



DSCR MULTISWITCH INSTRUCTION MANUAL

MODELS:

WSCR504

WSCR506

WSCR508

WSCR512

WSCR516



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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 4mm² 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 1mm². 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.

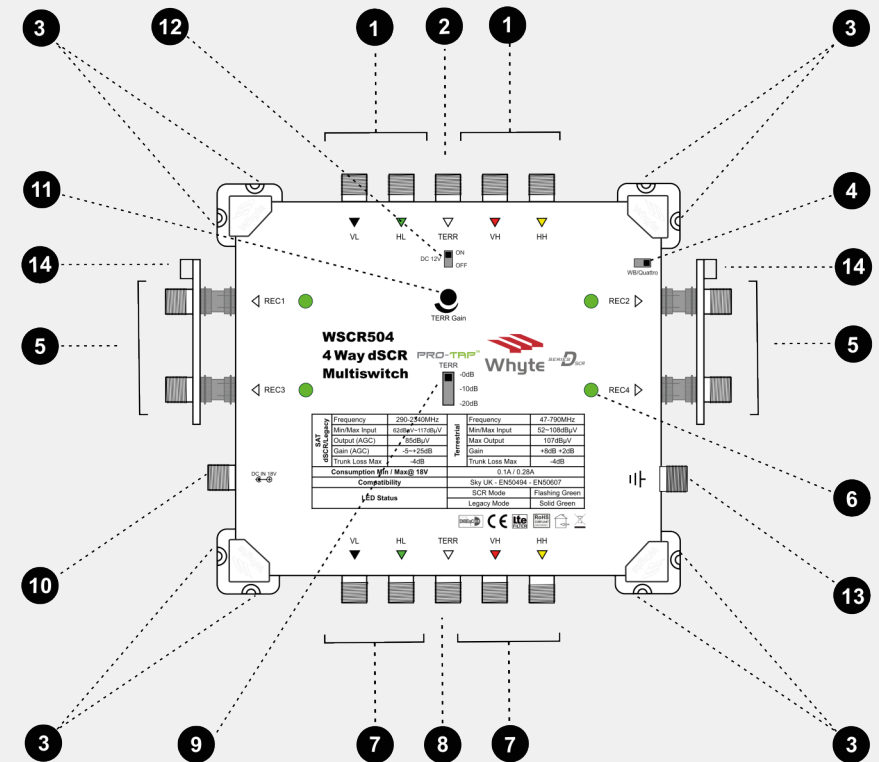
Each Subscriber Output provides Satellite (SkyQ dSCR & Legacy), TV and Radio. Satellite subscriber signal levels in both Legacy and dSCR mode are automatically set to 85dBμV (self-commissioning/AGC). Dscr and Legacy mode is automatically detected and switched over on a per-subscriber port basis.

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".

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

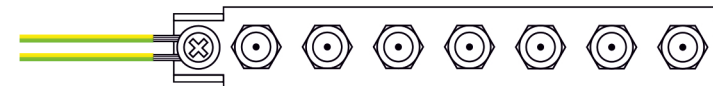
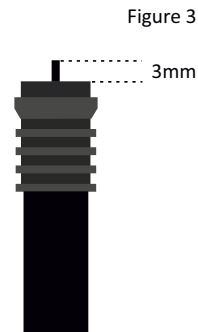


Figure 2

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.



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 | FREQ | UB | FREQ |
| 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 | | | | |

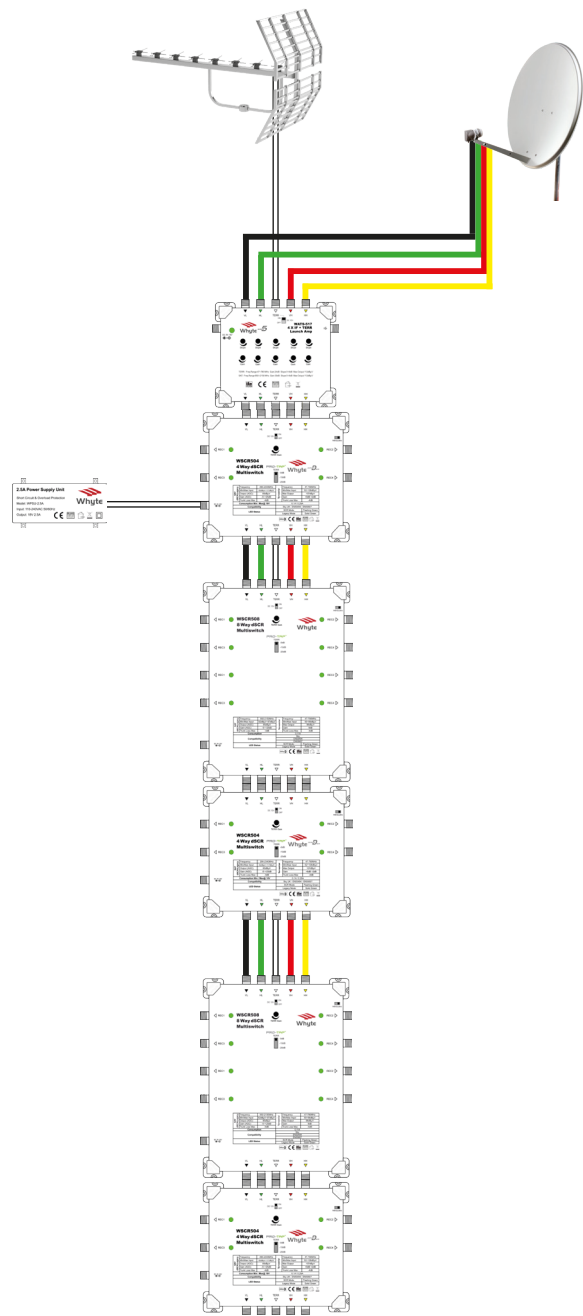
COMMISSIONING THE MULTISWITCH

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.

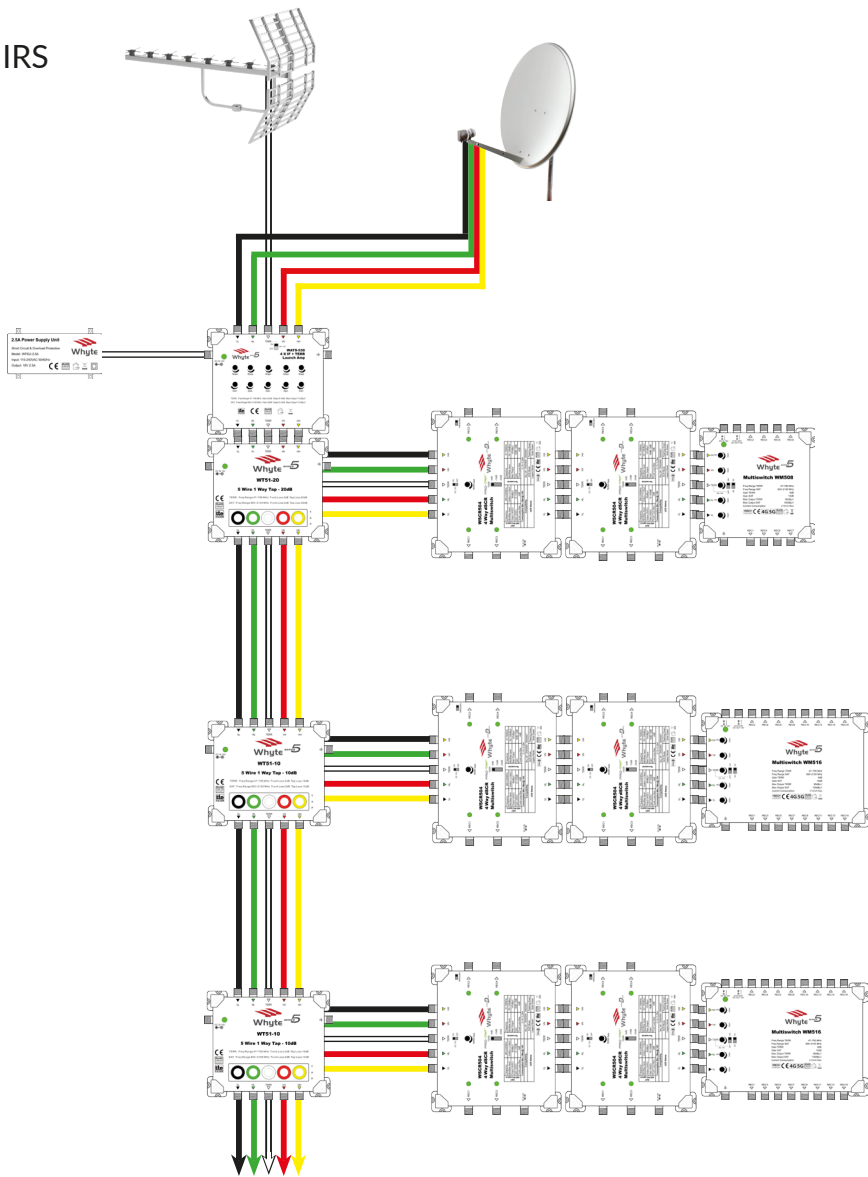
EXAMPLE CONFIGURATION

Figure 4



EXAMPLE CONFIGURATION

Hybrid IRS



SPECIFICATIONS

| Model | | WSCR504 4-Way dSCR | WSCR506 6-Way dSCR |
|--|-------------------------|---|---|
| Frequency Range | SAT | 290-2340MHz | 290-2340MHz |
| | TERR | 47-790MHz | 47-790MHz |
| Quattro/Wideband LNB Switch (2 SAT reception when using 2 x WB LNB's) | | Yes | Yes |
| Inputs (F Connector) | | 4 SAT + 1 TERR | 4 SAT + 1 TERR |
| Trunk Outputs (F Connector) | | 4 SAT + 1 TERR | 4 SAT + 1 TERR |
| Tap Output Ports (F Connector) | | 4 | 6 |
| Trunk DC Pass | SAT | Yes | Yes |
| | TERR | No | No |
| Trunk Through Loss (nom) | SAT | -4dB | -4dB |
| | TERR | -4dB | -4dB |
| Gain | SAT | -35dB~+25dB (AGC) | -35dB~+25dB (AGC) |
| | TERR | +8dB±2dB | +8dB±2dB |
| Gain Control | SAT | AGC | AGC |
| | TERR | 15dB | 15dB |
| Protean Tap (ATT Switch) | TERR | 0/-10/-20dB | 0/-10/-20dB |
| Min/Max Input Signal Level | SAT | 62 ~ 117dBµV | 62 ~ 117dBµV |
| | TERR | 52 ~ 108dBµV | 52 ~ 108dBµV |
| Max Output Signal Level | SAT (Legacy/dSCR) | 85 dBµV (AGC) | 85 dBµV (AGC) |
| | TERR | 107 dBµV | 107 dBµV |
| TERR 12V DC Supply (switchable) | | Yes | Yes |
| Power Supply Voltage | | 18V DC | 18V DC |
| Powering | Via DC In | Yes | Yes |
| | Via SAT trunks (remote) | Yes | Yes |
| | Via STB | No | No |
| Power from DC In to Input & Output SAT Trunks | | Yes | Yes |
| Consumption Min / Max @18V | | 0.1A / 0.28A | TBA |
| Compatibility (Auto Switching) | | Legacy Sky UK dSCR EN50494 EN50607 | Legacy Sky UK dSCR EN50494 EN50607 |
| dSCR User Bands per port | | 16 | 16 |
| Switching Commands | Legacy | 22K Tone & Voltage | 22K Tone & Voltage |
| | dSCR | Diseqc commands | Diseqc commands |
| Isolation | Tap Port to Port | >43dB | >43dB |
| | Trunk Port to Port | >36dB | >36dB |
| Return Loss | SAT Trunk In/Out | >10dB / >10dB | >10dB / >10dB |
| | TERR Trunk In/Out | >8dB / >8dB | >8dB / >8dB |
| | Tap Output Ports | >8dB | >8dB |
| SCR/Legacy Mode Indication (per port) | | LED | LED |
| Power Indication | | LED | LED |
| Earth Lug | | Yes | Yes |
| Earth Terminal Bars (tap output ports) | | Yes | Yes |
| Dimensions (HxWxD) | | 160x215x43mm | TBA |
| Weight | | 450g | TBA |

SPECIFICATIONS

| WSCR508 8-Way dSCR | | WSCR512 12-Way dSCR | WSCR516 16-Way dSCR |
|---|------|---|---|
| Frequency Range | SAT | 290-2340MHz | 290-2340MHz |
| | TERR | 47-790MHz | 47-790MHz |
| 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 |
| 8 | | 12 | 16 |
| Yes | | Yes | Yes |
| No | | No | No |
| -4dB | | -4dB | -4dB |
| -4dB | | -4dB | -4dB |
| -35dB~+25dB (AGC) | | -35dB~+25dB (AGC) | -35dB~+25dB (AGC) |
| +8dB±2dB | | +8dB±2dB | +8dB±2dB |
| AGC | | AGC | AGC |
| 15dB | | 15dB | 15dB |
| 0/-10/-20dB | | 0/-10/-20dB | 0/-10/-20dB |
| 62 ~ 117dBµV | | 62 ~ 117dBµV | 62 ~ 117dBµV |
| 52 ~ 108dBµV | | 52 ~ 108dBµV | 52 ~ 108dBµV |
| 85 dBµV (AGC) | | 85 dBµV (AGC) | 85 dBµV (AGC) |
| 107 dBµV | | 107 dBµV | 107 dBµV |
| Yes | | Yes | Yes |
| 18V DC | | 18V DC | 18V DC |
| Yes | | Yes | Yes |
| Yes | | Yes | Yes |
| No | | No | No |
| Yes | | Yes | Yes |
| TBA | | TBA | TBA |
| Legacy Sky UK dSCR EN50494 EN50607 | | Legacy Sky UK dSCR EN50494 EN50607 | Legacy Sky UK dSCR EN50494 EN50607 |
| 16 | | 16 | 16 |
| 22K Tone & Voltage | | 22K Tone & Voltage | 22K Tone & Voltage |
| Diseqc commands | | Diseqc commands | Diseqc commands |
| >43dB | | >43dB | >43dB |
| >36dB | | >36dB | >36dB |
| >10dB / >10dB | | >10dB / >10dB | >10dB / >10dB |
| >8dB / >8dB | | >8dB / >8dB | >8dB / >8dB |
| >8dB | | >8dB | >8dB |
| LED | | LED | LED |
| LED | | LED | LED |
| Yes | | Yes | Yes |
| Yes | | Yes | Yes |
| TBA | | TBA | TBA |
| TBA | | TBA | TBA |

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



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