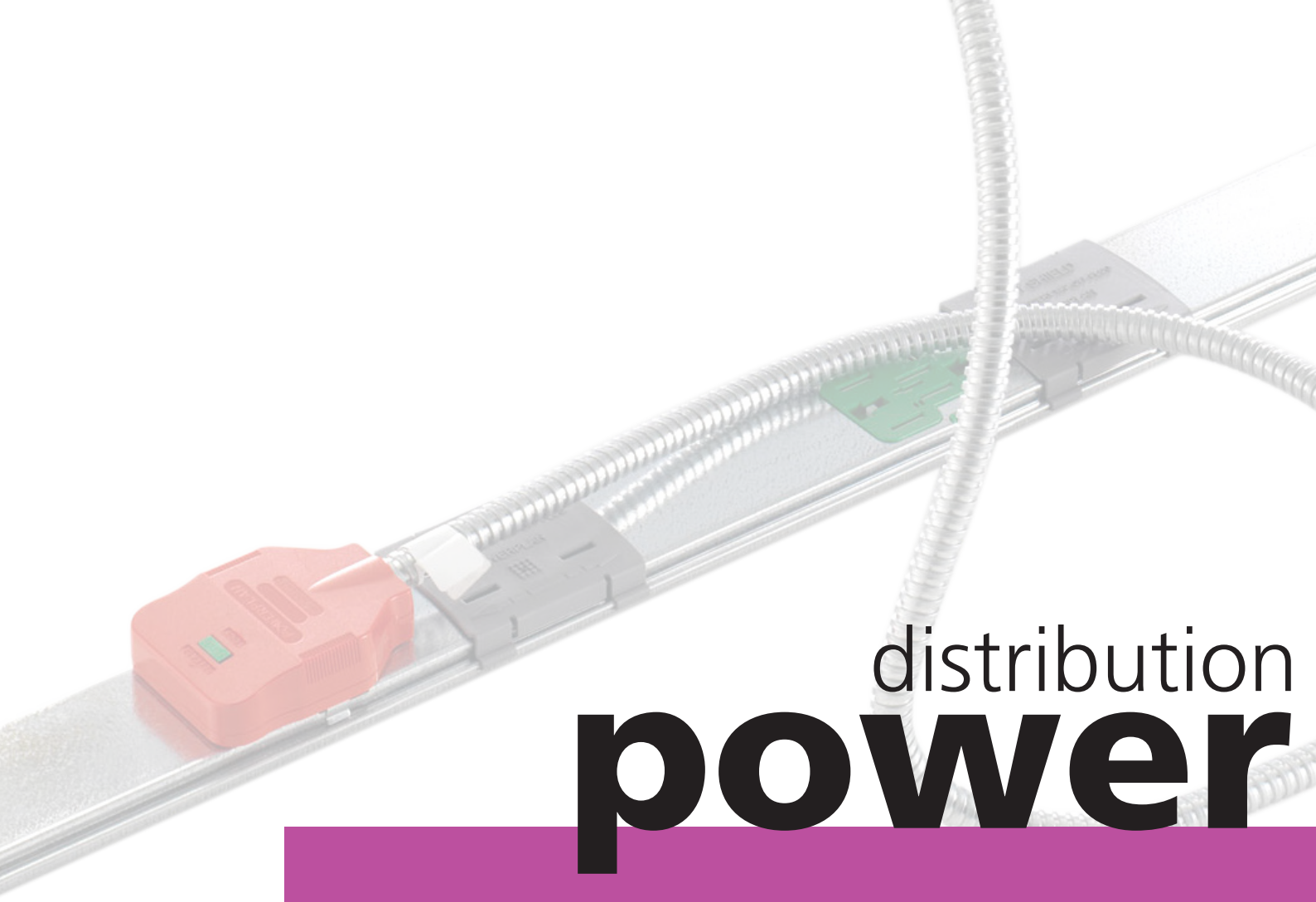


distribution
power

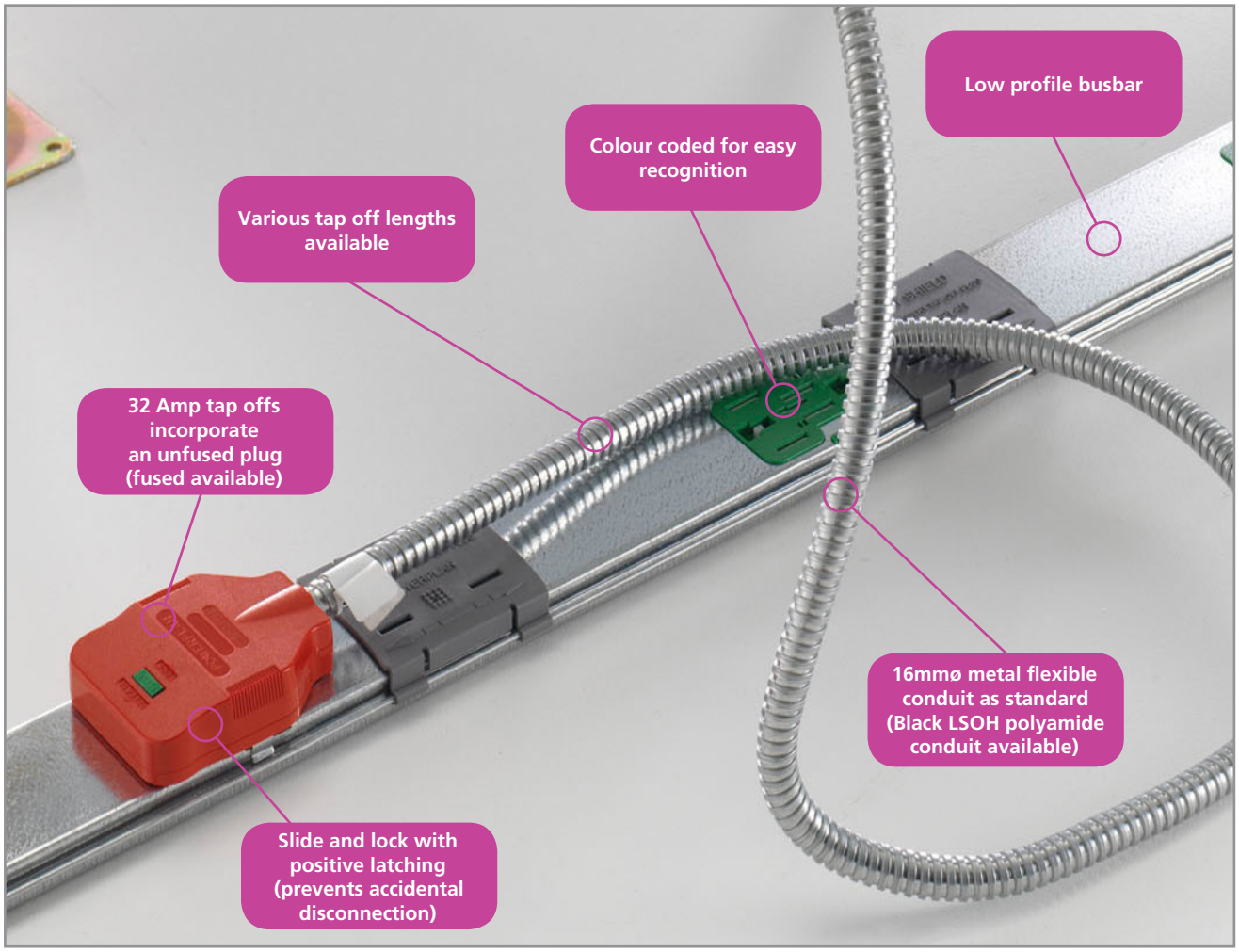



Betatrak® Underfloor Busbar

Busbars offer an efficient, flexible solution to underfloor power distribution as they use a click fit method for that fast and simple install. To reduce up front labour costs all busbars are tested at our manufacturing facilities meaning no onsite commissioning. Underfloor power solutions are also very low maintenance and exceptionally reliable making it the perfect solution in today's modern construction world.

The benefits of using an Underfloor Power Distribution System

- Choice: a comprehensive range of supply systems
- Flexibility: can be used in new or existing layouts
- Versatility: all kinds of configurations are possible including bends/corners
- Safety: colour coded tap offs for easy recognition. Sliding dust covers to protect outlets
- Height clearance: low profile busbar suitable for shallow floor voids
- Convenience: variety of Betatrak® lengths with different socket centres. 300mm standard (150mm and 600mm available on request)



Due to transport restrictions 3.6m length busbars have a minimum order requirement of 10 lengths. Orders of less than 10 units will be supplied as 2x 1.8m lengths per 3.6m length ordered.

Underfloor Busbar

The 63 Amp Betatrak® System caters for single phase standard, clean earth (CE) low noise, auxiliary, three phase or dual applications. Betatrak® comes in lengths of 1.2m, 1.8m, 2.4m or 3.6m with tap off positions provided at 300mm as standard (Note: 150mm and 600mm available on request). As a result, the system is extremely versatile and suitable for high to low density tap off requirements.

All integral connectors and tap off plug sockets are colour coded to avoid any possible errors during assembly. For maximum safety each operates a shutter on insertion to ensure no accidental contact can be made.

Installation

Betatrak® used within raised access floors is normally arranged in parallel runs with the feed units to the Betatrak® orientated towards the incoming supply. This offers an economic format inherent in long straight runs. Spacing should be a maximum of 5 metres between each length of track and 2.5 metres from the perimeter when using a standard 3 metre tap off to a floor box.

Attention should be given to the total power requirements to avoid exceeding the maximum power rating of the Busbar.

The following versions are available for both Busbar and Tap Offs:

- Standard Earth
- Clean Earth (CE) Low Noise Earth
- Auxiliary Earth
- Dual Circuit
- Three Phase

Length	No of Sockets	Centres (mm)	Standard White 63 Amp	Clean Earth (CE) (Low Noise Earth) Red 63 Amp	Auxiliary Black 63 Amp	Dual Circuit (Standard/Low Noise) Green 63 Amp	3 Phase Blue 63 Amp
3.6m	12	300	PBST3336	PBCT4336	PBAT3336	PBDT6336	PBTT5336
2.4m	8	300	PBST3324	PBCT4324	PBAT3324	PBDT6324	PBTT5324
1.8m	6	300	PBST3318	PBCT4318	PBAT3318	PBDT6318	PBTT5318
1.2m	4	300	PBST3312	PBCT4312	PBAT3312	PBDT6312	PBTT5312
Feed Unit			PBSF3010/SM	PBCF4010/SM	PBAF3010/SM	PBDF6010	PBTF5010
Flexible Corner		1m	PBSB3031H/SM	PBCB4031H/SM	PBAB3031H/SM	PBDB6031H	PBTB5031H
		2m	PBSB3032H/SM	PBCB4032H/SM	PBAB3032H/SM	PBDB6032H	PBTB5032H
Flexible Corner Kit			PBSB3000/SM	PBCB4000/SM	PBAB3000/SM	PBDB6000	PBTB5000

Due to transport restrictions 3.6m length busbars have a minimum order requirement of 10 lengths. Orders of less than 10 units will be supplied as 2x 1.8m lengths per 3.6m length ordered.

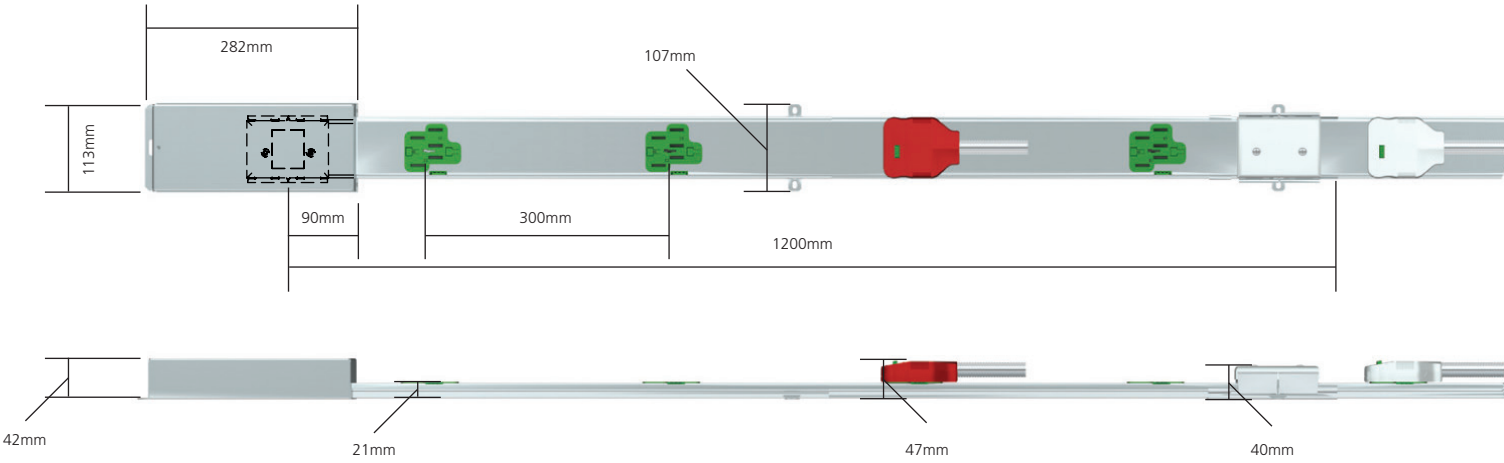
Underfloor Busbar

How to install the Busbar

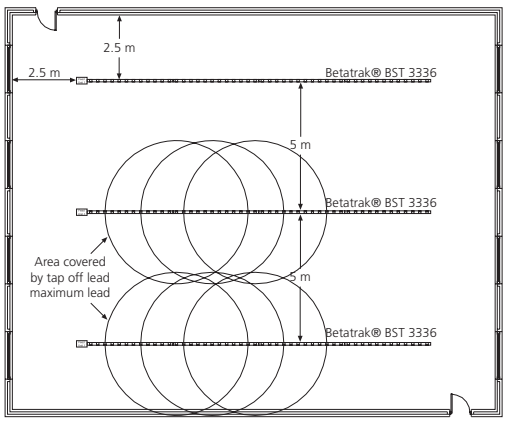
Starting with the feed unit, remove the dust cover over the colour coded socket and simply snap the integral coupler, pre-installed on the busbar, into the feed socket. The next length of track is then fitted to the socket end of the first length of busbar as previously described, this is then repeated for the following lengths until the run is complete. On the final length of busbar section the dust cover supplied is fitted on the final unused coupling point to protect against the ingress of foreign contaminants. The feed unit is then secured via the slots in the base and the busbar every 1200mm (max) by using the mounting brackets provided.

CMD is registered by BSI to BS EN ISO 9001 and BS EN ISO 14001. Betatrak® is designed to comply with regulation 434.2 of BS 7671: 2008 Amd 3 (IEE Wiring Regulations) and 543.7 earthing requirements for the installation of equipment having high protective conductor currents.

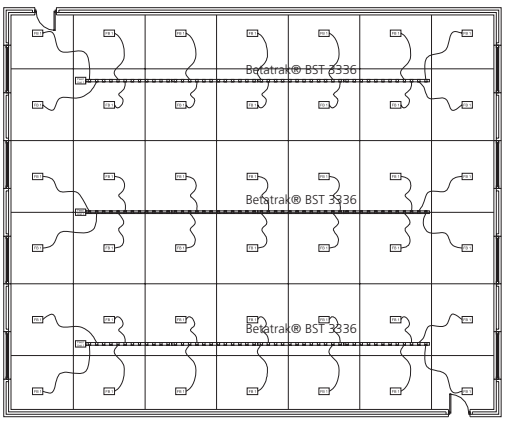
The scope of Reg. 543.7.1.3 requires that every final circuit is intended to supply one or more items of equipment, where the total protective conductor current is likely to exceed 10mA. in normal use, shall have a high protective connection.



Typical Floor Layouts



Busbar
3m tap offs provide full coverage when busbar is laid out on 5m centres.



Floor Boxes
Typical layout: 1 floor box for every 10m².

Due to transport restrictions 3.6m length busbars have a minimum order requirement of 10 lengths. Orders of less than 10 units will be supplied as 2x 1.8m lengths per 3.6m length ordered.

Underfloor Busbar

Electrical Characteristics					
Rated Current				63	Amps
Rated Voltage				240/415	Volts
Frequency				50	Hz
Conditional Short Circuit Rating	(Protection devices IEC 60269/BS88 Fuse and IEC 60898 MCB)			16	KA
Max withstand current				10 kA Peak	
Short time withstand current				1200A for 0.4 Sec	
Volt Drops (Line and Neutral)	Busbars			3.2	mV/A/m
	Feed Unit			0.4	mV/A
	Track Coupler			0.6	mV/A/m
	Tap off Connection			0.5	mV/A
	+4mm² Cable			11.00	mV/A/m
	+2.5mm²			18.00	mV/A/m
	Flexible Corner Unit			3.6	mV/A
	+10mm² Cable (1.2m)			4.7	mV/A/m
Earth Fault Loop Impedance	Line to Earth (Housing)			3.0	mΩ/m
	Line to Earth (Bar)			3.2	mΩ/m
	Line to Earth (Bar + Housing)			2.5	mΩ/m
	Feed Unit			0.8	mΩ
	Track Coupler			0.6	mΩ
	Tap off Connection			0.6	mΩ
	+4m² Cable			11.0	mΩ/m
	+2.5mm² and 4mm² Cable			14.5	mΩ/m
	Flexible Corner Unit			4.0	mΩ
	+10mm² Cable			4.7	mΩ/m
Mechanical Data					
Number of Copper Conductors				2, 3, or 5	
Busbar Cross-section Area				14	mm²
Betatrak® Basing Copper Equivalent (Where casing is protective Earth)				14	mm²
Cable Termination Capacity				16	mm²
Tap off Cable 32Amp (BS 7211)				4.0	mm²
Tap off Cable 13Amp fused (BS 7211)				2.5	mm²
Tap off Conduit Sizes				Ø16 or Ø20	mm
Flexible Corner Unit Cable (BS 7211)				10	mm²
Flexible Interlink Conduit				Ø25	mm
Feed Conduit Entry				1 or 2 x Ø25	mm
IP Rating BS EN 60529				4X	
Minimum void depth (track + tap off)				59	mm
Material Specification					
Betatrak® Casing	Galvanised Steel				
Busbars	High Conductivity Copper				
Busbar Insulators and Coupling Mould	Flame Retardant Polycarbonate				
Couple Contacts	Copper				
Feed Unit Terminals	Brass Silver Plated				
Tap off Socket and Plug Mouldings	Flame Retardant Polycarbonate				
Tap off Shutter	Polyester				
Tap off Plug Ins	Brass				
Tap off Cable	LSOH BS 7211				
Flexible Corner Cable	Tri Rated BS 6231				
Ambient Temperature Control Factors					
Temperature	25C	30C	35C	40C	50C
Factor	1.13	1.07	1.0	0.93	0.75

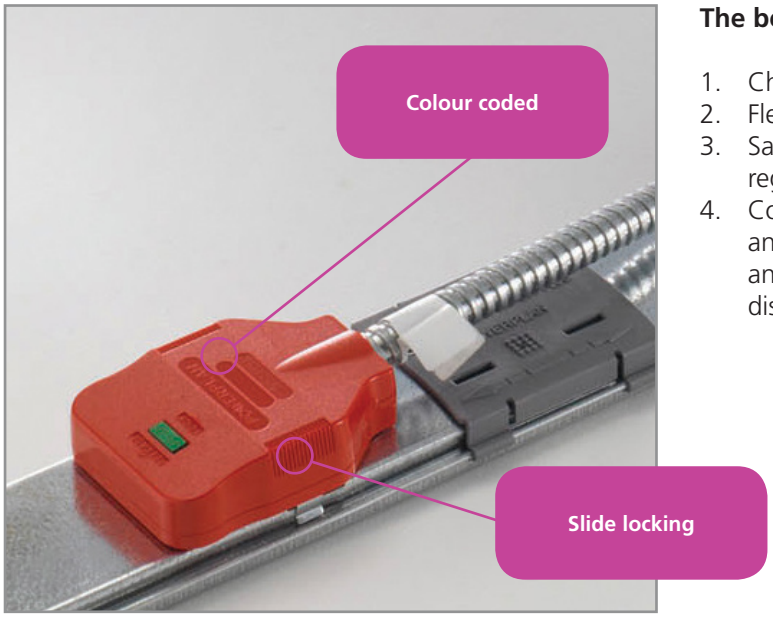
distribution power

Betatrak products has been independently tested to fully comply with BS EN 61534 and IEC 61534 2014 for Underfloor Powertrack Systems.

Tap Offs

Tap offs are colour coded and non-interchangeable between busbar types. The slide locking, positive latching tap off plug prevents accidental disconnection and can be added to or removed from the busbar while the system is live. All 3 metre, 32 Amp tap offs incorporate an unfused plug, and as standard, 16mmØ metal flexible conduit enclosing 3 metres of 4mm^2 cables. These units are designed to comply with Regulation 434.2.1 of BS 7671:2008 Amd 3. 5 metre unfused tap offs are also available for use with individual track runs that are rated at no more than 32Amp, where the protection of the tap off against both overload and fault current is provided by the track protective device.

CMD tap off units conform to the high integrity protective requirement by virtue of using a protective conductor of 4mm enclosed within a flexible conduit, thus providing additional protection against mechanical damage.



The benefits of using a CMD Tap off

1. Choice: a comprehensive range of supply versions
2. Flexibility: can be used in new or existing layouts
3. Safety: all units are designed to comply with regulation 434.2.1 of BS 7671: 2008 Amd 3
4. Convenience: all tap offs are colour coded and non-interchangeable with slide locking and positive latching to prevent accidental disconnection

Tap off units

Socket key codes	Standard Earth	Clean Earth	Auxiliary Earth	Dual Circuit	3 Phase
3m unfused				PBDX 7283H*	PBTX 5283H**
3m unfused 32 Amp	PBSX 3323H	PBCX 4323H	PBAX 3323H	PBSX 3323H PBCX 4323H	BTX 3323H 1, 2 or 3
3m fused 13 Amp	PBSX 3133H	PBCX 4133H	PBAX 3133H	PBSX 3133H PBCX 4133H	BTX 3133H 1, 2 or 3
5m unfused 25 Amp				PBDX 7285H*	PBTX 5285H**
5m unfused 32 Amp	PBSX 3325H	PBCX 4325H	PBAX 3325H	PBSX 3325H PBCX 4325H	BTX 3325H 1, 2 or 3
5m fused 13 Amp	PBSX 3135H	PBCX 4135H	PBAX 3135H	PBSX 3135H PBCX 4135H	BTX 3135H 1, 2 or 3

32 Amp 3 metre tap off

32 Amp 3 metre tap off unit is comprised of an unfused plug with 16mmØ flexible metal conduit with integral 3m x 4mm^2 cables.

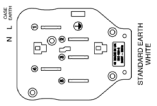
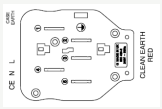
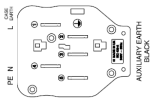
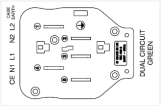
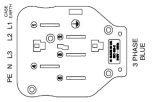
These units are designed to comply with regulations 434.2.1(i) BS 7671:2008 Amd 3 by virtue of the following:

1. Maximum length of cable is <3 metres
2. Minimum risk of faults as the item is factory assembled and fully tested
3. Fully protected by flexible steel conduit located within raised access floor that offers further protection

5 metre tap off unit

Tap off units in excess of 3 metres should only be used if they contain a fuse or the busbar is protected by a 32Amp rated protective device.

Mechanical data	
Tap off cable 32 Amp (BS 7211)	4.0 mm^2
Tap off cable 13 Amp fused (BS 7211)	2.5 mm^2
Tap off conduit sizes	Ø16 or Ø20 mm
Tap off socket and plug mouldings	Flame retardant polycarbonate
Tap off shutter	Polyester
Tap off plug pins	Brass
Tap off cable	LSOH BS 7211
Flexible corner cable	Tri rated BS 6231

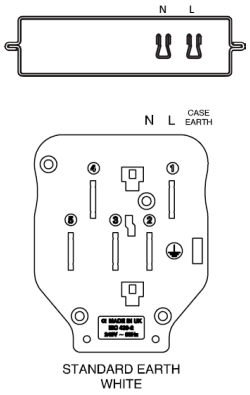
Mechanical data	Track type	Tap off type
Standard earth White 63 Amp		
Clean earth (CE) (low noise earth) Red 63 Amp		
Auxiliary earth Black 63 Amp		
Dual circuit (standard/low noise) Green 63 Amp		
3 phase Blue 63 Amp		

All tap off units comply with 17th Edition Wiring Regulations Section 543.7 (High Integrity Earthing).

Numerous configurations of tap off units including fuse options are available on request. Longer lengths available on request. CMD tap off units conform to the high integrity protective requirement by virtue of using a protective conductor of 4mm enclosed within a flexible conduit, thus providing additional protection against mechanical damage.

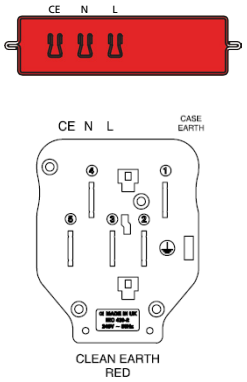
*These tap offs have 2 circuits (1 x standard and 1 x clean earth) rated at 25 Amp
**These tap offs are 3 Phase (L1, L2, L3, N, E) rated at 28 Amp

Standard Earth - 63 Amp



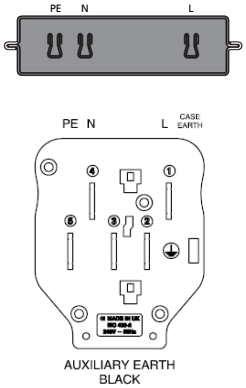
Code	Description
Betatrak®	
PBST3336	3.6 Metre Length
PBST3324	2.4 Metre Length
PBST3318	1.8 Metre Length
PBST3312	1.2 Metre Length
PBSF3010/S	Feed Unit c/w End Stop
PBSB3000/S	Flexible Corner Kit
PBSB3031H/SM	Flexible Corner - 1 Metre
PBSB3032H/SM	Flexible Corner - 2 Metre
Tap Offs	
PBSX3323H	3 Metre Tap off 32 Amp Unfused
PBSX3325H	5 Metre Tap off 32 Amp Unfused
PBSX3133H	3 Metre Tap off 13 Amp Fused
PBSX3135H	5 Metre Tap off 13 Amp Fused

Clean Earth (CE) - 63 Amp



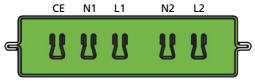
Code	Description
Betatrak®	
PBCT4336	3.6 Metre Length
PBCT4324	2.4 Metre Length
PBCT4318	1.8 Metre Length
PBCT4312	1.2 Metre Length
PBCF4010/S	Feed Unit c/w End Stop
PBCB4000/S	Flexible Corner Kit
PBCB4031H/SM	Flexible Corner - 1 Metre
PBCB4032H/SM	Flexible Corner - 2 Metre
Tap Offs	
PBCX4323H	3 Metre Tap off 32 Amp Unfused
PBCX4325H	5 Metre Tap off 32 Amp Unfused
PBCX4133H	3 Metre Tap off 13 Amp Fused
PBCX4135H	5 Metre Tap off 13 Amp Fused

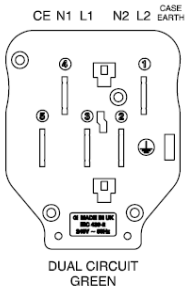
Auxiliary Earth - 63 Amp



Code	Description
Betatrak®	
PBAT3336	3.6 Metre Length
PBAT3324	2.4 Metre Length
PBAT3318	1.8 Metre Length
PBAT3312	1.2 Metre Length
PBAF3010/S	Feed Unit c/w End Stop
PBAB3000/S	Flexible Corner Kit
PBAB3031H/SM	Flexible Corner - 1 Metre
PBAB3032H/SM	Flexible Corner - 2 Metre
Tap Offs	
PBAX3323H	3 Metre Tap off 32 Amp Unfused
PBAX3325H	5 Metre Tap off 32 Amp Unfused
PBAX3133H	3 Metre Tap off 13 Amp Fused
PBAX3135H	5 Metre Tap off 13 Amp Fused

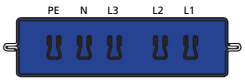
Dual Circuit - 63 Amp

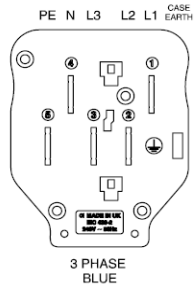




Code	Description
Betatrak®	
PBDT6336	3.6 Metre Length
PBDT6324	2.4 Metre Length
PBDT6318	1.8 Metre Length
PBDT6312	1.2 Metre Length
PBDF6010	Feed Unit c/w End Stop
PBDB6000	Flexible Corner Kit
PBDB6031H	Flexible Corner - 1 Metre
PBDB6032H	Flexible Corner - 2 Metre
Tap Offs	
PBDX7283H	3 Metre Tap off 25 Amp Unfused Dual Circuit
PBDX7285H	5 Metre Tap off 25 Amp Unfused Dual Circuit

3 Phase - 63 Amp





Code	Description
Betatrak®	
PBTT5336	3.6 Metre Length
PBTT5324	2.4 Metre Length
PBTT5318	1.8 Metre Length
PBTT5312	1.2 Metre Length
PBTF5010	Feed Unit c/w End Stop
PBTB5000	Flexible Corner Kit
PBTB5031H	Flexible Corner - 1 Metre
PBTB5032H	Flexible Corner - 2 Metre
Tap Offs	
PBTX3323H-1	3 Metre Tap off 32 Amp Unfused
PBTX3325H-1	5 Metre Tap off 32 Amp Unfused
PBTX3133H-1	3 Metre Tap off 13 Amp Fused
PBTX3135H-1	5 Metre Tap off 13 Amp Fused

NB: Add suffix -1, -2 or -3 to indicate required phase configuration of the above 3 Phase Tap Offs
E.G. PBTX3323H-1

Non Standard Tap Offs

Code	Description
Betatrak® Non Standard Tap Offs 32 Amp Neutrik Tap Offs	
PPA8284K	5m, 32 Amp unfused, Std Earth tap off c/w 32 Amp Neutrik (For Std earth and Std earth/607)
PPA7842K	5m, 32 Amp unfused, Std Auxiliary Earth Tap off c/w 32 Amp Neutrik (For Std earth and Std earth/607)
PPA8306	5m, 32 Amp unfused, Clean Earth Tap off c/w 32 Amp Neutrik (For C/E and C/E 607)
Alphatrak® Non Standard Tap Offs Standard Earth	
PASX3323H	3 Metre Tap off 32 Amp Unfused
PASX3325H	5 Metre Tap off 32 Amp Unfused
Alphatrak® Non Standard Tap Offs Clean Earth	
PACX4323H	3 Metre Tap off 32 Amp Unfused
PACX4325H	5 Metre Tap off 32 Amp Unfused

Betatrak Compliance Standard

ASTA Certificate of Verification Tests

Laboratory Ref. No:	45673/1
APPARATUS:	Rated current 63A, rated voltage 240V/415V, rated impulse voltage 4kV, 50Hz, with a conditional short circuit rating of 16kA. A range of underfloor powertrack systems and associated tap-off units.
DESIGNATION:	Betatrak system
MANUFACTURER:	CMD Limited, Sycamore Road, Eastwood Trading Estate, Rotherham, S65 1EN
TESTED BY:	kA Testing Facility, John Street, New Basford, Nottingham, NG7 7HL, UK
	Prof. Ir. Damstra Laboratory, P.O Box 23, 7550 AA, Hengelo, Europalaan 202, 7559 SC Hengelo, The Netherlands
	Exova (UK) Limited, 6 Coronet Way, Centenary Park, Salford, M50 1RE, UK
	Exova Warringtonfire, Holmesfield Road, Warrington, WA1 2DS, UK
	Exova (UK) Limited, Key Industrial Estate, Fernside Road, Willenhall, West Midlands, WV13 3YA, UK
DATE(S) OF TESTS:	26th February - 23rd August 2016

The apparatus, constructed in accordance with the description, drawings and photographs incorporated in this certificate has been subjected to the series of proving tests in accordance with:

IEC 61534-22 Edition 2.0, 2014-06 and BS EN 61534-22: 2014

Verifications with reference to the tests listed in Sub-Clause 5.3 of IEC 61534-1: Edition 2.1 2014-06

1. Marking and Documentation, Clause 8
2. Construction, Clause 9
3. Clearances, creepage distances and solid insulation, Clause 10
4. Protection against electric shock, Clause 11
5. Terminals and Terminations, Clause 12
6. Screws, current carrying parts and connections, Clause 13
7. Mechanical strength, Clause 14
8. Insulation resistance test and dielectric strength test, Clause 15
9. Normal operation, Clause 16
10. Temperature rise, Clause 17
11. Short-circuit protection and short-circuit withstand strength, Clause 18
12. Resistance to heat, Clause 19
13. Fire hazard, Clause 20
14. External influences, Clause 21

This certificate applies only to the apparatus tested. Responsibility for conformity of any apparatus having the same or other designations rests with CMD.

Issued by Intertek, Centre Court, Meridian Business Park, Leicester, LE19 1WD
Contact: asta@intertek.com Tel: +44 (0)116 263 0330