dSCR Multiswitch

INSTRUCTION MANUAL

WSCR504 | WSCR506 | WSCR508
WSCR512 | WSCR516

Whyte Technologies

www.whytetechnologies.com

CONTENTS

SAFETY

The Multiswitches are intended for indoor use only.
Do not install the Multiswitch in damp, humid, hot or dusty areas.

Switch off and remove the power supply when making connections to the Multiswitch to avoid damaging the unit.

Always earth bond the Multiswitch using the Earth Bonding Lug and/or the Earth Terminal Bars to a suitable earth bonding point using minimum 4mm^2 diameter earth cable.

PRECAUTIONS

To ensure trouble free operation:

Do not remove the cover of the Multiswitch or disassemble it as this will invalidate the guarantee.

The female F connectors on this unit were designed for use with '100' type coaxial cable with a centre core diameter of 1mm^2. When using larger CT125 or CT167 cables, you must ensure that suitable F connectors with reducing pins are used otherwise damage to the unit will occur which will invalidate the guarantee.

Do not over tighten the F connectors (finger tight only).

GUARANTEE

All Whyte products are guaranteed for a period of 4 years from the date of purchase against defects. Within this guarantee period, Whyte Technologies will repair or replace the faulty product. In the unlikely event, please return any faulty products to your dealer.

The Guarantee will be deemed as void if the serial number on the product is removed, damaged or illegible. The Guarantee excludes defects caused by incorrect use, accidental damage, disassembly, water/fire/lightning damage or lack of ventilation.

GENERAL DESCRIPTION

Whyte Series D is a range of advanced Cascadable Hybrid dSCR Multiswitches. Seamless integration with conventional IRS Systems due to extremely low power consumption, low loss passive trunks and high gain TERR, make the new Series D range from Whyte the most versatile and easy to install dSCR Multiswitch range available.

The Series D range can be directly conjoined with Series 5 conventional Multiswitches using the supplied F type couplers to seamlessly create Hybrid IRS Systems.

Use Series 5 Launch Amplifiers, Taps, Splitters and Power Supply Units to create large scale dSCR only or Hybrid IRS Systems.

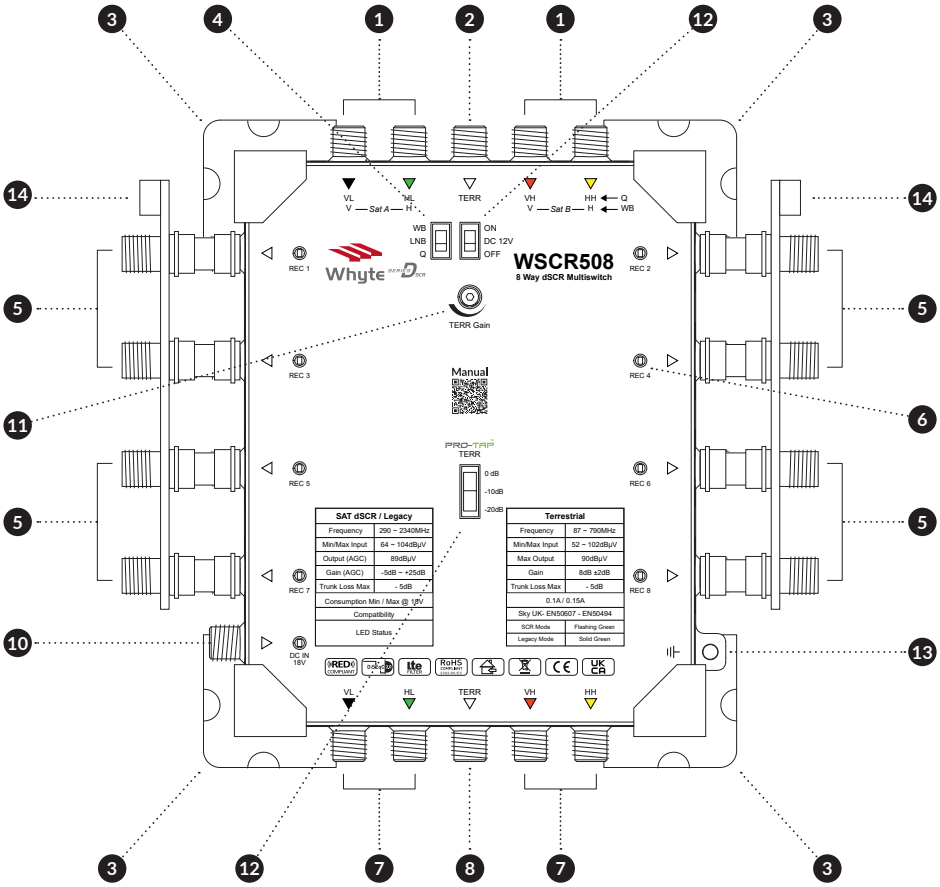
Each Subscriber Output provides Satellite (SkyQ, dSCR & Legacy), TV and Radio. Satellite subscriber signal levels in both Legacy and dSCR mode are automatically set to 89dBµV (self-commissioning/AGC). dSCR and Legacy mode is automatically detected and switched over on a per-subscriber port basis.

Terrestrial signal levels are controlled via a manual Gain Control knob and a selectable Protean Tap which permits a wide range of TERR input signal levels ranging from 50 to 108dBµV.

The reception of 2 satellites can easily be achieved by utilising 2 Wideband LNB's and switching the unit to Wideband LNB mode.

The unit can be powered directly via the DC input port or be remotely powered via the trunk lines.

PRODUCT DESCRIPTION



1. Inputs Satellite
2. Input Terrestrial
3. Corner Mounting Brackets
4. LNB Selector Switch
5. Subscriber (REC) Outputs
6. Subscriber Output Status Indicator
7. Trunk Output SAT
8. Trunk Output TERR
9. TERR Protean Tap
10. Auxiliary DC Input
11. TERR Gain Control
12. TERR 12V DC Switch
13. Earth Terminal
14. Earth Terminal Bar

TECHNICAL DESCRIPTION

DC POWERING

The Whyte Series D range can be Line Powered via any of the SAT input and output Trunk Lines. All SAT Trunk Lines are DC passing, whilst the TERR Trunk Line is DC isolated.

The Multiswitches have an Auxiliary DC Input which will power the Multiswitch as well as provide power to the SAT input and output Trunk Lines when fitted with a Whyte PSU.

A 12V DC switch is available to power a Mast Head Amplifier connected to the TERR input. If a Mast Amplifier is not being used this must be left in the OFF position.

SUBSCRIBER PORT MODE INDICATION

Each Subscriber Port has an LED indicator to confirm the mode status.

Legacy Mode: Solid Green **dSCR Mode:** Blinking Green

Legacy Mode:
This is the default mode of the Multiswitch. In this mode the Multiswitch functions like a conventional legacy Multiswitch.

dSCR Mode:
When a dSCR Set Top Box is connected, the corresponding port will acknowledge the dSCR DiSEqC commands and switch to dSCR mode. To revert back to legacy mode the power to the Subscriber Port needs to be interrupted momentarily. A reboot of the Multiswitch is NOT necessary to revert back to legacy mode.

STANDALONE MODE

Series D Multiswitches can be used in stand alone mode when powered directly via the 18V Auxiliary Input by using a Whyte Power Supply Unit (sold separately).

Any unused (open) SAT/TERR Trunk Outputs must be terminated using 75Ω DC Blocked F-Type Terminators.

CASCADE MODE

Multiple Whyte Series D Multiswitches can be connected in cascade using the supplied F Type Couplers. In Cascade Mode, the PSU can be connected to any Series D Multiswitch, Splitter, Tap or Amplifier within the system for ease of installation. Hence, all Series D Multiswitches will be remotely powered via the SAT Trunk Lines.

Care must be taken to select the appropriate type and number of PSU's required depending on the current requirements of the system as a whole. Remember to calculate the total current consumption of all Multiswitches, Amplifiers and LNB's within the system.

Always terminate the SAT/TERR Trunk Outputs of the last Multiswitch in a cascade using 75Ω DC Blocked F-Type Terminators.

QUATTRO/WIDEBAND LNB SWITCH

The Series D range is compatible with both Quattro and Wideband LNB's. To enable compatibility with a Quattro LNB (5 Wire Trunk) place the switch in the position marked "Q". To enable compatibility with a Wideband LNB (3 Wire Trunk) place the switch in the position marked "WB". Note: when using wideband mode ensure that any amplifiers, taps or splitters that form part of a system are wideband compatible.

2 SAT RECEPTION

The reception of two satellites can be achieved via a 5 wire trunk by utilising 2 Wideband LNB's. The required satellite can then be selected by the STB using simple diseqc Satellite A and B commands.

INSTALLATION INSTRUCTIONS

MOUNTING THE MULTISWITCH

Select a suitable location to install the Multiswitch. Do not install the Multiswitch in damp, humid, hot or dusty areas. Using the screw slots on the Corner Brackets, secure the Multiswitch using the appropriate fixing screws and wall plugs to suit the relevant wall surface or cabinet.

CONNECTING THE SAT & TERR INPUT AND OUTPUT TRUNK CABLES

Use a suitably sized Satellite Dish to provide adequate signal levels from the satellite being received. Ensure that the Satellite Drop Cables are connected correctly to the LNB's. Ensure that the F Connectors are properly sealed against water ingress. If a Composite Cable (multi core coaxial cable) has been used, ensure that the outer jacket is not facing upwards and cannot collect rain water.

Check the Terrestrial Drop Cable and ensure that this has also been sealed against water ingress. If a Triplexer has been used to combine FM and DAB aerials with the UHF Terrestrial Aerial, ensure that this is also water tight. Ensure that all drop cables have drip loops prior to their entering the building.

Connect the SAT and TERR drop cables to the corresponding Satellite and TERR Inputs on the Multiswitch. Connect any additional Multiswitches or Trunk Cables to the Satellite & TERR Trunk Outputs as applies. Ensure that you terminate the last Multiswitch in a cascade using 75Ω DC Blocked F-type Terminators.

EARTH BONDING

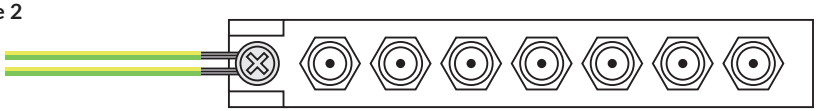
Earth bond the Multiswitch to the Earth Bonding Lug and/or the Earth Terminal Bars using minimum 4mm² Earth Bonding Cable. It is best practise to earth bond across all Multiswitches using a single unbroken Earth Bonding Wire. To achieve this, strip away 3cm of the insulation of a length of 4mm² Earth Bonding Wire. **See Figure 1.**

Unscrew the Earth Bolt on the Earth Terminal Bar to provide enough clearance to wrap the Earth Bonding Wire around the Earth Bolt. **See Figure 2.**

Tighten the Earth Bolt and route the Earth Bonding Wire to all other Earth Terminal Bars and terminate as detailed above. Make sure that the Earth Bonding Cable is connected directly to the building's PME.

Figure 1

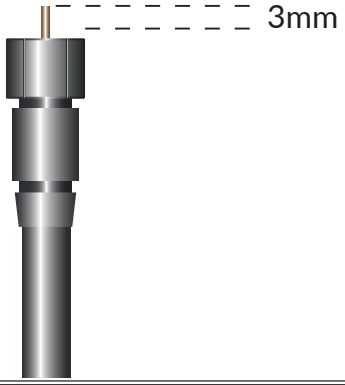
Figure 2



CONNECTING THE SUBSCRIBER CABLES

Terminate the Subscriber Cables with good quality F Connectors and connect to the Subscriber Outputs. The F Connectors should be fitted to the coaxial cable correctly, ensuring that the centre core protrudes 3mm above the F Connector body. **See figure 3.** Ensure that you do not exceed the bending radius of the Coaxial Cable being used.

Figure 3



CONNECTING THE POWER SUPPLY UNIT (PSU)

Calculate the total current consumption of the Multiswitch(es), LNB and any Launch Amplifiers that make up the complete IRS System. The current consumption of the Series D Multiswitch range can be found in the Specification section of this manual. If in doubt, assume the current consumption of each LNB to be 200mA max (0.2A). Connect a suitable Whyte PSU to the Auxiliary 18V DC Input. If more than one PSU is required, the additional PSU(s) may be connected to any other Multiswitch, Launch Amplifier, Tap or Splitter within the system. When all connections have been made, connect the PSU to a 240V supply to power up the IRS System. It is **highly advisable** to isolate and hence divide the system in to DC Groups containing only a single PSU per group, by using F-type DC blockers (not supplied).

USER BAND FREQUENCIES

Sky UK		EN50607		EN50494	
UB	FREQ	UB	UB	UB	UB
3	1680	5	985	1	1210
9	1280	6	1050	2	1420
11	1380	7	1115	3	1680
14	1480	8	1275	4	2040
15	980	9	1340		
16	1030	10	1485		
17	1080	11	1550		
18	1130	12	1615		
19	1530	13	1745		
20	1580	14	1810		
21	1630	15	1875		
22	1730	16	1940		
23	1780				
24	1830				
25	1880				
26	1930				

COMMISSIONING THE MULTISWITCH

See Figure 4:

1. Connect a spectrum analyser to any Subscriber Output of the first Multiswitch

2. Set the TERR Pro-Tap to -20dB

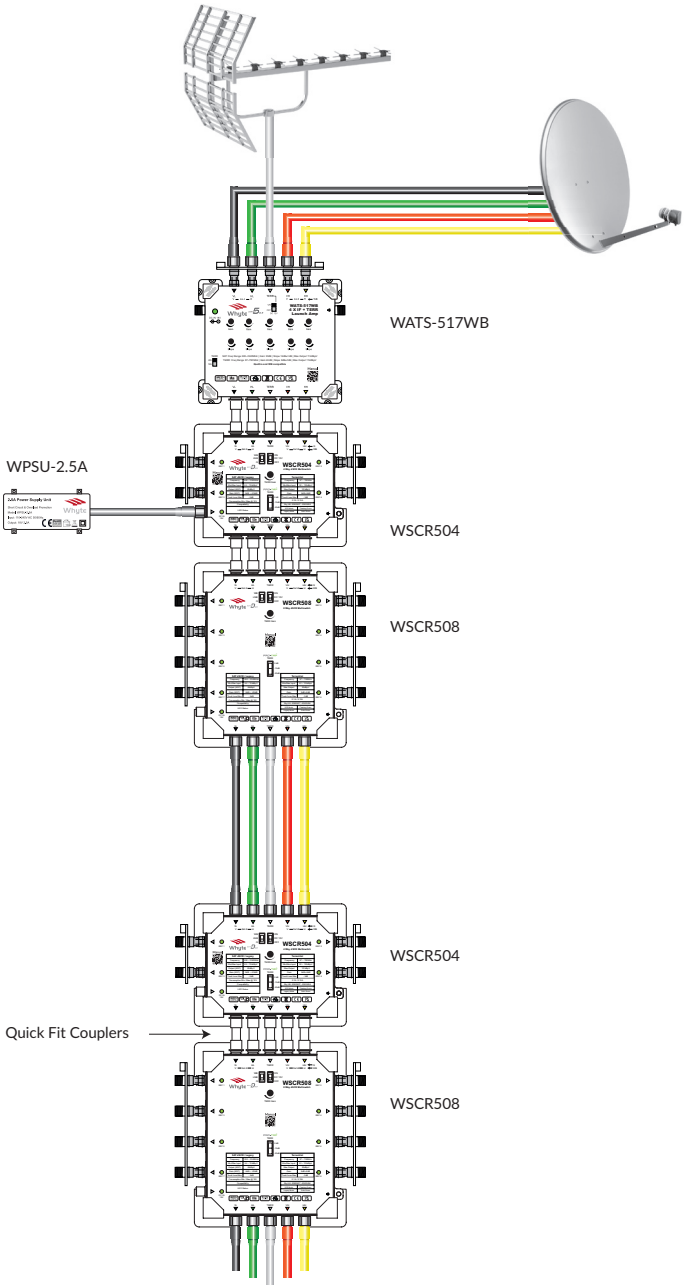
3. Set the Spectrum Analyser to Terrestrial. Using the TERR Gain Control adjust the Terrestrial signal to the required digital channel power level. If the signal cannot reach the required level, set the TERR Pro-Tap to -10dB and readjust the TERR Gain Control. If required, set the Pro-Tap to -0dB and readjust the Gain Control.

4. Check the SAT signal levels in Legacy and dSCR mode. These will not require adjustment as they are self-commissioned using Automatic Gain Control.

5. Repeat the above for all other Multiswitches in the IRS System as applies.

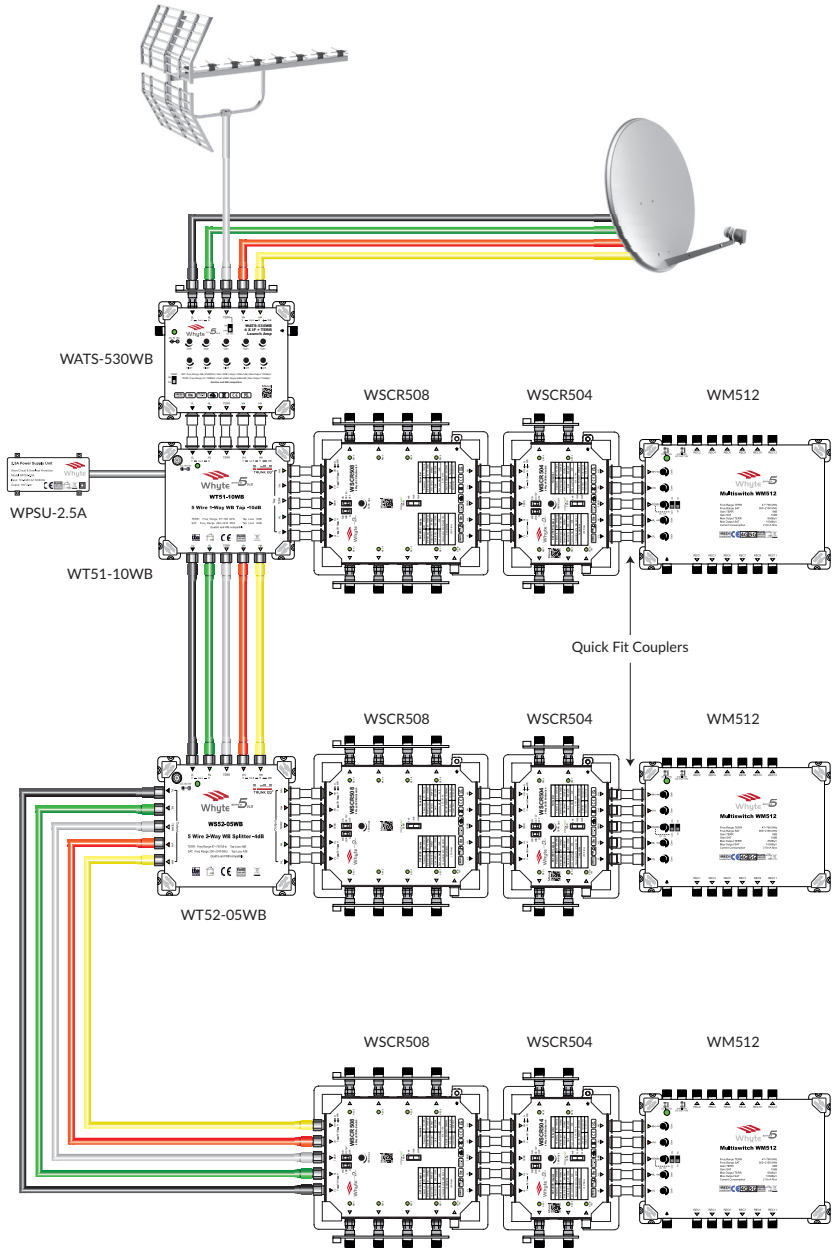
EXAMPLE CONFIGURATION

Figure 4



EXAMPLE CONFIGURATION

Hybrid IRS



SPECIFICATIONS

PRO-TAP

((RED)) COMPLIANT

MODEL		WSCR504
Frequency Range	SAT Wideband	290-2340MHz
	SAT Quattro	950-2150MHz
	TERR	87-790MHz
Dual Satellite Reception	SAT Wideband (2x WB LNB)	YES
Trunk Inputs (F-Type Female)		4 SAT + 1 TERR
Trunk Outputs (F-Type Female)		4 SAT + 1 TERR
Tap Outputs (F-Type Female)		4
Gain	SAT	-5dB ~ +25dB (AGC)
	TERR	8dB±2dB
Gain Control	SAT	AGC
	TERR	15dB
Input Levels Min / Max	SAT	64 ~ 104dBµV
	TERR	52 ~ 102dBµV
Trunk Through Loss	SAT	<-5dB
	TERR	<-5dB
Return Loss	SAT Trunk Input / Output	>10dB / >10dB
	TERR Trunk Input / Output	>8dB / >8dB
	Tap Output	>8dB
Max Output Level	SAT	89dBµV (AGC)
	TERR	101dBµV
Protean Tap™ (Attenuation Switch)	TERR	0 / -10 / -20dB
Isolation	Trunk Port to Port	>36dB
	Tap Port to Port	>43dB
Trunk DC Pass	SAT (per trunk)	YES (2A Max)
	TERR	NO
Impedance		75Ω
Compatibility (Auto Switching)		Legacy
		SKY UK dSCR
		EN50607
		EN50494
Switching Commands	Legacy	13/18V / 22kHz / DiSEqC
	dSCR	DiSEqC
dSCR/Legacy Mode Indication (per port)		LED (dSCR Flash)
Power Supply Voltage		18V DC
Powering	Via DC In	YES
	Via SAT Trunks	YES
	Via Apartment	NO
Power Consumption Min / Max @ 18V		0.1A / 0.15A
Power Indication		LED
Masthead Supply (switchable)	TERR Input Only	12V DC 100mA
Earth Terminal Bars (Tap Outputs)		Fitted
Earth Lug		Up to 6mm² core
Dimensions including Earth Bars W x L x H (mm)		190 x 126 x 43
Weight		540g

The EU Declaration of Conformity can be viewed at www.whytetechnologies.com.

WSCR506	WSCR508	WSCR512	WSCR516
290-2340MHz	290-2340MHz	290-2340MHz	290-2340MHz
950-2150MHz	950-2150MHz	950-2150MHz	950-2150MHz
87-790MHz	87-790MHz	87-790MHz	87-790MHz
YES	YES	YES	YES
4 SAT + 1 TERR	4 SAT + 1 TERR	4 SAT + 1 TERR	4 SAT + 1 TERR
4 SAT + 1 TERR	4 SAT + 1 TERR	4 SAT + 1 TERR	4 SAT + 1 TERR
6	8	12	16
-5dB ~ +25dB (AGC)	-5dB ~ +25dB (AGC)	-5dB ~ +25dB (AGC)	-5dB ~ +25dB (AGC)
8dB±2dB	8dB±2dB	8dB±2dB	8dB±2dB
AGC	AGC	AGC	AGC
15dB	15dB	15dB	15dB
64 ~ 104dBµV	64 ~ 104dBµV	64 ~ 104dBµV	64 ~ 104dBµV
52 ~ 102dBµV	52 ~ 102dBµV	52 ~ 102dBµV	52 ~ 102dBµV
<-5dB	<-5dB	<-5dB	<-5dB
<-5dB	<-5dB	<-5dB	<-5dB
>10dB / >10dB	>10dB / >10dB	>10dB / >10dB	>10dB / >10dB
>8dB / >8dB	>8dB / >8dB	>8dB / >8dB	>8dB / >8dB
>8dB	>8dB	>8dB	>8dB
89dBµV (AGC)	89dBµV (AGC)	89dBµV (AGC)	89dBµV (AGC)
90dBµV	90dBµV	90dBµV	87dBµV
0 / -10 / -20dB	0 / -10 / -20dB	0 / -10 / -20dB	0 / -10 / -20dB
>36dB	>36dB	>36dB	>36dB
>43dB	>43dB	>43dB	>43dB
YES (2A Max)	YES (2A Max)	YES (2A Max)	YES (2A Max)
NO	NO	NO	NO
75Ω	75Ω	75Ω	75Ω
Legacy	Legacy	Legacy	Legacy
SKY UK dSCR	SKY UK dSCR	SKY UK dSCR	SKY UK dSCR
EN50607	EN50607	EN50607	EN50607
EN50494	EN50494	EN50494	EN50494
13/18V / 22kHz / DiSEqC	13/18V / 22kHz / DiSEqC	13/18V / 22kHz / DiSEqC	13/18V / 22kHz / DiSEqC
DiSEqC	DiSEqC	DiSEqC	DiSEqC
LED (dSCR Flash)	LED (dSCR Flash)	LED (dSCR Flash)	LED (dSCR Flash)
18V DC	18V DC	18V DC	18V DC
YES	YES	YES	YES
YES	YES	YES	YES
NO	NO	NO	NO
0.1A / 0.15A	0.1A / 0.15A	0.1A / 0.15A	0.1A / 0.15A
LED	LED	LED	LED
12V DC 100mA	12V DC 100mA	12V DC 100mA	12V DC 100mA
Fitted	Fitted	Fitted	Fitted
Up to 6mm² core	Up to 6mm² core	Up to 6mm² core	Up to 6mm² core
190 x 190 x 43	190 x 190 x 43	190 x 255 x 43	190 x 318 x 43
660g	710g	880g	1300g

In the interest of continuous improvement, all specifications of products are subject to change without notice.

Unit 1, Watermill Business Centre. Edison Road, Enfield. EN3 7XF

Tel: 0330 999 1980 | info@whytetechnologies.com | www.whytetechnologies.com