



multiload

Take Control

Take Control Unit TCU100

Take Control Rotaries TCR

DIN-rail mounted dimming-control unit
with up to four push-switch rotary
dimming modules

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TCU100

Take Control Unit

TCR

Take Control Rotary



Take Control Unit (TCU100). Technical specification

Function

Take Control delivers superior dimming control from up to four wall plates that make rotary dimming and switching possible from any chosen position in a room.

When any Take Control Rotary (TCR) is adjusted by more than 10% of its range, it will 'take control' of the Take Control Unit's output dimming signal. This signal then reflects the TCR control position.

When the Take Control Unit (TCU100) output is connected directly to any 0-10V or 1-10V driver, it will regulate lamp brightness. The output can sink or source 30mA.

The lighting circuit can be turned 'on' or 'off' by pushing in any one of the TCR control switches.

TCRs can be connected individually using just two wires. The voltage between these wires is less than 10V and the current less than 1mA.

Square-law dimming is standard. Please contact us if a different dimming law is required.

Signal output (SIG) is factory-set between 1V and 10V. The range can be adjusted if not suitable for specific applications (see Installation and Setting-up procedure).

Inputs

- Up to four TCR modules can be connected to a TCU100. Each TCR is connected to TCU100 with a two-core cable. The input terminals on TCU100 for each of the four TCRs are labelled C1 and C2 (A, B, C and D). C1 is common to all four TCRs and is connected to 0V on TCU100.
- The terminals D1 and D2 on TCU100 are inputs which are connected to 0V **only** when using the setting-up procedure. In normal operation these inputs should be left unconnected, see Setting-up terminals opposite.

Output switches

- SW1 provides a switch to 0V. This can be used when an external load, such as a relay coil, is connected to an external power supply voltage. This switch can sink 100mA
- SW2 provides a switch to the supply voltage of TCU100 (Volts IN). This can be used when an external load such as a relay coil is connected to 0V and can be driven by the 15V-IN supply. It is used with third-party products which require this output. This switch can supply 100mA

System building

SIG-H is the hierarchy output which is used when combining TCU100 units in a hierarchical structure. In such situations, this output can be connected to one or several TCU100 inputs (see system building on page 10 for examples, eg. partition control).

Power supply

TCU100 requires a 15V power supply. Power consumption is less than 0.6W (about 40mA minimum at 15V). The 15V supply input only needs to be SELV-compatible if the outputs need to be SELV-compatible (see Take Control Unit related product options on page 5).



Mechanical

DIN-rail mounted unit supplied with 3 standalone brackets

Supply input voltage (15V-IN)

15V ± 10% DC, 40mA minimum

Signal output (SIG)

0-10V signal, can source or sink 30mA from minimum 0.3V to maximum > 10V

Hierarchy output (SIG_H)

Signal emulates a TCR

Switch output 1 (SW1)

Open collector output, can sink 100mA
 This is used for all Multiload products

Switch output 2 (SW2)

Provides input-voltage switch, 100mA max

Cabling to TCR terminals (C1 and C2)

C1 on TCU100 is common and connected to C1 on TCRs. Must be connected only to TCRs

Setting-up terminals (D1 and D2)

Only connect D1 to 0V when following Setting-up procedure. Otherwise leave unconnected.

Only connect D2 and C when following TCR replacement mode. Otherwise leave unconnected (see Installation)

Environment / humidity

Maximum 90% rh non-condensing

Ambient temperature range

-10°C to +45°C

Terminals

High quality, allow easy connectivity, accept stranded cable up to 4mm²

Physical data

Weight: 270g

Finish: Plastic

Dimensions: W:88mm D:90mm H:58mm



Take Control Unit TCU100. Installation and setting-up procedure

Installation

Installation should be carried out by suitably qualified personnel in accordance with good electrical practice and the appropriate national wiring regulations.

Switch off mains electrical supply before commencing installation.

TCU100 is a DIN-rail mounted product which should be installed in a suitable location. It is not supplied with a DIN-rail cabinet (contact us if you need us to supply the cabinet).

It can also be installed as a standalone version by extending the lugs attached to the base of the enclosure.

TCU100 is a Class 2 product and requires a 15V DC supply (see Take Control Unit related product options on page 5).

Only one 2-core cable (low voltage) is required for both dimming and switching from each TCR dimmer position to the individual terminal inputs A to D on TCU100 (allowing up to 4 TCRs to be connected).

When a retro-fit installation is required it should be noted that the 2-core cable connecting TCRs to TCU100 will have a maximum of 10V between the wires and will carry less than 1mA. Please note C1 is common and is connected to 0V on TCU100.

The TCU100 signal output is factory-set at 1V to 10V. Due to the differing characteristics of drive units it may be necessary to adjust the signal output to achieve the desired minimum and maximum brightness range (see Setting-up procedure right). Please note the TCR connected to control input A must be adjusted when setting up minimum and maximum range.

Setting-up procedure

Maximum and minimum brightness levels

This procedure enables setting of signal output (SIG) in accordance with desired light levels, as appropriate to particular drivers and light fittings.

When TCU100 operates normally, the output voltage to drives (SIG) varies from minimum to maximum brightness output, as TCRs are adjusted from fully anti-clockwise to fully clockwise.

Voltage levels are factory set to 1V minimum brightness and 10V maximum brightness outputs. If changes to these voltages are required, please follow this process:

- 1 Disconnect power to TCU100
- 2 Identify TCR attached to control input A.
When setting minimum and maximum brightness levels the relevant TCR connected to output A must be adjusted
- 3 Fit wire link between D1 and C in TCU100 terminals
- 4 Turn power 'on' and wait a few seconds for lamp brightness to stabilise.
You now have 50 seconds to adjust minimum brightness level.
- 5 When TCR is turned fully clockwise, brightness level will slowly increase in small steps. When turned fully anti-clockwise, brightness level will slowly decrease in small steps
- 6 Wait until desired minimum brightness level is attained, then immediately move TCR knob into a middle position to stop change in minimum brightness. Adjust again, if necessary, by turning knob fully anti-clockwise to reduce brightness level, or fully clockwise to increase it. Again turn knob into middle position once desired minimum level is reached. Do not do anything else during 50-second interval. After 50 seconds, unit will go to maximum brightness level, and is ready for maximum brightness to be adjusted
You now have 50 seconds to set maximum brightness level.
- 7 Turn TCR knob fully clockwise to increase maximum brightness level, or fully anti-clockwise to reduce maximum brightness level
- 8 When maximum brightness is at required level, turn knob into middle position to stop any changes. Once set, do not do anything else during 50 second interval
- 9 After 50 seconds, brightness level will drop and unit will operate in normal mode. At this point, set levels will be stored and power to TCU100 can be switched off
- 10 Remove link between D1 and C. When power is restored, minimum and maximum load brightness will be set and TCU100 will operate in normal mode
- 11 If further changes to maximum and minimum brightness levels are required, repeat process from step 1

TCR replacement mode

- 1 If a TCR needs replacing, connect a wire link between D2 and C after replacing it and before switching on power to TCU100
- 2 Adjust each TCR slowly over its full range to ensure connections are sound
- 3 Switch power to TCU100 off, remove wire link, then switch power to TCU100 on, to continue in normal mode

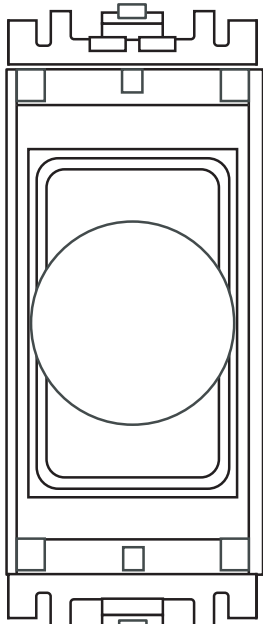


Take Control Rotary (TCR). Technical specification and installation

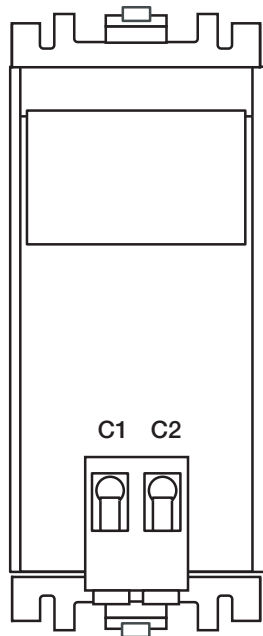
Modules can be supplied to fit wall plates and grid systems from UK wall-plate manufacturers.

Contact Multiload +44(0)20 7794 9152 to ensure compatibility with specified plate type and finish.

Shown below is module supplied for fitting into MKGridPlus.



front view



back view



Technical specification

Mechanical

Modules are designed to fit into standard wall plates and grid systems

Connections

Only connect to TCU100 product

Terminals

High quality terminals allowing easy connectivity, can accommodate cabling between 0.5 mm² and 2.5 mm²

Environment / humidity

Maximum 95% rh non-condensing

Ambient temperature range

-10°C to +45°C

Installation and set-up procedure

Installation should be carried out by suitably qualified personnel in accordance with good electrical practice and the appropriate national wiring regulations.

Switch off mains electrical supply before commencing installation.

The device may be used for permanent interior installations in dry locations with suitable surface plates fitted.

Terminals C1 (-ve 0V) C2 (+ve 0-10V)

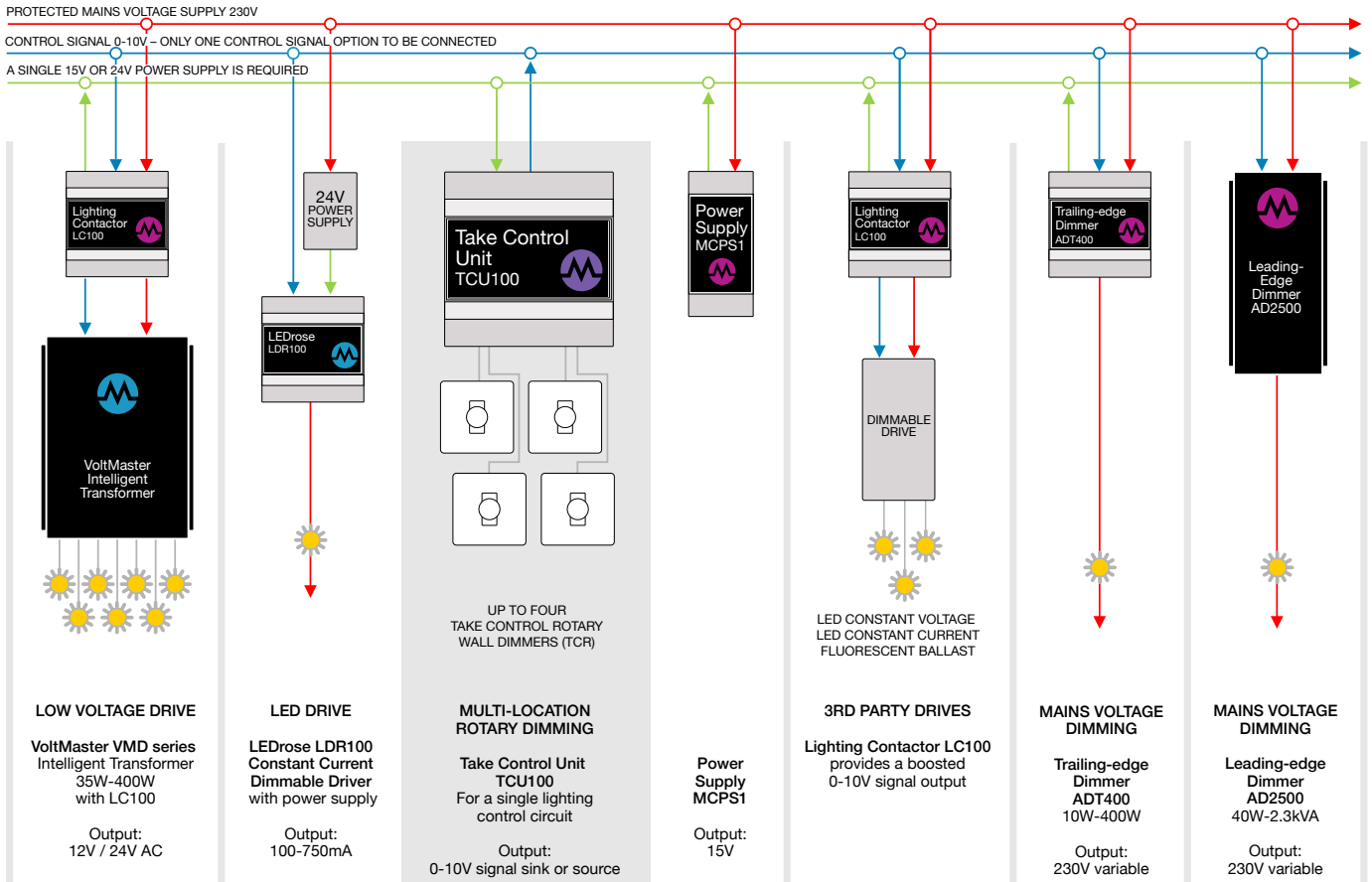
Low voltage 2-wire control by rotation of the control knob

Setting minimum and maximum brightness

See setting-up procedure on page 3

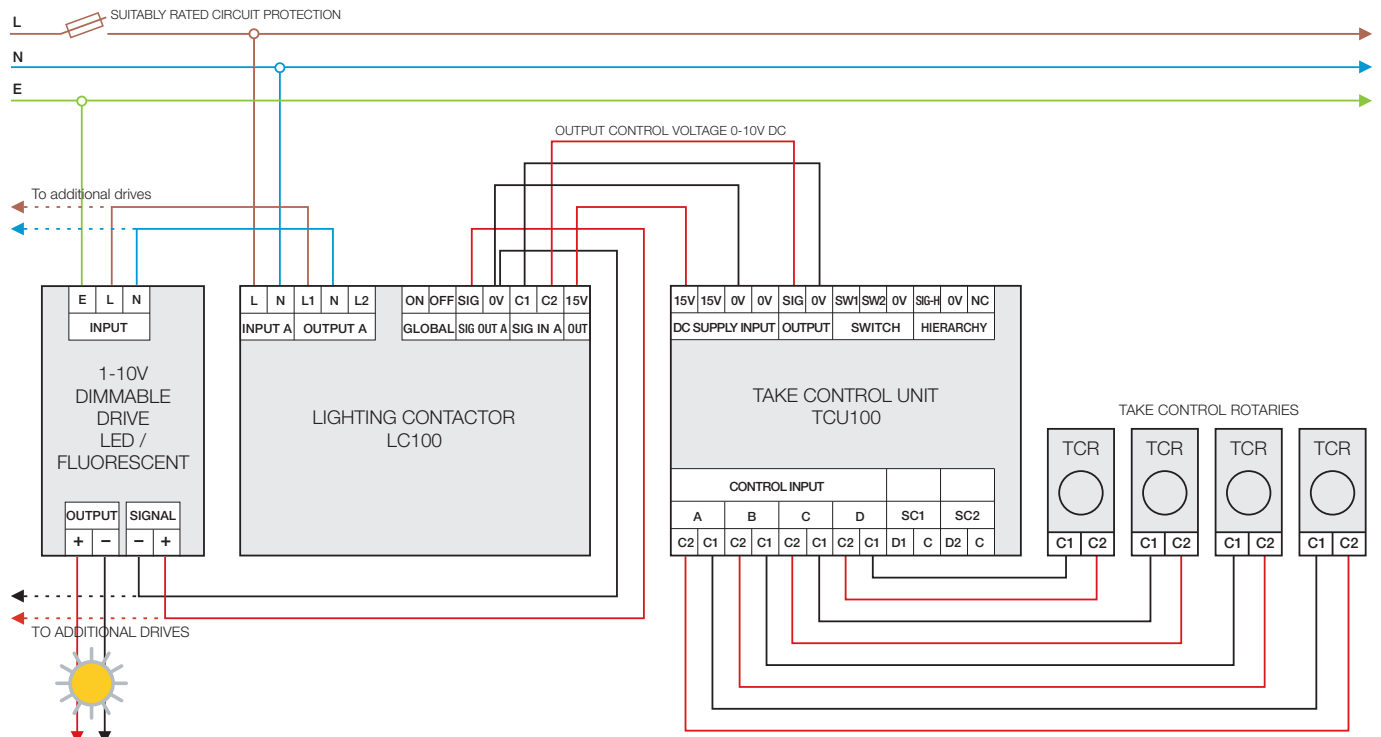


Take Control Unit TCU100. Related product options



Take Control Unit TCU100 wired to Lighting Contactor LC100R/T

Mains switching and dimming of a lighting circuit consisting of LED drivers, fluorescent ballasts or other drives controlled by a 0-10V or 1-10V signal

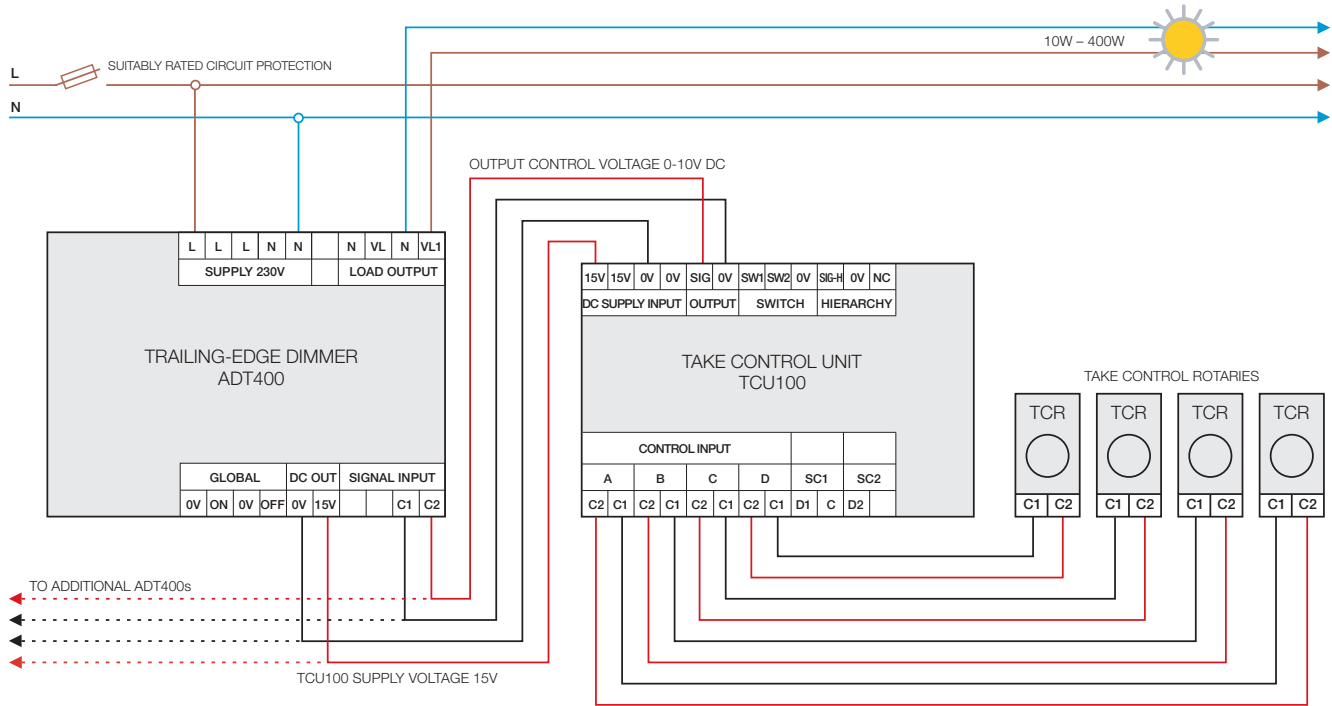


DRAWING NOT TO SCALE WD-TCU100-LC100. ISS-1-0116



Take Control Unit TCU100 wired to Trailing-edge Dimmer ADT400

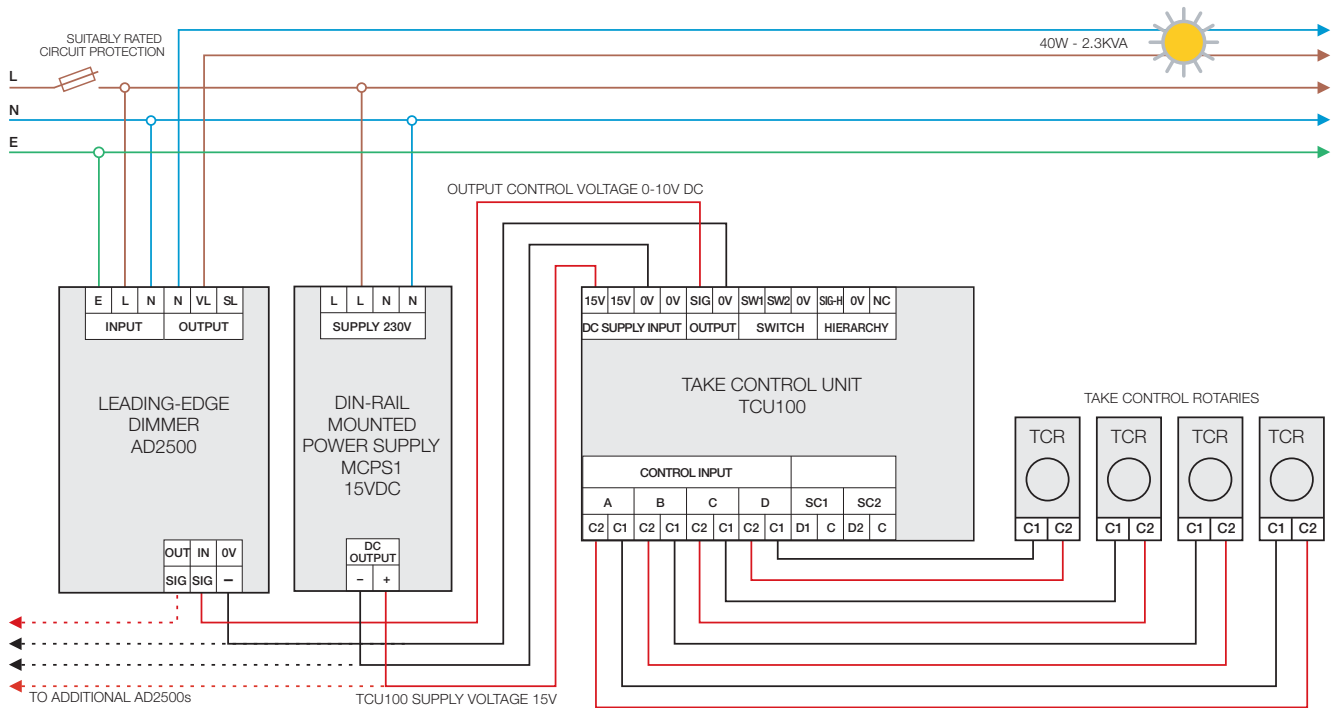
Mains switching and dimming of a lighting circuit dimmable by trailing-edge phase control



DRAWING NOT TO SCALE WD-TCU100-ADT400. ISS-1-0116

Take Control Unit TCU100 wired to Leading-edge Dimmer AD2500

Mains switching and dimming of a lighting circuit dimmable by leading-edge phase control



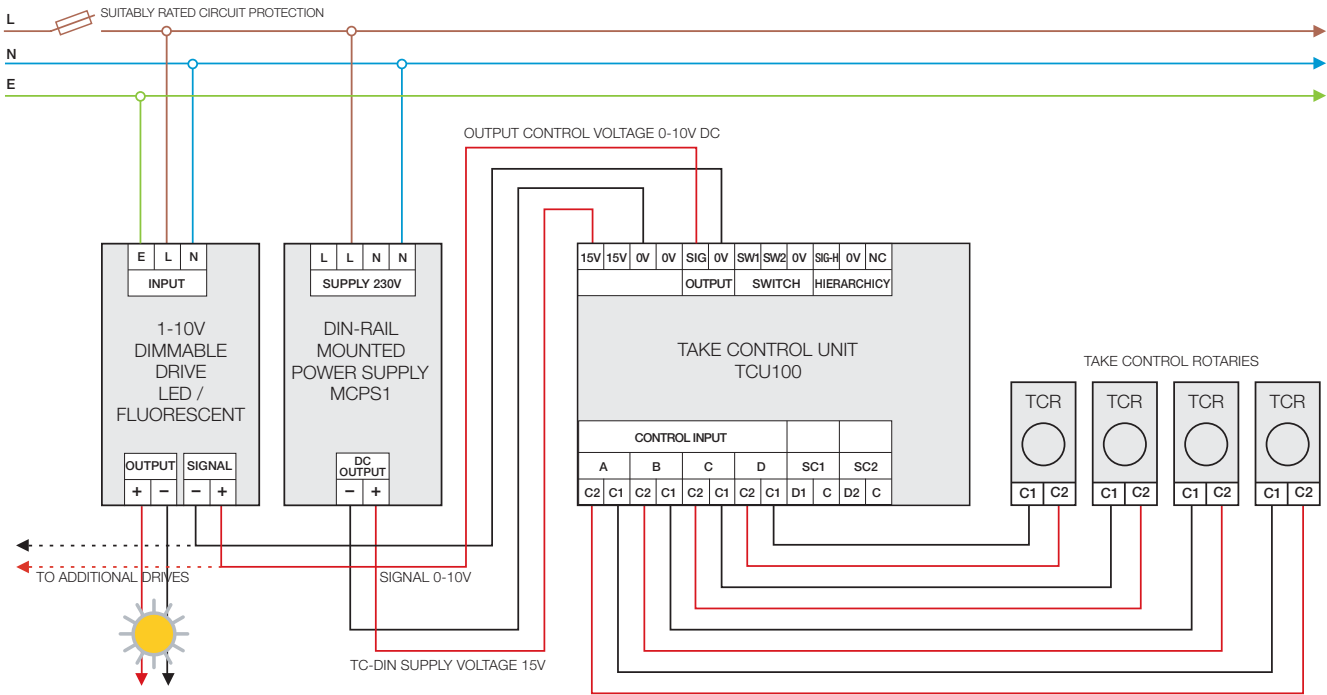
DRAWING NOT TO SCALE WD-TCU100-AD2500. ISS-1-0116



Take Control Unit TCU100 wired to dimmable drives

Switching and dimming 0-10V or 1-10V LED drivers, fluorescent ballasts or other drives dimmable to zero output, such as LEDrose LDR100 and other 3rd party drives.

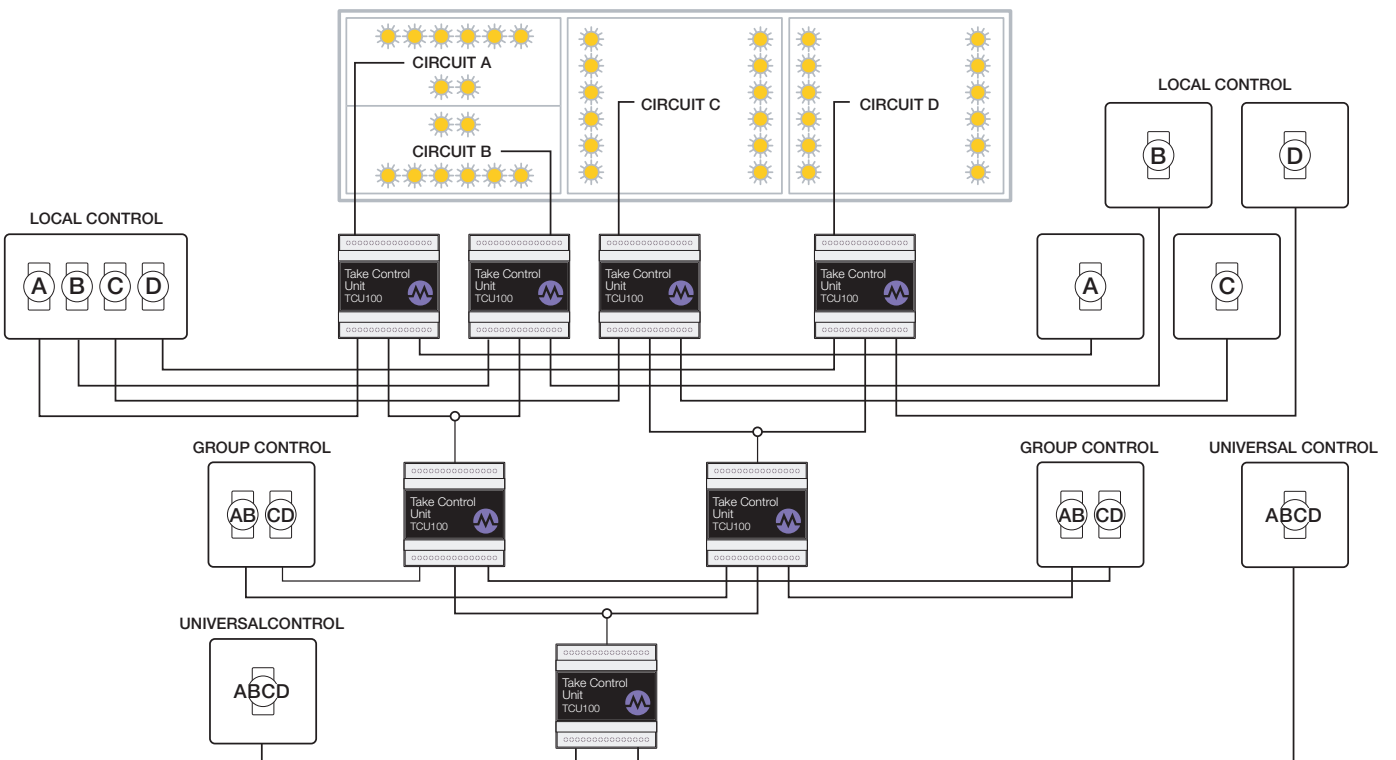
TCU100 and TCRs with din-rail mounted Power Supply MCPS1 and dimmable drives



DRAWING NOT TO SCALE WD-TCU100-DD. ISS-1-0116

System building – local and global control

Unlimited building block capability can be achieved by having one TCU100 control another TCU100. Example below.



SB-TCU100. ISS-1-0116