Signal conditioning and isolation unit SDU-010-X

Basic connection diagram:

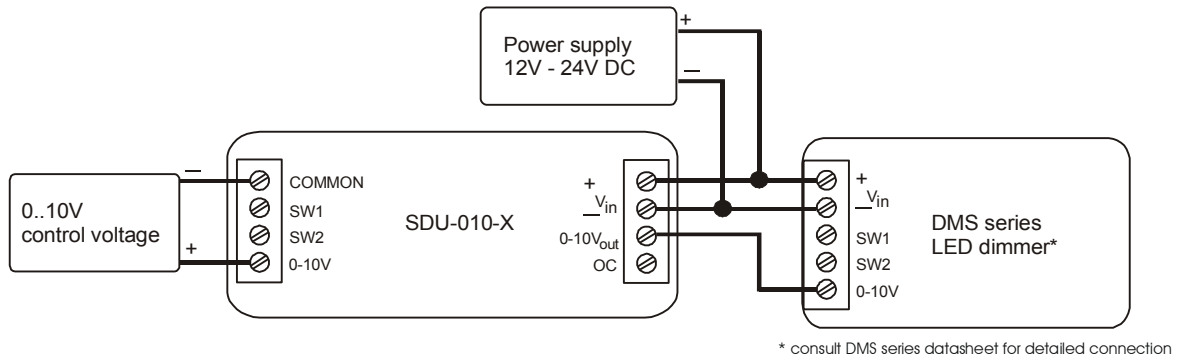

Fig1. Connection diagram for SDU-010-X with 0-10V signal.

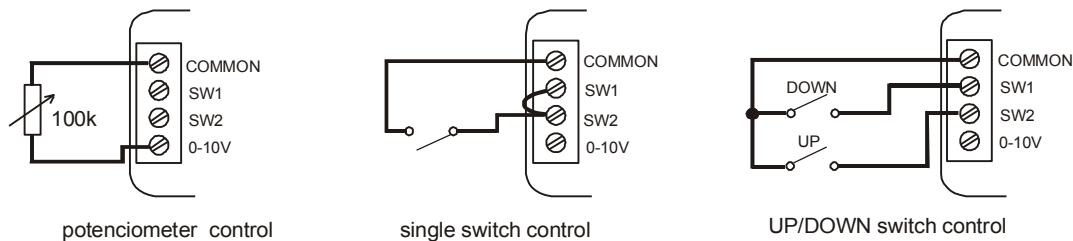potenciometer control   single switch control   UP/DOWN switch control

Fig2. Other Control options.

Applications:

1. Ground loop elimination

Due to poor wiring, ground loops can be created. Ground loop, if it includes signal wires, can add interference voltage, caused by the ground loop current, to add to the signal voltage. This can disturb the operation of the dimming unit, causing flicker or intermittent operation. The best way to eliminate ground loops is to apply proper wiring, using separate wires for signal and power voltages and connecting them at only one point. But in some cases it is undesirable or impossible to rewire the setup. In these cases the easiest way to break the ground loop is to isolate signal voltage. For this, the SDU-010-X can be used. It will solve all ground loop problems by breaking the loop.

2. Connecting multiple DMS dimmer units in parallel to single switch control.

Usually it is not recommended to use single switch control to control several DMS LED dimmer units. The units can become unsynchronized due to subtle small timing differences between units, even if they receive the same switch control. To solve this situation, several DMS units can be controlled by single switch control by inserting SDU-010-X unit between the switch control and DMS units. SDU-010-X converts switch signals to 0-10V signal, that can be fed to paralleled units, making them perfectly synchronized
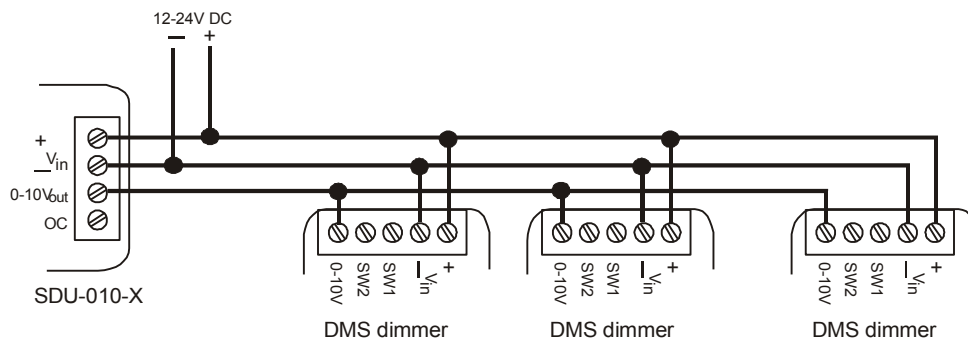
Fig3. Connection diagram of several DMS units

3.Controlling multiple PWM units with single pot
Converting passive (resistor/potentiometer) control into active 0-10V

Passive resistor input (100k Ohm pot) can only control one unit. Since the PWM units pass current trough the resistor in order to measure its resistance, several units, connected in parallel their current is added up, making the measurement of the resistor incorrect. One way to solve this would be to change the resistor (pot) value by using the value 100k/N (where N is number of PWM units being controlled).
If longer wires are used for passive resistor control, interference signals can be induced into wires, causing flicker and erratic functioning. If SDU-010-X unit is used, passive resistor control is converted into active 0-10V signal, with low output impedance, such signal is much less susceptible for interference signals.

OC output

SDU-010-X has OC (open collector) PNP output that is activated when output control voltage falls below 1V. If a relay is connected to this output as shown on Fig 4. it can be used to disconnect any load, connected to PSU. This can make the system even more efficient and reduces overall standby power consumption. One such case is when SDU-010-X is connected to Power Pack which can disconnect multiple power supplies on the AC branch.
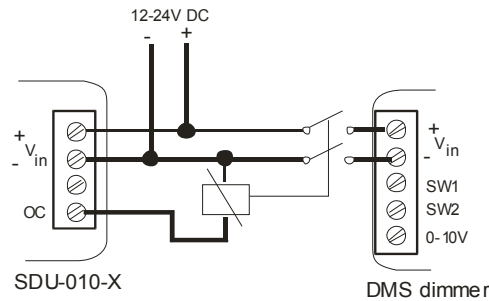

Fig 4. Relay connected to the OC output

input:	- 0-10V input - single switch control - double (up/down) switch control - 100k Ohm pot
output	0-10V
max standby current	7mA
max output current	10mA
max DMS units, controlled by SDU-010	30
output rise time	200ms
isolation voltage	1000V
OC output type	PNP OC
OC max current	100mA