI12	Relay_Status13	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI13	Relay_Status14	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI14	Relay_Status15	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI15	Relay_Status16	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI16	Relay_Status17	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI17	Relay_Status18	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI18	Relay_Status19	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI19	Relay_Status20	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI20	Relay_Status21	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI21	Relay_Status22	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI22	Relay_Status23	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault
MSI23	Relay_Status24	Multistate	0=Absent, 1 = On, 2=Off, 3=Fault



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## On-Board Hardware Binary Inputs

The two (2) Hardware Binary Inputs are electrical inputs that are configured electrically (e.g. AC or DC Voltage Input) and programmatically to control any number of the twenty-four (24) relay channels. In addition to the inputs there is also a low voltage power output (+12VDC @ 300mA) available on the same connector to power externally connected low voltage sensor devices (e.g. Motion sensors, light level sensor, etc).

Connector Name	Description
+12VDC	Used to Power External Devices
BI0	Digital Input
BI1	Digital Input
Ref	Digital Input Reference
Ground	Power Ground

Be advised that the Electrical configuration will be common to both digital inputs. Both Inputs are rated for a 12/24 V AC/DC, however, they need to be electrically configured based upon the voltage fed into them. Below are some examples:

### a. Separately Powered External Device sending a 24VAC Signal(s)

Connector Name	Connection
+12VDC	Not Used / No Connection
BI0	Connect to 24VAC Digital Signal 1
BI1	Connect to 24VAC Digital Signal 1
Ref	Connect to 24VAC Common
Ground	Not Used / No Connection

### b. Separately Powered External Device sending a 12/24 VDC Signal(s)

Connector Name	Connection
+12VDC	Not Used / No Connection
BI0	Connect to 12/24VAC Digital Signal 1
BI1	Connect to 12/ 24VAC Digital Signal21
Ref	Connect to 12/24VDC Common
Ground	Not Used / No Connection

### c. Separately Powered External Device with Dry Contact Output(s)

Connector Name	Connection
+12VDC	Dry Contact Common
BI0	Dry Contact 1
BI1	Dry Contact 1
Ref	Connect to Ground
Ground	Connect to Ref

### d. Locally Powered External Device with Dry Contact Output(s)

Connector Name	Connection
+12VDC	External device and Dry Contact Common
BI0	Dry Contact 1
BI1	Dry Contact 1
Ref	Connect to Ground
Ground	Connect to Ref

Please contact sales@s2innovations if one of the above electrical configuration examples do not meet your needs.

By default the Digital Inputs states (on/off or closed/open) can be read by the BMS interface. However, for localized control of the relay channels, each digital input must be configured for:

- Which Relays are to be controlled

This is a hexadecimal number representing which relays are to be controlled where Bit 0 is Relay 1, Bit 1 is Relay2, Bit 2 is Relay3, etc

- Which Input State is to trigger the command

States can be "1" (Closed) or "0" (Open)

- Command/Assertion Action

Actions can be "0" (Relays Off), "1" (Relays On), "2" (Toggle Relay State)

The command line interface commands will be detailed in another document.