Configurable Remote Head

Height & Width Extended with Side Support   **Standard**

- **Width & Height Extension options**
- **RS485 with Fibre & IP options**
- **Loads >10kg – (with 2nd side)**
- **Multiple Head Control from 1 controller**
- **Integrated Motion Control & Profile Moves**
- **Integrated Camera CCU, PSU & Lens Control**
- **Multiple Data Protocols including *DMX & Free-D***
- **Continuous *Free-D* Metadata output**
- **Suitable for Virtual Reality**
- **Positional Control to 0.005deg**
- **Virtually SILENT operation**
- **Zero Backlash**
- **Custom Software & Features**

Specifications subject to change without notice

The **Proteân XMi** from **BR Remote** builds on 20 years of experience in remote camera and head design. Designed over 2 years to deliver high precision moves with smooth, and totally silent, operation. Whether for **VR, sport** or **symphony orchestras**, this head will deliver. With its host of built-in features, it can also manage many of the tasks that often require additional equipment. e.g. Motion Control, Lens Drivers and CCU control.

Mechanics

The mechanical design of the **Proteân XMi** has significant advances over other designs. There are machined parts, 3D printed parts, moulded and extruded parts to achieve the perfect blend of materials and techniques for the purpose. The direct-drive motors are powerful, silent and have zero mechanical backlash.

Size Extenders

We felt it important to offer flexible sizing to accommodate more camera models and more applications. The standard is the smallest configuration. A 50mm width extender is available and 100mm height extenders give many options. Fitting these extenders changes the configuration to a large unit for over-slinging and wider cameras. A second side support is also available for heavier loads. No longer does an operator have to compromise when choosing a head size - just add or remove extenders to configure the head for the job.

Control   - physical

Several physical methods - joysticks, wheels, pan par systems are all possible, offering outstanding flexibility. The native connection is RS485 via an XLR cable. Other control options that can be fitted are; IP (RJ45 copper), radio, fibre and fibre IP, even all together if required. All these connections can be fitted onto the non-rotating base.

Control - protocols

Various control protocols are built into the firmware and are easy to select for each application. *Dstar, Mstar, DMX, Free-D*, are options, with others becoming available.

Mstar and *Free-D* protocols offer 16-24bit control for Virtual and Augmented Reality applications. **M*** also includes CCU protocols and can address other heads without interrupting the primary head motion control.

DMX is an 8+8 bit (total 16bits) protocol, used on stage shows to control lighting and effects etc. It can be used to control the **Proteân XMi** as if it were a follow-spot. This is the same system as used in our CamBall3 X units.

Dstar protocol has been the standard protocol for live action joystick control for about 20 years. All BR Remote equipment supports this protocol.

The control protocol (DMX, Free-D, M*) can be selected from our standard **Multi Function Controller**. Once the protocol is selected, options relevant to that protocol are then shown. For example; setting the DMX *Base Address*, homing etc.

Whichever protocol is selected the unit always responds to a joystick override, enabling the operator to instantly respond to live action events if necessary. The unit automatically reverts to the selected protocol once the live action move is completed.

There is a status display on the side of the unit which has many pages of information and can also assist in trouble shooting. The pages are scrolled from the **Multi Function Controller** which can also echo the display on its central screen.

Control - Metadata

Positional feedback (metadata) is essential for both virtual and augmented reality and any application under computer control.

16bit, metadata is output continuously in 2 *Free-D* formats; traditional angles and 'raw' data. This includes Pan, Tilt, Zoom and Focus positions, Head Ident and Genlock flag*.

Lens Control

Control for broadcast lenses is built-in. 2 x 12pin Hirose lens control sockets are fitted on the front of the **Proteân XMi**. There is also provision for digital lens control. This is our proven lens control, offering fast and accurate reaction to operator inputs.

Camera CCU Control

Various camera CCU control protocols can be built-in, just like our previous remote heads and our popular **RD** radio data system.

This means that many makes of camera can be controlled via data embedded within the movement control data (**Ikegami, Sony, Hitachi, Panasonic, JVC** and others). If this isn't the way you want to work then you can choose the **RS422 or RJ45** connection between the base and the camera connections.

There is provision for **LANC** control development for certain camera types.

Tally Light

A tally light is fitted on the top of the head and an additional tally can be fitted to the front of the unit. Alternatively, a stand-alone unit can also be operated on the system.
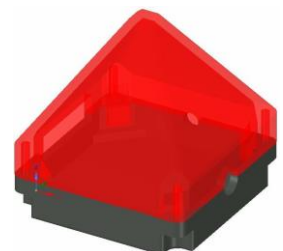
Motion Control

Up to 64 pre-set positions can be stored and recalled in the head. (depending on controller) Each position includes, Pan, Tilt, Zoom and Focus positions. Once stored, the positions are saved during power loss.

A major feature of the **Proteân XMi** is that it always does a *Motion Controlled Profile Move* to each pre-set position. The profile of this move can be specified by the operator using our standard **Multi Function Controller**. All axes, Pan, Tilt, Zoom & Focus, will move in the same amount of time to the specified position. A default time is automatically stored, but can be adjusted at any time. Total Time, Ramp Up time, and Ramp Down time can be adjusted by the operator for each position independently.

The Zoom move can be separated from the pan & tilt moves. This gives the ability to start the zoom move either before or after the pan/tilt move and also to end it before or after the pan/tilt move.

These built-in features enable operators to set up simple motion control moves without needing a controlling computer. It brings the ability to intersperse motion control moves into live action applications quickly and easily.

Full Motion Control

Full positional motion control can be achieved by using any number of motion control systems. The **Proteân XMi** uses our unique *Predictive Motion Smoothing* (PMS) algorithm to ensure that movement is not jerky yet remains accurate. Loss of data is tolerated because the firmware predicts future positions based on the previous move profile and fills in any gaps. This also enables operation with very low data rates and data drop-outs, with just the minimum of variance from the desired move profile.

Standard model:
The standard model of the Proteân doesn't include any extenders. The standard model includes:

- RS 485 Standard control
- Lens control
- Point-to-point profile move
- Status display
- DMX Control
- Free D & M* Control
- Metadata Output
- Tally Light

Optional extras

Optional extras:
The following can be added as optional extras:

- Control over IP
- Fibre Output (HDSDI)
- Fibre Control input/output
- Width extension (+50mm)
- Height extensions (+100mm sections)
- Slip rings (HDSDI, Power, Control)
- RJ45 loop-thru
- CCU Protocols

** specification to be confirmed

There is a full range of additional equipment available to complement any remote system;

Data repeaters, Data Splitters, Joystick Controllers, Camera RCPs, Data Routers, Auxiliary Interface units, Radio Data Transmitters, Fibre Systems, IP Connectivity, etc.

100m Riser
 extends the height in 100mm
 increments.

Long Drop Arm
For taller cameras or
over-slinging when used with Risers.

50mm Width Extension
widens the head for wide cameras

Wide Camera Plate
to match Width Extension

Camplate Extension
Moves the camera back

Multi Function Controller
can control up to 8 heads

Weight:	7kg (standard)
Dimensions:	Standard – W.293, H.356, D.166.
	Extended – W.414, (Including Side Support) H.655, D.166
Max. Camera width:	280mm
Max. Camera Clearance:	420mm to tilt centre (with 3 x 100mm risers)
Max. Load:	10kg (standard), 20kg with side support
Operating Temp:	0 to +40degC Out of sunlight
Environmental:	IP65
Mounting:	4 x 3/8", + M6 safety bond point
Connections:	XLR5, XLR4, BNC1, BNC2, RJ45, Dsub9, 2 x ST fibre
Power:	48 @ 150w
Data:	RS485, IP
Control Protocols:	DMX (8 channels), Free D, Dstar, Mstar,
Metadata:	Free-D RAW, Free-D Angular, Mstar. (Pan, Tilt, Zoom, Focus)
Pan Range:	Hard & Soft stop limited. 360deg. Continuous with Slip Rings
Tilt Range:	350deg. Hard & Soft Stops
Pan Speed Range:	<0.005deg/sec - >180deg/sec.
Tilt Speed Range:	<0.005deg/sec - >180deg/sec.
Speed Ranges (Gears):	10
Speed Proportional:	Pan/Tilt Speed, proportional to zoom angle on ranges 1-3
Lens Control:	2 x 12pin Hirose, Zoom, Focus, Iris
Pre-Set Positions:	64 – Pan,Tilt, Zoom, Focus
Positional Accuracy:	0.0055deg. 16bit, 65,536 counts per 360deg.
Profile Moves:	64 – Pan,Tilt, Zoom, Focus
Profile Move Adjustments:	Ramp Up, Ramp Down, Total Time, Zoom Start +/-, Zoom End +/-
PTZ Remote:	Pan, Tilt, Zoom, (fully proportional,) Iris, Focus, (positional), Pre-set Store (P,T,Z,F), Pre-set Recall, Profile Move Time, Profile Move Ramp Up, Profile Move Ramp Down, Profile Move Zoom Offsets, Absolute Position mode, P,T,Z,F reverse, speeds 1-10, Turbo Speed, Set Home, Goto Home, PID values, Joystick Ramp, Protocol Selection, Protocol Format etc.
Other Features:	Genlock, Lens Drivers, Inverted or Upright Mounting, LCD screen, Tally Light.
Options:	100mm Risers, 50mm Wide Block, Wide Camera Plates, Side Support, Long Drop Arms, IP input, Fibre i/o, external Tally lights, CCU Control, bespoke features, RJ45 loop thru,Slip Rings, SDI return (for BMD cameras)