



KBC's ASFOM (Application Specific Fiber Optic Modem) range offers integrators and end users true flexibility and choice. Rather than having to change a system specification to accommodate the limitations of the transmission equipment, ASFOM gives you a unique opportunity to develop a transmission system that meets your own requirements.

Instead of being limited by the set increments of channels and the mix of signal types offered by most manufacturers, the ASFOM range allows analog video, data, analog audio, contact closure, telephone, Ethernet, DVI, SDI and USB to be combined in the exact quantity and order that is needed. Solutions can be as simple as a single contact closure link or extend to a system requiring 128 real time video signals - all supported on a single fiber. Both point-to-point and bus topologies can be configured.

With applications in security and surveillance; access control; building management and industrial control to name but a few, ASFOM's incredible flexibility allows virtually any requirement to be met using a standard, off-the-shelf product. To add to this, the ASFOM range is fully-ruggedized, with a temperature range of -40°C to +70°C, ensuring that the equipment operates in the harshest of environments.

ASFOM allows customers to:

- Minimize installed fiber infrastructure usage and therefore maximise the infrastructure's revenue potential
- Reduce third party infrastructure rental costs (where applicable)
- Recover fiber if the infrastructure is fully loaded
- Ensure that system design is not dictated by equipment limitations
- Minimize communication room rack space requirements
- Reduce air conditioning and power costs

Product Selection

To select an ASFOM product, KBC has developed a software-based tool called the 'Configurator'. The 'Configurator' replaces well over two million individual data sheets in one simple-to-use, PC-based package. It simply requires you to enter the type and quantity of electrical interfaces needed; your choice between multimode or singlemode fiber and the local power connector type. From this information, the Configurator will work out the product part code as well as producing a product description and a drawing.

Electrical Modules

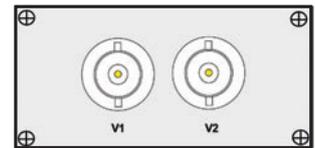
To reduce product lead times, ASFOM electrical interfaces are built as modules and then connected to a motherboard within the unit that carries out the processing and transmission operations.

All KBC Networks audio, data and contact closure interfaces feature screw block terminal connectors. They are provided in this format to make installation as quick and easy as possible. In the field, these signals will typically be offered to the fiber transmission interfaces as copper cable. RJ45 and “D” shell connectors housing multiple interfaces, on the other hand, often create problems on-site as specialist break out cables need to be manufactured to enable the connection to be made.

The electrical modules available are:

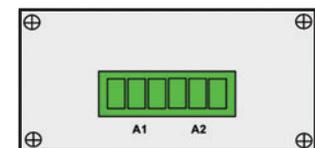
Analog composite video (single or dual channel)

ASFOM video channels are transmitted in an uncompressed digital format, providing high quality, real-time video images through the link. Interfaces can be configured for either 8 or 10 bit digital resolution providing medium haul or short haul performance specifications respectively. ASFOM links can be configured with anything from 1 up to 128 video channels on a single fiber. Units are not built in set increments of 4 or 8 channels; instead, the exact number of video channels can be specified. The video interface presentation is a 75Ω BNC.



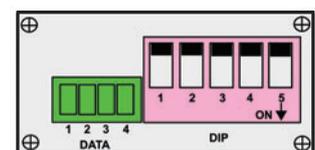
Analog audio

Designed to transmit a line level audio signal, the interface utilizes AES3 24bit encoding providing excellent audio performance. The interface will accept balanced or unbalanced signals and has a standard impedance setting of 600Ω, (other impedances can be specified if required). Using the Configurator, simplex or duplex audio can be specified - along with the direction required if simplex is chosen. Presentation of the electrical audio interface is a 6-way screw block connector. In one module it is possible to have up to 2 simplex audio channels or 1 full duplex channel.



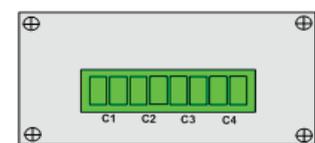
Data

Designed to transmit RS232, RS422 or RS485 (2 wire & 4 wire), the data interface is a fully field selectable, user configurable module. To cope with system manufacturers' data rates, it has a bandwidth in excess of 250 kbps - far greater than its competitors can offer - and is transparent to data encoding schemes. Presented as a 4-way screw block connector, dip switches configure the interface for the required data standard. Again, to improve usability and make installation as easy as possible, switchable 120Ω termination impedance and biasing is provided. The switchable termination removes the need for the installer to try and insert a resistor into a connector that was not designed to accept it. The ability to remove the KBC biasing enables connection to most third party data interfaces without compromising the data transfer.



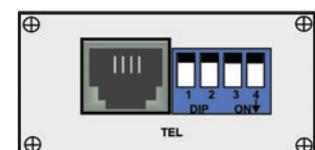
Contact Closure

Using the Configurator, simplex or duplex contact closure can be specified - along with the direction required if simplex is chosen. The contact closure interface is an 8-way screw block terminal that can take up to 4 simplex or 2 duplex circuits.



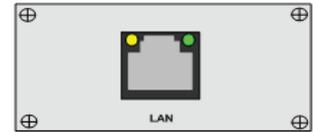
Telephone

This module provides a single telephone interface with dip switches to determine which end of the telephone link the unit is connected to. The link can also be configured as an emergency interface (lift one end the other end rings) by setting the switches in a certain format. This setting can also be used in an engineering capacity providing an end-to-end voice link during configuration of any attached system. An RJ11 presentation is provided.



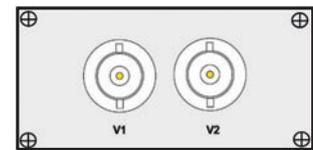
Ethernet

This module provides an Industry standard 10/100 auto sensing interface with RJ45 presentation. The Ethernet traffic is transferred at wire speed through the ASFOM system, providing true 100 Mbps data rate.



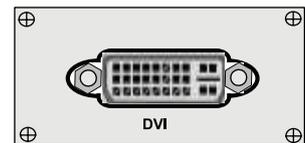
E1

Using a pair of 75Ω coaxial connectors as the interface, this module supports a G703 standard, 2.048 Mbps E1 interface.



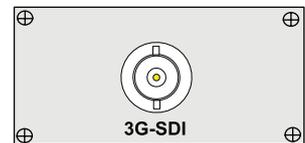
DVI

A DVI 1.0 interface, supporting display resolutions for DVI of 1920 x 1200 @ 60Hz, or full 1080p for television, is supported through the ASFOM channel. The DDC line, passing the EDID information from monitor to graphics adapter, is transmitted across the fiber, although the 'loop-through' connector provided at the transmitter can also be used to provide the EDID information from a locally connected monitor. Due to electrical bandwidths, multimode ASFOM transmission distance is limited to 2km, with 30km distances achievable with singlemode. The DVI interface requires 2 ASFOM slots in any physical configuration and will need 4 dedicated wavelengths when combined with other signals.



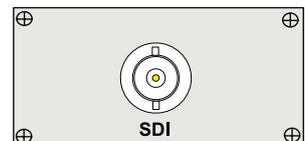
3G-SDI

The 3G-SDI module supports SMPTE 259M, 292M and 424M signal levels along with embedded audio and data through the ASFOM system. A 'loop-through' connection is provided on the transmitter module. Due to electrical bandwidths, multimode ASFOM transmission distance is limited to 2km, with 80km distances achievable with singlemode.



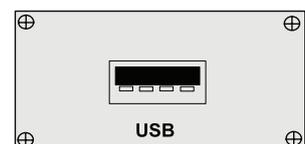
HD-SDI

The HD-SDI module supports SMPTE 259M and 292M signal levels along with embedded audio and data through the ASFOM system. A 'loop-through' connection is provided on the transmitter module. Due to electrical bandwidths, multimode ASFOM transmission distance is limited to 2km, with 120km distances achievable with singlemode.



USB

Supporting USB 2.0 and 1.1 standards, the interface provides extension of the USB (Universal Serial Bus) through the ASFOM system, with data rates up to 480Mbps (High Speed) and 500mA port power supported. The host end (upstream) is a single type B connection, with four Type A connections provided at the remote (downstream) end.



Physical Configuration

ASFOM products are available in variety of physical formats to suit the environmental requirements of any project. The physical format will be initially dictated by the number of electrical modules required.



Wall-mount

Where a limited number of electrical interfaces are needed, or the units are to be located in a remote location with no 19” rack, wall-mount box options are available. The wall-mount unit is available in either the ‘thin’ three module version, or the ‘thick’ version which can accommodate up to 6 electrical modules in the dual height unit.

Thick box (2 PCBs)



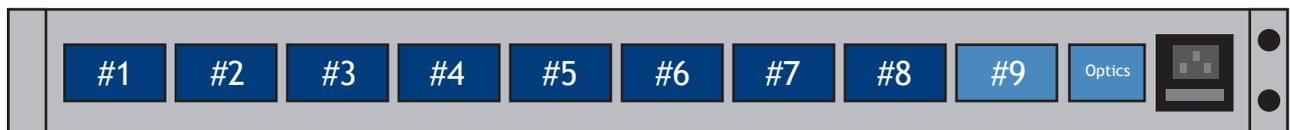
19” Rack-mount



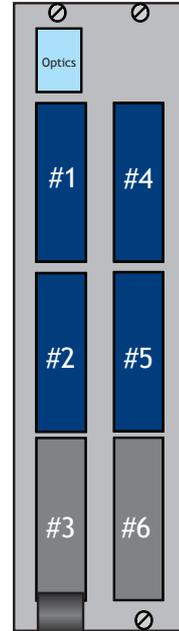
The rack-mount module has an internal power supply and can be configured with a redundant power option if required. Up to 9 electrical modules can be housed in the 1U variant and up to 18 modules in the 2U format.

In both the wall-mount and 19” rack-mount units the module bays coloured in grey cannot be used to house the dual video interface.

1U 19” rack



19" Chassis

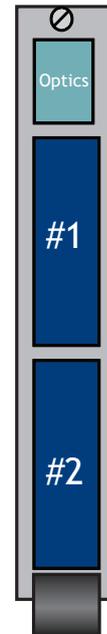


2 Slot

KBC offers both 3U and 4U chassis for ASFOM card modules. The 3U chassis can be used for configurations of one or two electrical modules and allows basic ASFOM units to locate in the same chassis as KBC Digital Standard units.

For larger channel requirements or in situations where there are multiple links coming back to a centralized control room, the 4U 19" chassis is recommended. It has an integral power supply and can hold up to 14 single slot cards or various configurations depending on the individual product permutation. The ability to mount various interfaces in a chassis presents significant space savings when compared to the competition's offerings. In a single slot, the KBC unit can have up to 6 video channels or a configuration such as 4 video channels and a fully field-configurable data channel.

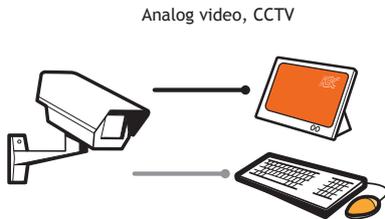
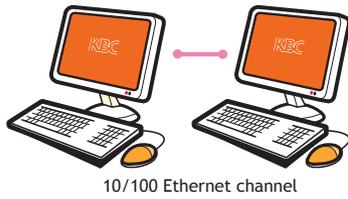
Dual redundant power supply options are available for the 3U and 4U chassis, utilizing either a second AC or a DC input. KBC chassis are shipped with blanking panels across all slots so that unused slots are protected and integrity of the chassis is maintained. No forced air cooling is required in the rack module or the 19" chassis, which means that fan filters don't have to be changed on site; this reduces ongoing maintenance costs. KBC believes in designing products to run cool which reduces stress on components and increases the operational lifetime of the product*



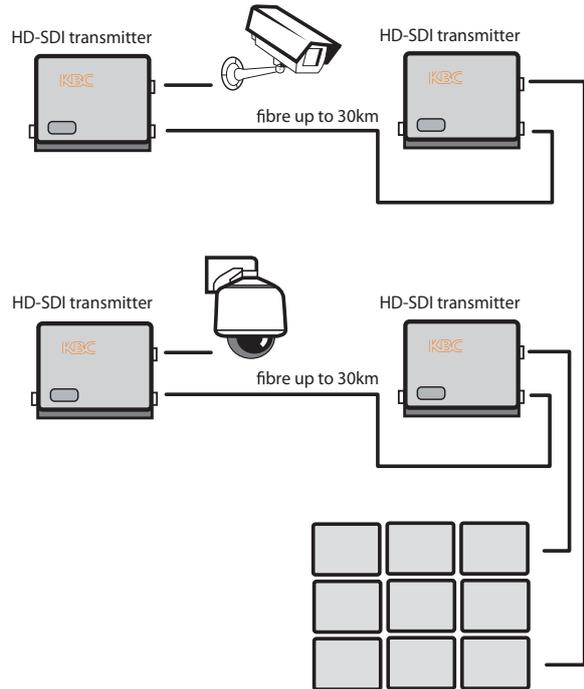
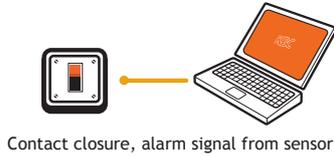
1Slot Chassis Card

** KBC would advise that where possible, active equipment chassis are separated by the passive cable patching housings*

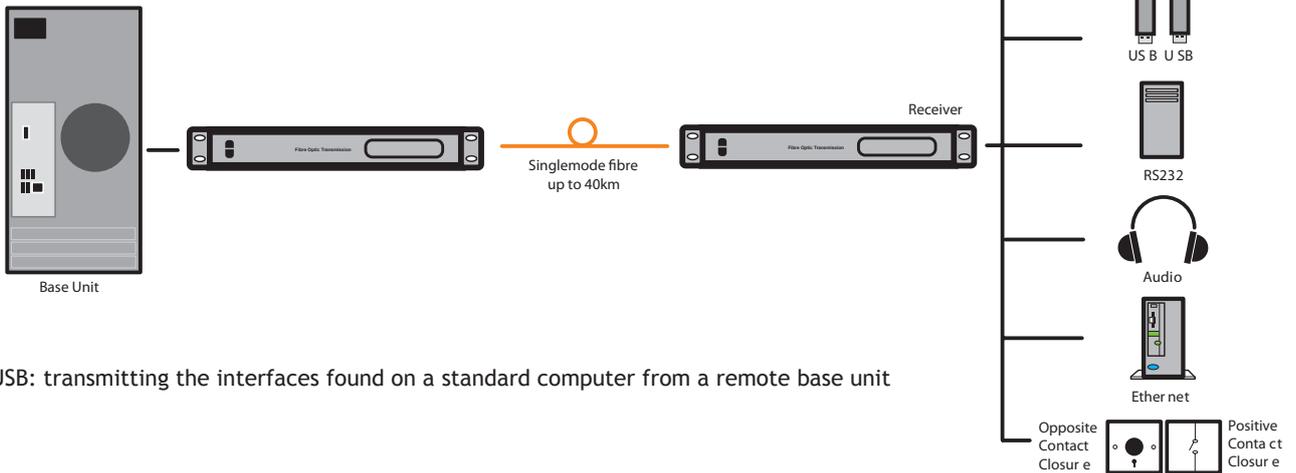
Possible Applications



Data, telemetry control for camera PTZ units, simplex or duplex



Digital video from CCTV cameras to flat-screen monitors in a control room



USB: transmitting the interfaces found on a standard computer from a remote base unit