

Modular DKM Extenders

For flexible KVM Extensions
Mix and match interfaces according to your needs



Modular DKM Extenders

Flexible, modular KVM extension system takes video and peripheral signals over CATx and fiber.



The Modular DKM Extender series creates a unique and diverse method of flexible extension of KVM signals including DVI, DVI-I, HDMI, DisplayPort, USB 3.0, USB 2.0, USB-HID, RS232, RS422 as well as analog and digital audio. Its setup provides the widest range of possible combinations, which makes it easy to customize it for your specific application.

The series offers multiple chassis types and interface modules to support the most demanding needs of long distance KVM signal transmission. Both CATx and fibre connections are supported and each chassis provides connections for redundant power supporting critical backup requirements. DC-power with 12-, 24- or 48VDC for industrial usage can be supplied, too. No matter which chassis you select, all ports are arranged on the front side of the chassis to ensure comfortable access while installing and maintaining them.

Solution Highlights

- Combine and extend multiple video and peripheral interfaces exactly to your needs.
- Pixel perfect video up to 4K over the full distance.
- Options for Single/Dual Link DVI, HDMI and DisplayPort as well as analog video inputs.
- Ideal for multi-video and high demanding video applications.
- Wide range of additional peripheral interfaces:
 - USB HID, USB 2.0 (36 Mbps embedded or 480Mbps transparent on a dedicated link) and USB 3.0;
 - analogue audio (bi-directional or balanced);
 - digital audio (uni- or bi-directional);
 - serial data (RS-232 or RS-422).
- Choose the cable media depending on your distance requirements:
 - CATx up to 40 m,
 - Multimode fibre up to 1000 m
 - Single-mode fibre up to 10 km.

The modular architecture of the DKM Extender series increases flexibility by allowing the main chassis to be located in a separate room or operation center. This reduces workspace clutter while eliminating unauthorized access or theft of critical CPU data. Workspace areas are improved with reduced noise and heat pollution associated with local computers and server systems. The receivers can be located up to 140 m away fusing CATx or up to 10 km using fiber optic connections.

All DKM extenders are compatible with DKM FX and DKM KXC matrix switches.

- Option for redundant data link or bandwidth aggregation.
- Chassis available with 2-, 4-, 6- or 21 slots.
- Various power options:
 - AC or DC;
 - AC with or without redundancy;
 - internal and or external power supply.
- Mounting options for 19" cabinets, tables and DINrails.



Distribution of Medical Imaging



Remote Control from the Control Room



Collaborated Broadcast Appliances



Remote Control in Process Automation

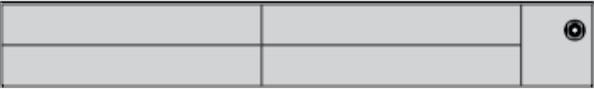
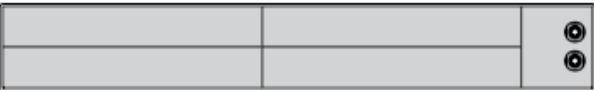
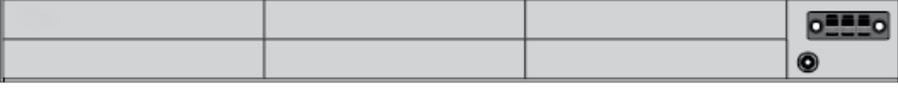


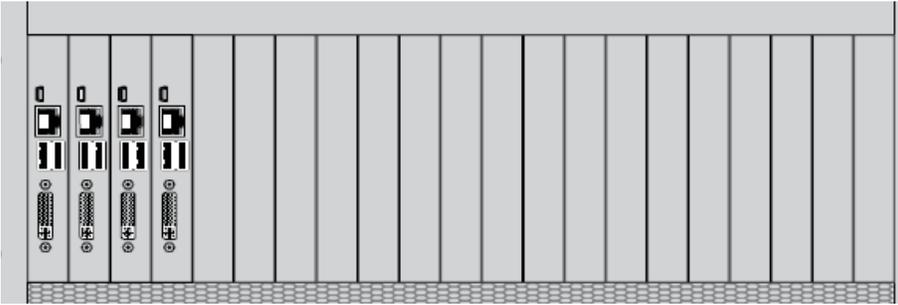
Post Production/graphic design on back-racked computers



Long distance connection between PC and console with different video interfaces.



Slots	Description	Item-Number
2-slots	Chassis for two modules, external power supply 	ACXMODH2-R2
	Chassis for two modules, external power supply, external redundancy option 	ACXMODH2R-R2
	Chassis for two modules, internal power supply, external redundancy option 	ACXMODH2R-P-R2
	Chassis for two modules, internal 12-, 24- or 48-VDC power supply, external redundancy option 	ACXMODH2R-P12 ACXMODH2R-P24 ACXMODH2R-P48
4-slots	Chassis for four modules, external power supply 	ACXMODH4-R2
	Chassis for four modules, external power supply, external redundancy option 	ACXMODH4R-R2
6-slots	Chassis for six modules, internal power supply, external redundancy option 	ACXMODH6R-R2
	Chassis for six modules, internal 12-, 24- or 48-VDC power supply, external redundancy option 	ACXMODH6R-P12 ACXMODH6R-P24 ACXMODH6R-P48
	Chassis for six modules, two internal power supplies back side, hot-swappable modules 	ACXMODH6BPAC-R2
	Chassis for six modules, two internal power supplies front side, hot-swappable modules 	ACXMODH6FPAC-R2

Slots	Description	Item-Number
21-slots	Chassis for 21 modules, 19" 4U, internal power supply, redundancy option, hot-swappable modules 	ACXMODH21R

Accessories	Item-Number
Power Supplies for Redundancy Options	
2-Slot Chassis	ACXMODH2-PS
4-Slot Chassis	ACXMODH4-PS
6-Slot Chassis	ACXMODH6-PS
21-Slot Chassis	ACXMODH21-PS
Mounting Options	
19" shelf für (3) 2-Slot or (1) 4-slot or (1) 6-slot chassis	ACXMODH-RMK
19" rack mounting ears for 2-slot chassis with external power supplies	ACXMODHEAR2
19" rack mounting ears for 2-slot chassis with internal power supplies	ACXMODHEAR2P
19" rack mounting ears for 4-slot chassis	ACXMODHEAR4
19" rack mounting ears for 6-slot chassis ACXMODH6R	ACXMODHEAR6-FPAC
Table- and wall mount kit fo 2-/4-slot chassis	ACXMODH-DMK
Table- and wall mount kit fo 6-slot chassis	ACXMODH-R2-TMK
Other	
Spare Fan for ACXMODH6FPAC-R2, ACXMODH6BPAC-R2	ACXMODH6FAN
SNMP-Module for 21-slot chassis as well as ACXMODH6BPAC-R2 and ACXMODH6FPAC-R2 (allows power monitoring and updates of the modules)	ACXMODH21-SNMP
Blind plate for empty slots (one included with each chassis)	ACXMODH21-4S



Select one chassis equipped with transmitter modules at your computer end and one chassis equipped with receiver modules for your remote console.

Basic Link Modules

Each chassis must be equipped with at least one Basic Link Module. These modules provide a video port and two USB HID ports as well as the cable connection to the remote end. Choose from multiple versions with

- CATx or fibre connections
- DVI-, HDMI or DisplayPort video
- Standard bandwidth of 1 Gbps or high-speed fiber at 2.5 Gbps
- Single or redundant link connections

Use a 2.5 Gbps high-speed module for demanding video applications. The basic link modules with redundancy offer two link connections. Use these modules to establish backup channels or to split a video channel for two users.

Mix and match the basic link modules according to your needs. You can even combine different digital video format at the transmitter and receiver.



DVI Modules

Resolutions up to 2048 x 1152 for Single DVI, or up to 2560 x 1600 (2x 2K) for Dual Link DVI,

CATx up to 140m	Transmitter	Receiver
(1) Single Link DVI & (2) USB HID	ACX1MT-DHID-C	ACX1MR-DHID-C
(2) Single Link DVI & (2) USB HID	ACX2MT-DHH-C	ACX2MR-DHH-C
(1) Dual Link DVI & (2) USB HID	ACX2MT-DLH-C	ACX2MR-DLH-C
(1) Single Link DVI & (2) USB HID with redundant links	ACX1MT-DHID-2C	ACX1MR-DHID-2C
(2) Single Link DVI & (2) USB HID with redundant links	ACX1MT-DHH-2C	ACX1MR-DHH-2C
(1) Dual Link DVI & (2) USB HID with redundant links	ACX1MT-DLH-2C	ACX1MR-DLH-2C
Fibre: Multimode up to 1km, Single-mode up to 10km, 1 Gbps bandwidth		
1) Single Link DVI & (2) USB HID	ACX1MT-DHID-SM	ACX1MR-DHID-SM
(2) Single Link DVI & (2) USB HID	ACX2MT-DHH-SM	ACX2MR-DHH-SM
(1) Dual Link DVI & (2) USB HID	ACX2MT-DLH-SM	ACX2MR-DLH-SM
(1) Single Link DVI & (2) USB HID with redundant links	ACX1MT-DHID-2S	ACX1MR-DHID-2S
(2) Single Link DVI & (2) USB HID with redundant links	ACX1MT-DHH-2S	ACX1MR-DHH-2S
(1) Dual Link DVI & (2) USB HID with redundant links	ACX1MT-DLH-2S	ACX1MR-DLH-2S
Fibre: Multimode up to 1km, Single-mode up to 10km, high-speed 2.5 Gbps bandwidth		
(1) Single Link DVI & (2) USB HID	ACX1MT-DHS-SM	ACX1MR-DHS-SM
(2) Single Link DVI & (2) USB HID	ACX1MT-DHHS-SM	ACX1MR-DHHS-SM
(1) Dual Link DVI & (2) USB HID	ACX1MT-DLHS-SM	ACX1MR-DLHS-SM
(1) Single Link DVI & (2) USB HID with redundant links	ACX1MT-DHS-2S	ACX1MR-DHS-2S
(2) Single Link DVI & (2) USB HID with redundant links	ACX1MT-DHHS-2S	ACX1MR-DHHS-2S
(1) Dual Link DVI & (2) USB HID with redundant links	ACX1MT-DLHS-2S	ACX1MR-DLHS-2S

HDMI Modules

Resolutions up to 1080p

CATx up to 140m	Transmitter	Receiver
(1) HDMI video only	ACX1MT-HDO-C	AC1M1MR-HDO-C
(1) HDMI & (2) USB HID	ACX1MT-HDMI-C	ACX1MR-HDMI-C
(1) HDMI & (2) USB HID, with local access	ACX1MT-HDM2-C	ACX1MR-HDMI-C
(1) HDMI & (2) USB HID with integrated 2-port KVM switch	ACX1MT-HDMI-C	ACX1MR-HDSW-C
(1) HDMI & (2) USB HID with link redundancy	ACX1MT-HDMI-2C	ACX1MR-HDMI-2C
(1) HDMI & (2) USB HID, with local access and link redundancy	ACX1MT-HDM2-2C	ACX1MR-HDMI-2C
(1) HDMI & (2) USB HID with integrated 2-port KVM switch and link redundancy	ACX1MT-HDMI-2C	ACX1MR-HDSW-2C
Fibre: Multimode up to 1km, Single-mode up to 10km, 1 Gbps bandwidth		
(1) HDMI video only	ACX1MT-HDO-SM	ACX1MR-HDO-SM
(1) HDMI & (2) USB HID	ACX1MT-HDMI-SM	ACX1MR-HDMI-SM
(1) HDMI & (2) USB HID, with local access	ACX1MT-HDM2-SM	ACX1MR-HDM2-SM
(1) HDMI & (2) USB HID with integrated 2-port KVM switch	ACX1MT-HDMI-SM	ACX1MR-HDSW-SM
(1) HDMI & (2) USB HID with link redundancy	ACX1MT-HDMI-2S	ACX1MR-HDMI-2S
(1) HDMI & (2) USB HID, with local access and link redundancy	ACX1MT-HDM2-2S	ACX1MR-HDM2-2S
(1) HDMI & (2) USB HID with integrated 2-port KVM switch and link redundancy	ACX1MT-HDMI-2S	ACX1MR-HDSW-2S



ACX1MT-DHID-2S



ACX1MR-HDMI-C

DisplayPort Modules

Resolutions up to 4K/60Hz

CATx up to 140m	Transmitter	Receiver
(1) DisplayPort 1.1 4K/30Hz & (2) USB HID	ACX2MT-DPH-C	ACX2MR-DPH-C
(1) DisplayPort 1.1 4K/30Hz & (2) USB HID with Link redundancy	ACX2MT-DPH-2C	ACX2MR-DPH-2C
Fibre: Multimode up to 1km, Single-mode up to 10km, 1 Gbps bandwidth		
(1) DisplayPort 1.1 4K/30Hz & (2) USB HID	ACX2MT-DPH-SM	ACX2MR-DPH-SM
(1) DisplayPort 1.1 4K/30Hz & (2) USB HID with Link redundancy	ACX2MT-DPH-2S	ACX2MR-DPH-2S
Fibre: Multimode up to 1km, Single-mode up to 10km, high-speed 2.5 Gbps		
(1) DisplayPort 1.1 4K/30Hz & (2) USB HID	ACX2MT-DPHS-SM	ACX2MR-DPHS-SM
(1) DisplayPort 1.1 4K/30Hz & (2) USB HID with Link redundancy	ACX2MT-DPHS-2S	ACX2MR-DPHS-2S
(1) DisplayPort 1.2 4K/60Hz & (2) USB HID	ACX2MT-DP4KHS-SM	ACX2MR-DP4KHS-SM
(1) DisplayPort 1.2 4K/60Hz & (2) USB HID with Link redundancy	ACX2MT-DP4KHS-2S	ACX2MR-DP4KHS-2S



ACX1MT-VDHID-SM



ACX2MR-DPH-SM

DVI-I Modules

Resolutions up to 1920x1200

CATx up to 140m	Transmitter	Receiver
(1) VGA or (1) DVI-D & (2) USB HID	ACX1MT-VDHID-C	ACX1MR-DHID-C
(1) VGA or (1) DVI-D & (2) USB HID with link redundancy	ACX1MT-VDHID-2C	ACX1MR-DHID-2C
Fibre: Multimode up to 1km, Single-mode up to 10km, 1 Gbps bandwidth		
(1) VGA or (1) DVI-D & (2) USB HID	ACX1MT-VDHID-SM	ACX1MR-DHID-SM
(1) VGA or (1) DVI-D & (2) USB HID with link redundancy	ACX1MT-VDHID-2S	ACX1MR-DHID-2S
Fibre: Multimode up to 1km, Single-mode up to 10km, high-speed 2.5 Gbps		
(1) VGA or (1) DVI-D & (2) USB HID	ACX1MT-VDHS-SM	ACX1MR-DHS-SM

Upgrade Modules

Add further peripherals via the Upgrade Modules. The Upgrade Modules carry their signals over the cable connections provided by the Basic Link Modules to save on infrastructure needs. They offer a large variety of peripheral interfaces like USB HID, PS/2, embedded USB 2.0 at 36 Mbps, serial RS-232 or RS-422 data, bidirectional analog audio, balanced audio and uni- or-bidirectional digital audio. If you need to extend high-speed USB 2.0 devices like Wacom tablets use the transparent USB 2.0 module providing speeds up to 480 Mbps. However this module requires on exception an additional link cable. Also USB 3.0 extensions are possible.

Converter Modules for Analogue Video Inputs

Require a Basic Link Module for operation	Transmitter	Receiver
VGA input / DVI-D Output (occupy 2-slots)	ACX1MT-VGA	N/A
RGB input / DVI-D output (occupy 2-slots)	ACX1MT-RGB	N/A
SDI, VGA, component, composite input / DVI-D output (occupy 2-slots)	ACX1MT-SDI	N/A
VGA, EGA, CGA, analogue video input / DVI-D output (occupy 2-slots)	ACX1MT-EGA	N/A



ACX1MR-U2-C



Converter Modules built-in 2-port chassis

High-speed USB

Provides data rates up to 480 Mbps, require dedicated cable links

CATx up to 140m	Transmitter	Receiver
(4) USB 2.0 transparent	ACX1MT-U23-C	ACX1MR-U23-C
Fibre: Multimode up to 1km, Single-mode up to 10km		
(4) USB 2.0 transparent	ACX1MT-U23-SM	ACX1MR-U23-SM

* Please call our Tech Support Centre for USB 3.0 extensions.

USB HID, USB 2.0 embedded and serial interfaces

Work only in combination with a Basic Link Module, require no separate cable link

	Transmitter	Receiver
(2) USB HID	ACX1MT-HID	ACX1MR-HID
(2) embedded USB 2.0 with 36 Mbps	ACX1MT-EU	ACX1MR-EU
Bi-directional analogue audio & RS-232	ACX1MT-AR	ACX1MR-AR
Bi-directional analogue audio, uni-directional digital audio & RS-232	ACX1MT-ARD	ACX1MR-ARD
Bi-directional analogue audio, (2) USB HID & RS-232	ACX1MT-ARH	ACX1MR-ARH
Bi-directional analogue audio, (2) USB 2.0 (36 Mbps) & RS-232	ACX1MT-ARE	ACX1MR-ARE
Bi-directional analogue audio, (2) PS/2 & RS-232	ACX1MT-ARP	ACX1MR-ARP
Balanced audio	ACX1MT-BA	ACX1MR-BA
Uni-directional digital audio	ACX1MT-DA	ACX1MR-DA
Uni-directional digital audio & (2) USB HID	ACX1MT-DAH	ACX1MR-DAH
Bi-directional digital audio	ACX1MT-DAX	ACX1MR-DAX
Bi-directional digital audio & (2) USB 2.0 (36 Mbps)	ACX1MT-DAE	ACX1MR-DAE
RS-422	ACX1MT-422	ACX1MR-422
OSD Push-Button (calls OSD when keyboard is not available)	N/A	ACX1MR-CCO



ACX1MT-ARE



ACX1MR-EU



ACX1MR-DA

DKM FXC Switching Modules

Access up to eight computers from your remote console. Modules fit into all 6- and 21-port chassis.

The DKM FXC Switching Modules provide real space savings. These modules offer the full feature set of the DKM FXC Matrix Switches (ACXC8/ACXC8F/ACXC8U) but in a very compact design occupying only two slots in your DKM extender chassis. Build them into the transmitter housing to allow your remote user instant switching between up to eight computers.

DKM FXC Switch Modules	Transmitter	Receiver
8-port CATx (RJ-45)	ACXC8-M	N/A
8-port Fibre (support for Multimode and Single-mode)	ACXC8F-M	N/A
8-port Universal (empty SFP-Slots)	ACXC8U-M	N/A



ACXC8-M



ACXC8F-M

DKM Repeater Modules

Double the cable length via CATx or fibre.

The installation of repeaters at intervals within a signal path doubles the distance the signal can be transmitted via CATx or fibre cable. The DKM Cross Repeater also incorporates cross-conversion between CATx- and fibre-cables. Signals available on a CATx network may be converted to fibre for transmission and converted back to CATx at the receiver (or vice-versa). This is useful in bridging buildings with copper-based networks that are located some distance apart.

The DKM Repeater series features bi-directional data ports: CATx and fibre ports are automatically configured as input or output according to the connected devices. No additional set-up is required.



Repeater	Item-Number
Single CATx Repeater, max. 1x 140m per CATx link	ACX1M-CC
Dual CATx Repeater, max. 2x 140m per CATx link	ACX1M-2C2C
Single Fibre Repeater, max. 1x 10km per fibre link	ACX1M-SS
Dual Fibre Repeater, max. 2x 10km per fibre link	ACX1M-2S2S
Cross Repeater	
Single CATx/Fibre Repeater, 1x CATx up to 140m, fibre up to 10 km	ACX1M-CS
Dual CATx/Fibre Repeater, 2x CATx up to 140m, fibre up to 10 km	ACX1M-2C2S

Modular DKM Extender Configurator

Configure a KVM Extender to your needs online.

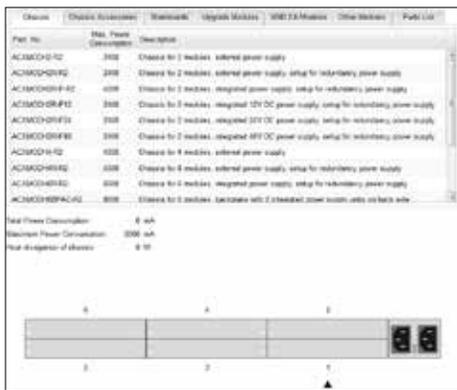
Black Box offers an online configurator for all Modular DKM Extender components. Check out our website at:

www.black-box.eu/DKMExtenderConfigurator

Choose the required chassis, equip it with your required modules and simulate your fully loaded extender. The configurator shows the populated chassis and supplies a complete part list. Save the result and use it for a quote request. Attach it also to your order to ensure that every module is assembled according to your needs.

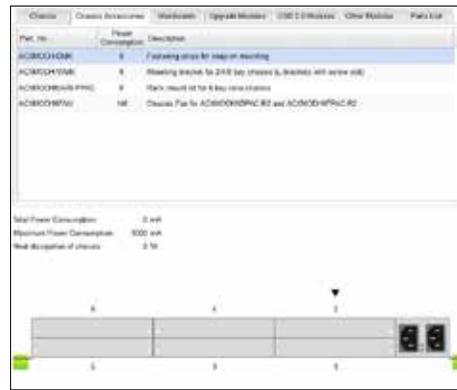
Step 1

Choose a chassis.



Step 2

Select the chassis accessories.



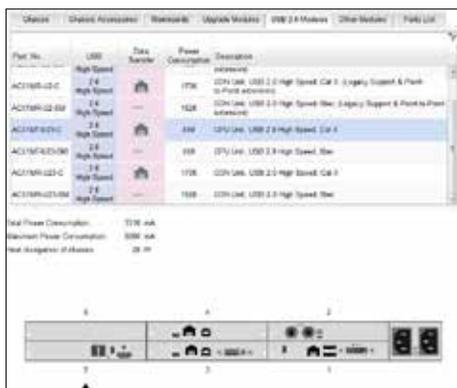
Step 3

Select the Basic Link Module(s).



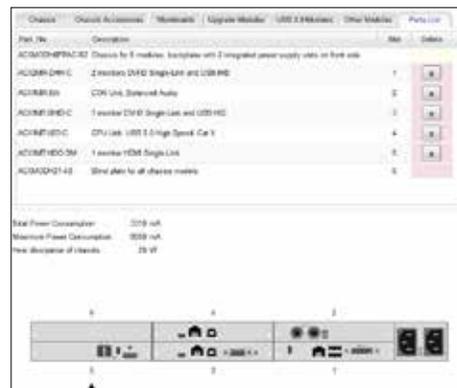
Step 4

Select the Upgrade Module(s)



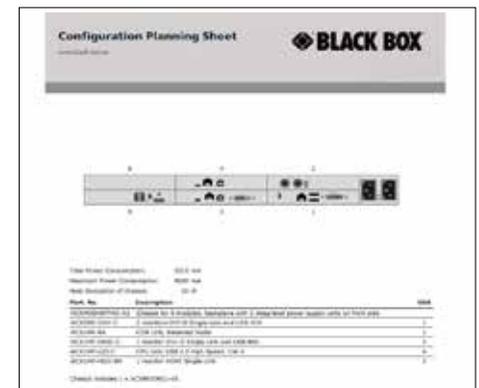
Step 5

Check the part list and export it as a CSV file for reference or direct order placement.



Step 6

Save or print the final configuration file



Tech Support Centre - Centre of Expertise

Finding your solution

Supplying high-end solutions for signal extension and switching, Black Box has been serving over 175,000 customers worldwide since 1976. Our customers appreciate our high standards regarding the quality of our products, our operational excellence and first and above all our highly qualified, free-of-charge Tech Support.

Technical Support: instantly and across Europe

Our specially trained Application Engineers will help you find answers to all of your questions regarding KVM-, AV- and Networking projects:

- Project- support: Selecting solutions and products that meet your IT requirements.
- Application assistance: Efficiently combining and integrating IT-systems and -components.
- Product support: Technical questions, troubleshooting, updates and upgrades.



Centre of Expertise: well-advised

Our new Centre of Expertise (CoE) is an integral component of the Black Box Tech Support Centre.

The CoE supports you in every phase of your project in terms of optimum integration, individual configurations, professional implementation, high available systems and future-proof investment. And best of all: this service is completely free of charge.

Rely on the Centre of Expertise and make our expertise your capital.



Support via telephone, online or on-site

- Call our experienced Application Engineers to get detailed answers to all your product- and solution-related questions.
- Or try our **online chat**: talk to a team member directly for quick and easy answers to your questions.
- Would you like an **on-site** live demonstration of our systems or a status analysis for your project? We're looking forward to meeting you evaluating your needs and showcasing our solutions.
- Visit our **Training Centres** at Germany, United Kingdom, Denmark or Belgium and take a virtual dive into our solutions. Get a feel for our products and experience the operation, management, quality and user-friendliness of our systems.

