DARC*bus™*

The new standard in controlled LED Lighting

Darc Technologies has developed a new standard in controlling LED lighting in Homes, Factories, and Commercial buildings. **DARC*bus™*** is a means of remotely switching and dimming LED lighting, from either physical switches, sensors, or remotely (via the portal device). A simple push button switch allows any light in the building to be switched on, off, or dimmed from zero to full brightness within seconds.

Any number of lights can be controlled from one push button switch, or extra switches on a plate can be used to select pre-set lighting or mood levels. Switches come in single or triple switch plates, and are standard clear polycarbonate PDL600 series styling, using the standard PDL600 cover plates in white, black or brushed stainless steel. Button colours are also white, black or stainless steel.

The brains of the solution lie in the custom LED ballast or driver, which is capable of controlling 40W of LED's, either as a driver per light, or up to 3 lights per driver, with the driver receiving control information from any programmed switch in the building.

DARC*bus™* uses a new form of power line mains carrier technology, encoding communications within the mains power connections to switches and lights. This solution can be retrofitted to existing buildings without the need for any additional wiring. Movement or occupancy sensors are either fitted into the ceiling, or can be fitted into the middle position of the wall switch plate. The system is smart enough to allow the configuration of the lights to a much lower brightness during pre-set hours allowing users to see clearly, without being overpowered by full intensity lighting.

Features

- Single button switch, or three button switch are standard
  - Optional 2,4,5, or 6 buttons by special order
- Switches have LED backlighting, and operation indicators
- Movement Sensor option in middle button position
- Single Press ON/OFF and press and hold to dim up and down
- DARC constant power output 20W Driver for 5-20W LEDs
- DARC 40W LED Driver has a constant power output to drive a 10-40W LED fitting or strings of fittings
- Lights can be assigned to multiple groups and their output can be dimmed over the **DARC*bus™*** network**.**
- Multiple switches can control each light, and multiple lights can be controlled by just one switch.
- Measures the supply voltage, device temperature and calculates the current drawn and keeps a count of run hours and Watt-hours (Wh). This information can be retrieved at any time over the **DARC*bus™*** network.

Description

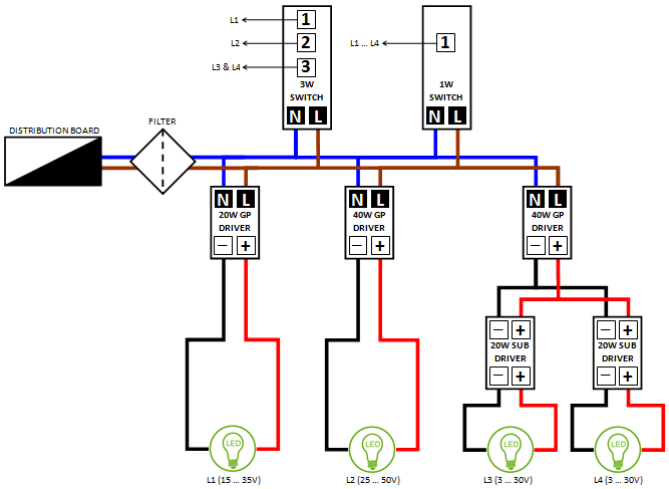
In a normal house, power comes into the switchboard, and then passes through a number of circuit breakers and then goes to many light switches, and then on to the lights. A **DARC*bus™*** house can also be wired this way, with the addition of a DIN Rail mounted filter unit in the switchboard, which ensures that the signalling from this house isn't readable outside the property. While the wiring can be the same, savings can be made by reducing the amount of wiring required. In a **DARC*bus™*** wired house, power is only needed to connect to each device – i.e. each light switch, and to each driver. The lights still need to connect to the matched driver, but that can be local wiring. Gone are the loops of wiring and many connections for 2 or 3 way switching, or looping from switch to switch. Relay output drivers and incandescent drivers are also available.

DARC*bus™* allows control of any light via its driver from any switch in the house. During the install process, each light switch is 'mapped' to a corresponding driver. Switches can be mapped to a driver, or many drivers can be mapped to one or many switches. It can all be changed at any time. Any switch can turn a light on or off, or can dim a light from 1% to 100%.

Parts

SWITCH	Available as a single button or 3 button plate as standard 2,4,5 or 6 button plates available by special order Buttons can be white or black. Purchase separately – cover plate in White, Black or Stainless Steel. Optional Sensor available for centre position of 3 button switch
DRIVER	Available in 2 models; 20W or 40W constant power
SUB-DRIVER 1	DC input from DRIVER to drive low voltage LED lights
SUB-DRIVER 2	DC input from DRIVER to drive low voltage LED lights – 25mm low profile version – pigtail wiring
TE DIMMER	150W dimmer unit for incandescent lights or for LED lights with their own dimmable drivers
DUAL RELAY	On/off control for up to 10A switching or two 5A outlets available.
FILTER	DIN Rail mounting – either 20A or 60A
PORTAL	Wifi/Ethernet connectivity for remote control/ monitoring
PROGRAMMER	Version of portal to allow programming of components in a **DARC*bus™*** system

Wiring



DARC Technologies Limited
223 Cossars Road
Tai Tapu, Christchurch 7672, NZ
Ph +64 3 3296936
www.darctechnologies.com

Wiring

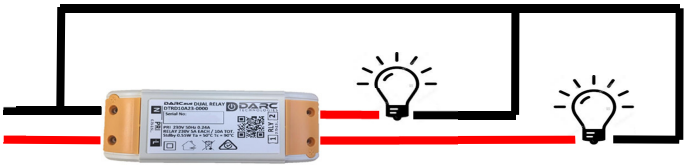
The switches are supplied with two connections ; Phase (red or brown) and Neutral (black or blue) and are wired to the mains wiring with a connector block or similar. Wiring into this block can be 1.0mm, 1.5mm or 2.5mm TPS cable. An earth is not required. Note the switch doesn't "switch" the power to the light. It is a signalling transmitter.

GP Drivers have two terminals mounted under the removable cover. Mains wiring into these blocks can be 1.0mm, 1.5mm or 2.5mm TPS cable. An earth is not required.

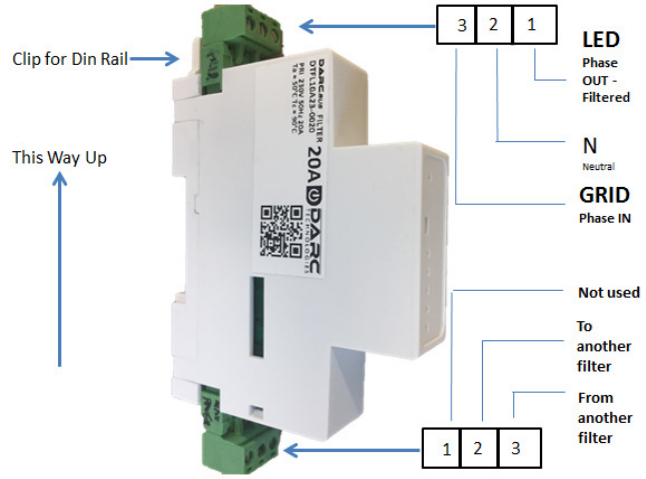
The output can come with a pre-fitted quick connect cable termination to allow the matching LED light to plug in. An optional series extender cable is available to allow for 2 series wired LED lights. Alternatively, any appropriate sized DC cable can be used on the output from the GP Driver to connect to LED lights.

The TE Dimmer is wired to the mains, with two output terminals to the light fitting.

The relay driver is wired to the mains, and has a single phase output terminal per channel. See below.



The Filter is DIN rail mounting and is fitted in the switchboard. Screw terminals accommodate the wiring. Phase in, and filtered phase out, and a neutral are required. When multiple lighting circuits are employed, then a filter for each is necessary, and the signalling system must connect between them.



Programming

Please refer to the comprehensive programming manual which is available from our website.

Supplier Declaration of Compliance

SDoC's for all products are available from our website.

Specifications

SWITCH

Input Voltage	220-250 v AC
Input Voltage Range	180-270 v AC
Frequency Range	45-55 Hz
Mains Noise	<3% THD
Power Drain	0.8W idle, 2.5W transmitting
Wire tail length	190 mm to connector block
Temp range	-20°C to +50°C
New Zealand Standards	AS/NZS60669.2.1 (switch)
Dimensions	118 x 74 (with stainless steel cover) 10mm proud of wall Space in wall 74 x 52 x 13 mm Can be used with 90% of all common flush boxes
Force to activate switch	4 newtons
Switch life	> 100,000 presses

DRIVER

Input Voltage		220-250 v AC
Input Voltage Range		180-270 v AC
Frequency Range		45-55 Hz
Mains Noise		<3% THD
Power Drain		0.55W idle
Temp range		-20°C to +50°C
New Zealand Standards		AS/NZS61347.2.13 (driver)
Dimensions		163 x 45 x 31 mm
Driver Output	40W	25-45 V DC
	20W	15-35V DC
Min prog output		0.5%
Max prog output		100% of luminaire maximum

ALWAYS USE THE MATCHED LUMINAIRE / DRIVER PAIR

Selectable Fade Rate	from 0.5 seconds to 10 minutes
Switch on time (from power up)	< 3 seconds
Switch time (from button press)	< 250 mS
Max devices in network	65533

Commands

OFF	Turns output off
ON	Turns output on to a set level
TOGGLE	Output is toggled to opposite state
CHANGE	Output changes level by direction and level pre-set in driver
DOWN	Decrease output by amount pre-set in driver
UP	Increase output by amount pre-set in driver
MIN	Will change to minimum output
DOWN BY	Decrease output by amount programmed in switch (0.5% - 25% steps)
UP BY	Increase output by amount programmed in switch (0.5% - 25% steps)
CHANGE BY	Change output by amount programmed in switch (0.5% - 25% steps). If ON will decrease level, if OFF, will increase level. The direction is set by the Driver programming.
RAMP	Change from the current output level to a set level at programmed rate
RAMP MIN	As above, but will not go below the pre-programmed minimum output level

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