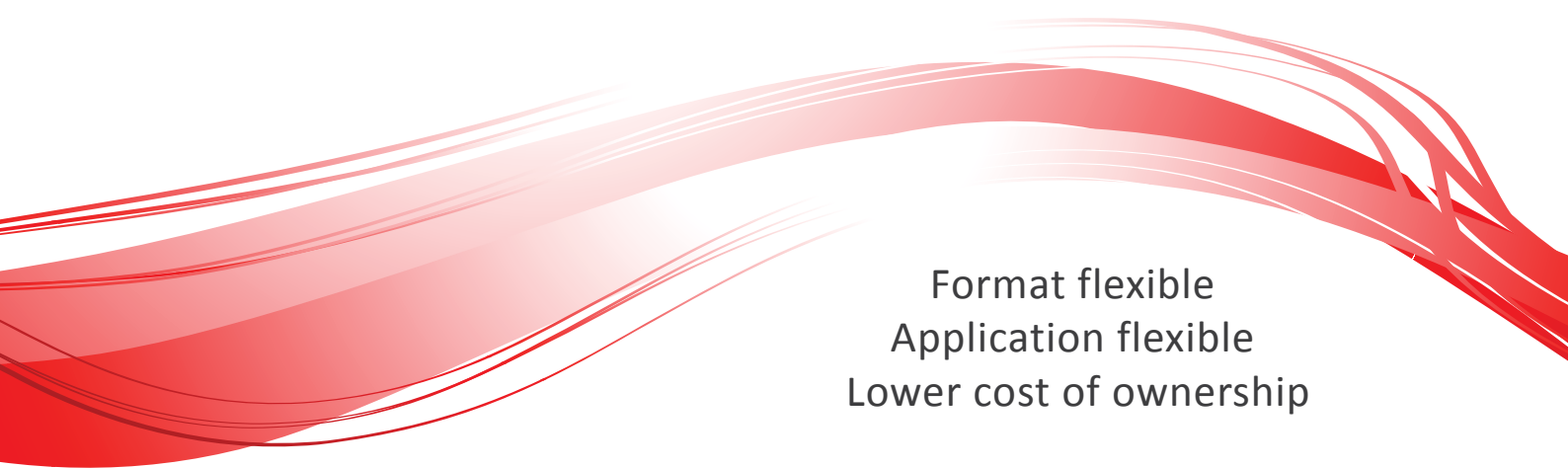


Quick Start guide MiniHUB System

A decorative graphic consisting of several overlapping, wavy red lines that sweep across the lower half of the page.

Format flexible
Application flexible
Lower cost of ownership

giving value...

Easy Start guide

miniHUB Frame

The miniHUB frame uses the latest manufacturing and design technology plus a dash of innovative thinking to give the user a positive experience.

We would like to give you a brief run through on important facts and features that you should know before letting you loose on the miniHUB product.

The OUTSIDE of the frame

1. The front door on the miniHUB frames is a **"PUSH TO RELEASE"** mechanism. Please **do not** place excessive force by "PULLING" the door away from the unit. A gentle and even push from both sides of the frame towards the rear of the unit will release the door, you should hear a click sound when this is activated. The door is held in by side rails and will drop away from the miniHUB frame but stay attached. The door can be removed totally if required by pressing the left and right rails towards the center of the frame while holding the door up and pulling gently forward. Closing the door is identical to opening the door, "PUSH TO CLOSE"
2. PLEASE observe all ESD precautions when handling this unit and the electronics inside.
3. The miniHUB frame is supply with one external supply, a second supply can be purchased to provide full redundancy for mission critical applications. Norwia have designed the miniHUB system with a single supply voltage (+24 Vdc), but it is possible to use any DC supply's that can delivery between +12Vdc (60w) to +24Vdc. Mixed supplies can be used, ie, Battery or Mains driven supplies at the same time! These are hot swappable if a supply should fail.
4. The SYNC input will provide timing data to all cards in the system as long as all signals are of equal standard.

The INSIDE of the frame

1. The miniHUB frame will hold 4 cards such as the OC-4B-SDI and has room for two passive devices such as 8 port CWDM modules or 2 if required for a larger CWDM system. There is also a range of WDM and Splitter Optics to choose from.
2. All frames are delivered with the RCONmini (Rack Controller) but the controller has limited function in a stand-a-lone mode. The RCONmini can be used later to provide SNMP functionality for control and monitoring and for custom applications, please contact Norwia directly.
3. The miniHUB has a specially designed card guide system called **"Click & Go"** this unique system allows for a positive locking of the card once inserted, without the use of screws, springs or handle only mechanisms. The card should be positioned between the slide rail while pushing slightly (1mm) to the right hand handle of the black card guide. Once the edge of the card is passed the point of the entry you can release this handle and then use the red handle to lock the unit into its correct position. Once the card is pressed into position you should hear a **"Click"** sound, this mean you are in position and can **"go"** onto your next task. To release use the red handle to open the card guide lock and slide the card towards you.
4. To release RCONmini, press the extended portion of the PCB slightly down so its notch clears the top cover of the miniHUB frame. With the PCB slightly down pull the unit towards you.



Auto SFP configuration



Just follow the examples contained in this manual to obtain the configurations you require. There are 2 basic rules when it comes to the Auto-configuration nature of the card. Use only Norwia authorized SFP's as these have gone through stringent quality control processes to deliver the best quality available.

Rule 1

The SFP will decide the configuration of the unit in NON-controller mode

Rule 2

Choose the appropriate DIP Switch setting on the OC-4B-SDI, depending if you choose a Optical SFP function or a Format SFP function.

Optical SFP

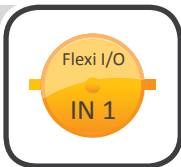
DIP 1	DIP 2		
OFF	OFF	L	Link mode
ON	OFF	D	Distribution mode
OFF	ON	ADP	Add/Drop/Pass
ON	ON		Reserved for future use

Format SFP

DIP 1	DIP 2		
OFF	n/a	E	Ethernet, Link mode (BNC)
ON	n/a	E	Ethernet, Distribution mode (BNC)

So all you need to know is, What SFP you have and what position the DIP switch is in? THAT is EASY!

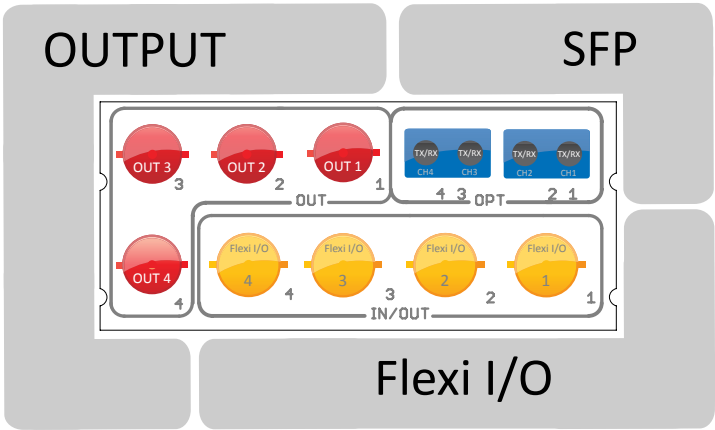
Flexi I/O Technology



Norwia has seen the need to give more flexibility in a reduced backplane layout, using Flexi I/O technology means our customers gain unprecedented flexibility from a single card solution.

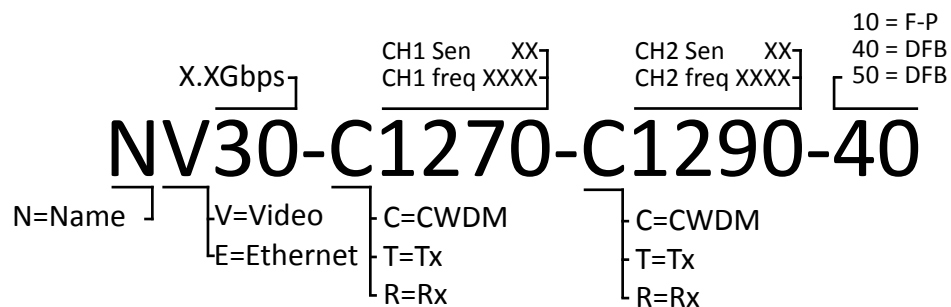
Four BNC on the backplane have Flexi I/O Technology, these are indicated by (IN/OUT) on the silk screen or the yellow BNC logo on the literature.

Blue logo's are an indication of Optical SFP's or Format SFP's.



Choosing the right SFP for your application

Norwia recommends that you survey the fiber infrastructure that you intent to use, the reason being is there can be many hidden factors that can hinder the distance obtainable. As we move to higher band-widths these factors are amplified. The specifications below give a good estimate but by no means eliminate the needs to perform certain checks when purchasing a fiber optic system.



Tx (1 or 2 channel)



Model	Output power	Laser type	Spectral line width
NV30-T1310-10	-5dBm (+5dB/0dB)	F-P	<3nm
NV30-T1310-T1310-10	-5dBm (+5dB/0dB)	F-P	<3nm
NV30-T1310-T1310-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)
NV30-T1550-T1550-50	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)

Tx (2 channel WDM)



Model	Output power	Laser type	Spectral line width
NV30-T1310-T1550-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)



Multi Channel Tx (CWDM)



Model	Output power	Laser type	Spectral Width
NV30-C1270-C1290-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)
NV30-C1310-C1330-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)
NV30-C1350-C1370-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)
NV30-C1390-C1410-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)
NV30-C1470-C1490-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)
NV30-C1510-C1530-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)
NV30-C1550-C1570-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)
NV30-C1590-C1610-40	0dBm (+3dB/-0dB)	DFB	<1nm (-20db)

Receivers



Model	Sensitivity	Laser type
NV30-R20	-20dBm	PIN
NV30-R20-R20	-20dBm	PIN
NV30-R28	-28dBm	APD

Transceivers



Model	Output power/ Sensitivity	Laser type	Spectral Width
NV30-T1310-R20-10	-5dBm (+5dB/0dB)/ -20dBm	PIN/F-P	<3 nm

Ethernet Gigabit



Model	Rate (bit/s)	Connector
ND12-GBE1000	1 Gbit/s	RJ45
ND12-T1310-R28-10	N/A	Optical Tranceiver



The optical transceiver (ND12-T1310-R28-10) will only work with the Gigabit Ethernet SFP (ND12-GBE1000) and not video application, but you can use Video tranceiver for use with the Gigabit Ethernet modules .



HDMI out



Model	Standard	Connector
NV30-HDMI-OUT	HDMI 1.4 Type D	hdmi-d (micro)

Analog video



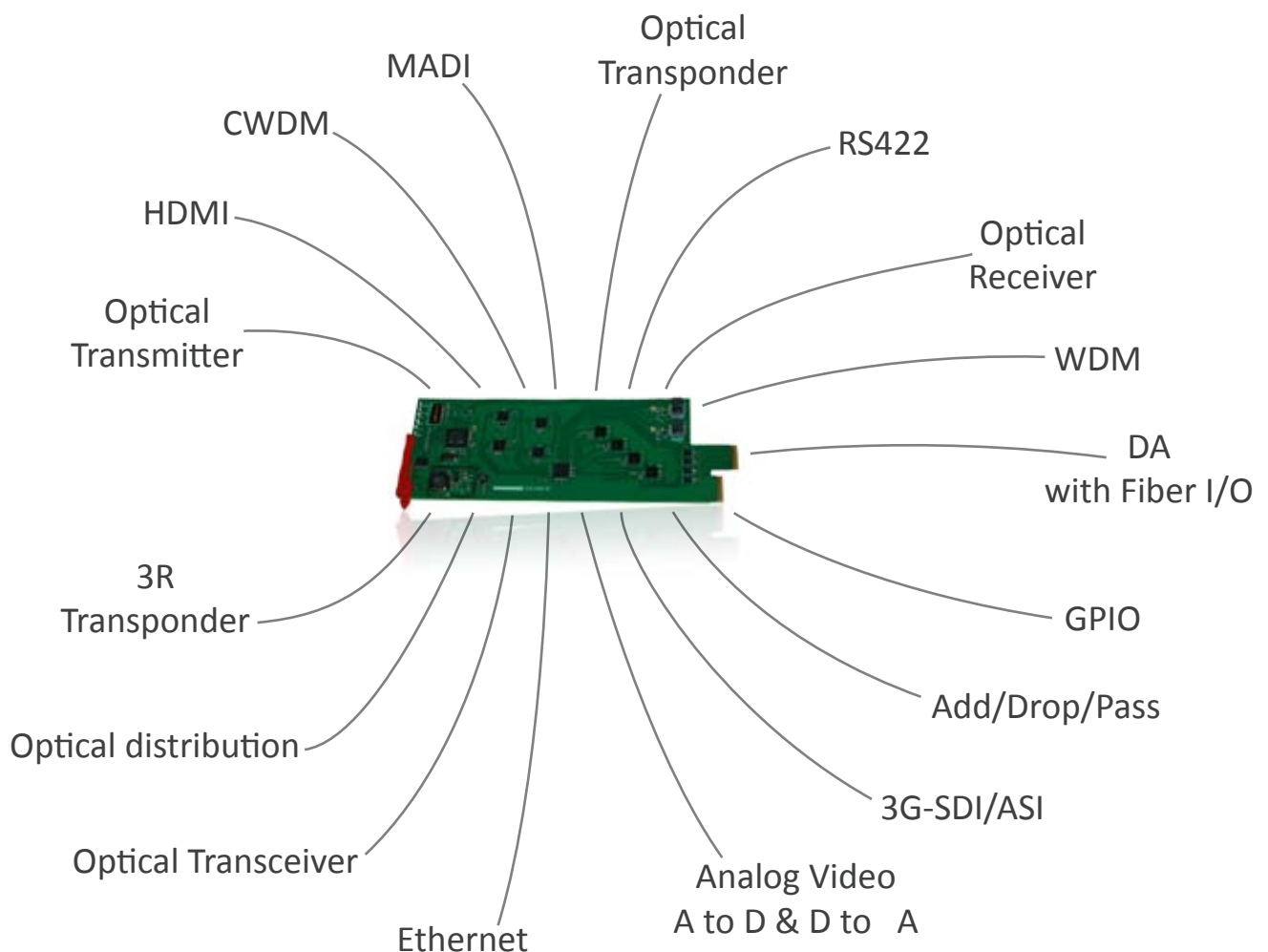
Model	Standard	Connector
NV03-COMP-2-IN	10-bit composite to SD-SDI video convertor	HD-BNC
NV03-COMP-2-OUT	SD-SDI to 10-bit Composite video	HD-BNC

A limited amount of SFP's are listed in this guide . The guide aims at giving a broad approach to what the miniHUB product can perform and not all varieties of SFP's are listed in this short form brochure. Please consult your local representative of Norwia or products or the OC-4B-SDI user manual.

RS422 and GPIO



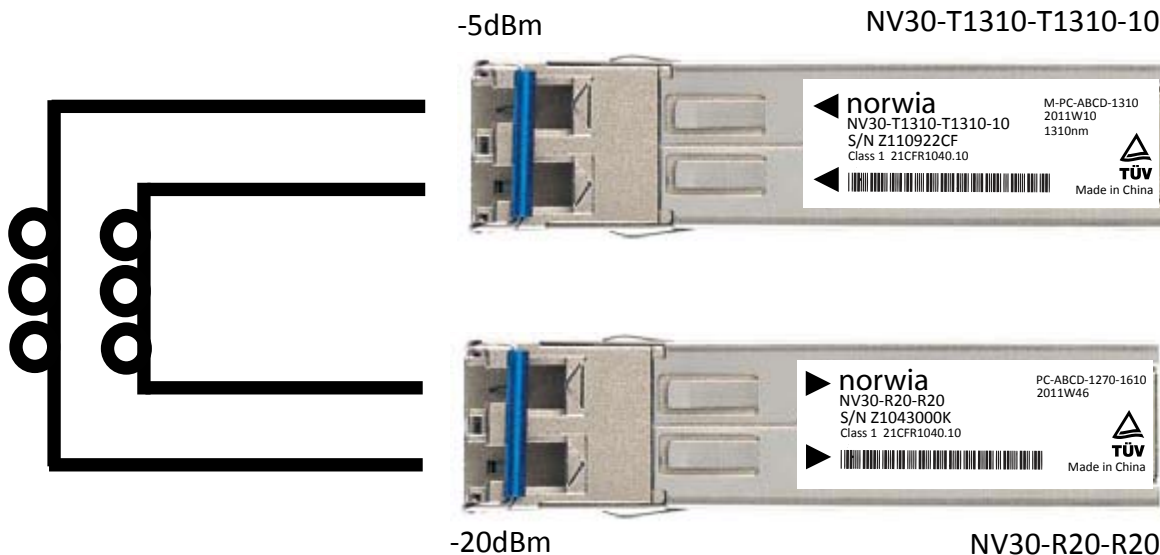
The miniHUB system can allow for RS422 fiber distribution and GPI and GPO functionality onto fiber. The EX-8B-422 extension board allow these signals to be bundled onto a transceiver optical pair. Please consult you Norwia representative or check online at www.norwia.no



Short to Medium Haul

up to 20km 3G-SDI

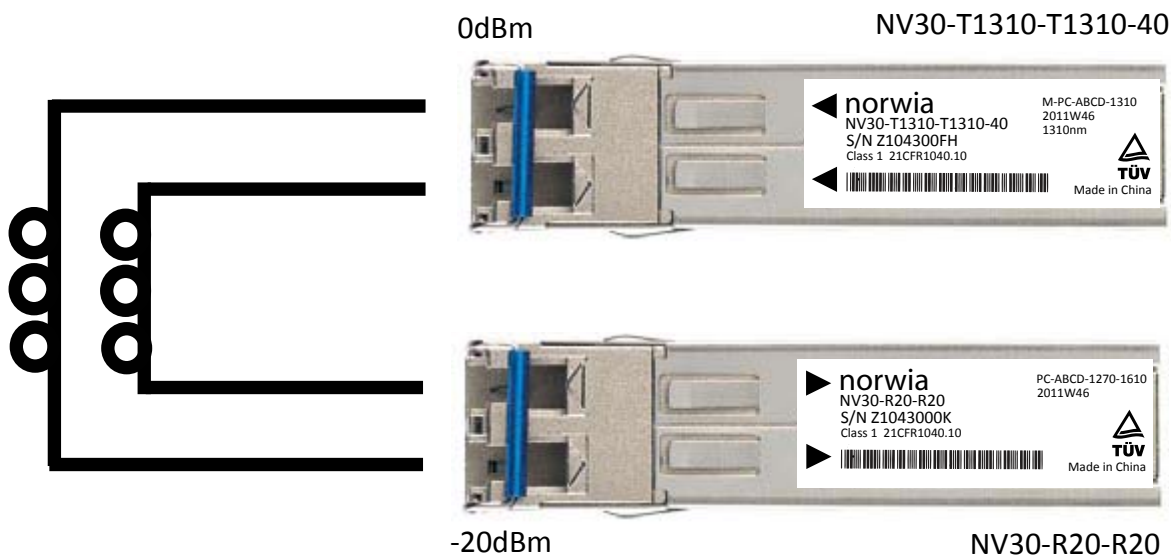
up to 35km HD-SDI



Medium to Long Haul

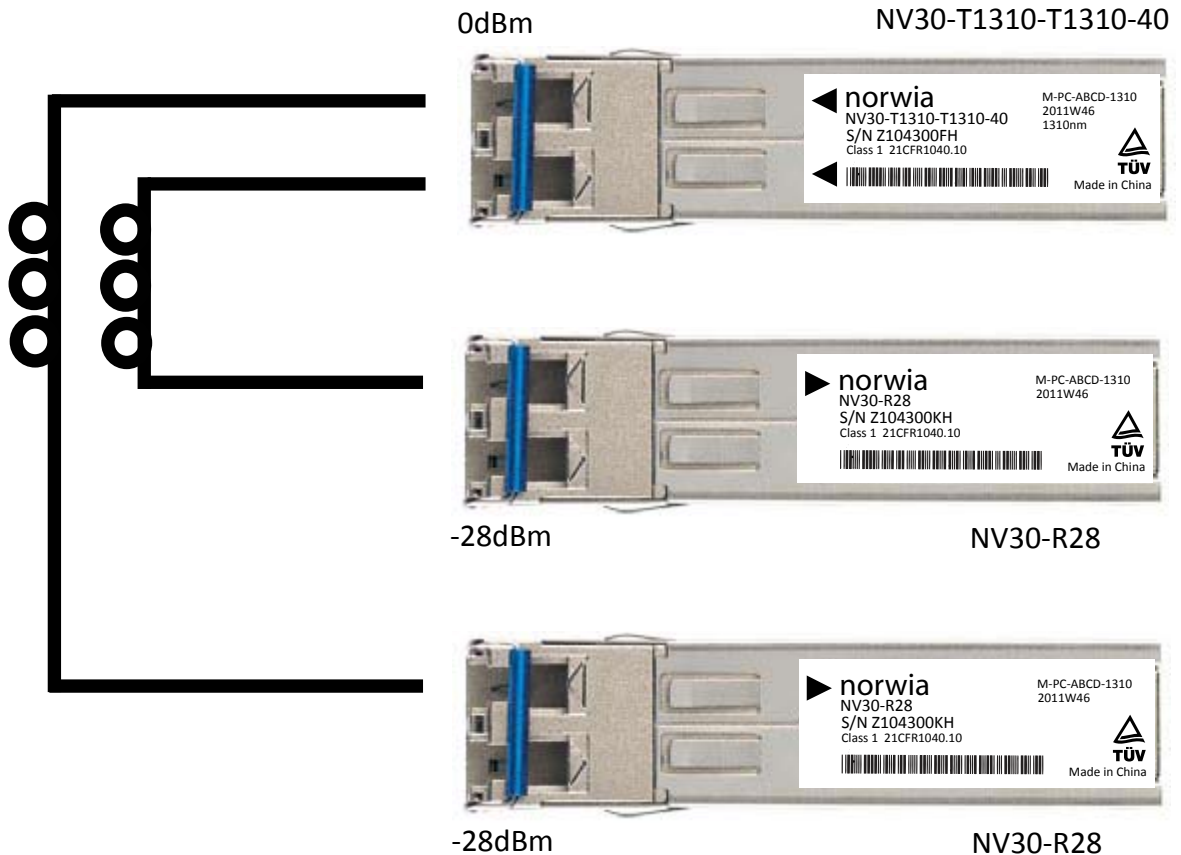
over 20km 3G-SDI*

over 35km HD-SDI*



over 20km 3G-SDI*

over 35km HD-SDI*



*System calculation depend on fiber type, Dispersion characteristics, Temperature, spiced connection, patch panels and connector attenuation.

Norwia has the experience and expertise in Fiber systems.

Please contact us or an authorized dealer of Norwia products to discuss how we can build your next generation optical distribution system. We can help you to design your long haul systems while giving you peace of mind that you will obtain a solid and robust optical distribution system. There are many hidden factors that could impede the continual operational security of your revenue providing content. Call the people with the knowledge today!

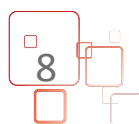
Outside broadcast systems

Inter-building connectivity

Add/drop/pass networks

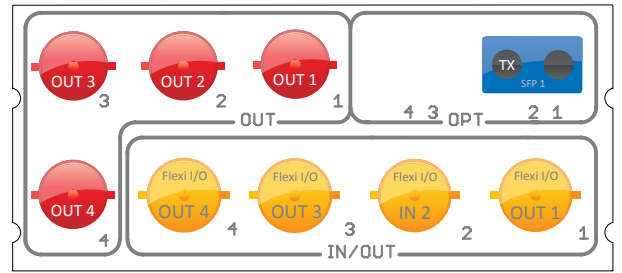
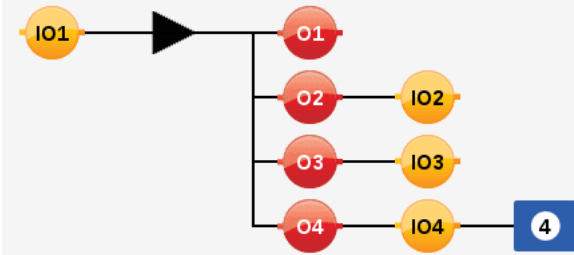
Galvanic isolation for TX towers and buildings

CWDM metro systems

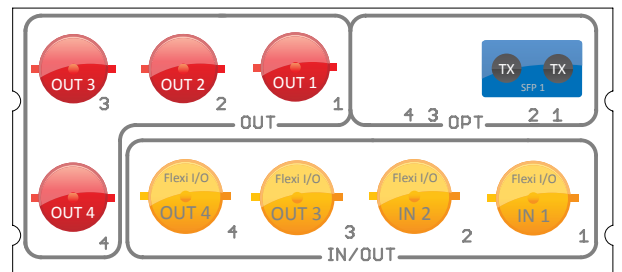
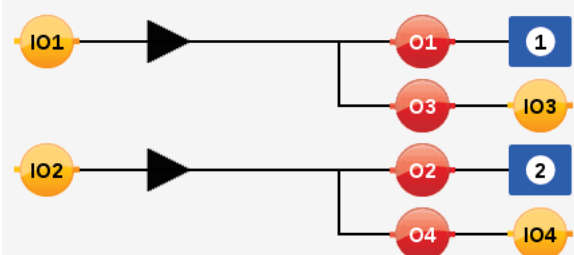


Transmit

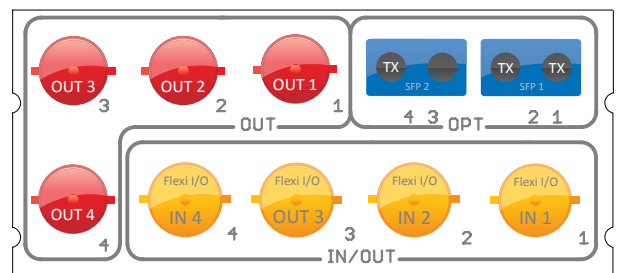
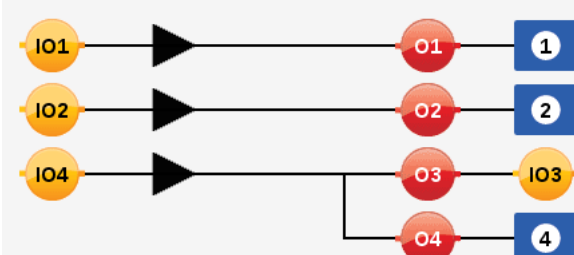
1 x Single TX SFP



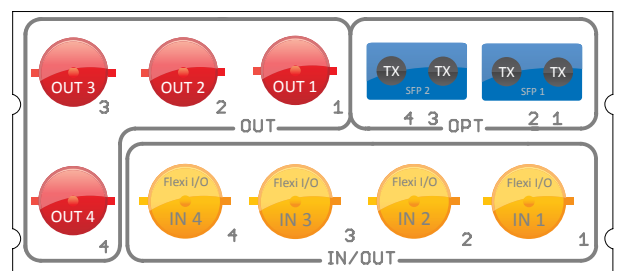
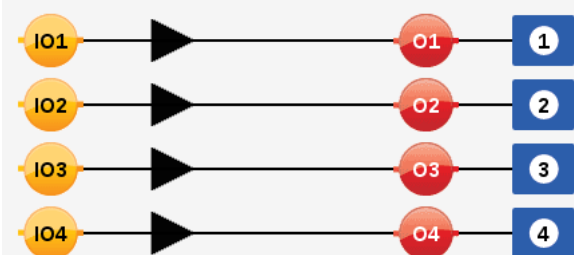
1 x Dual TX SFP



1 x Dual + 1 x Single TX SFP



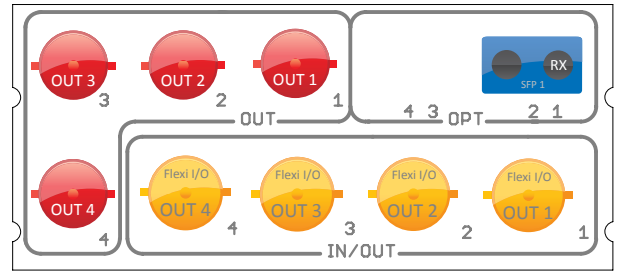
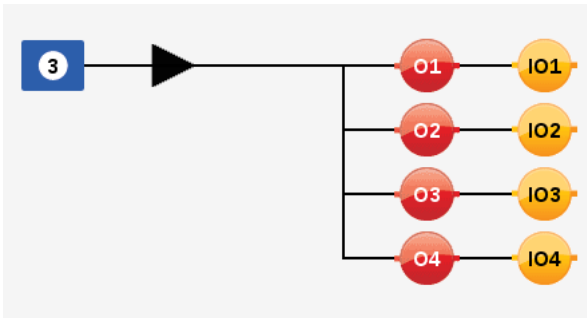
1 x Dual TX SFP



Receive

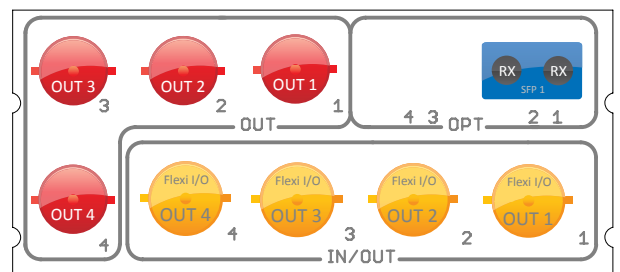
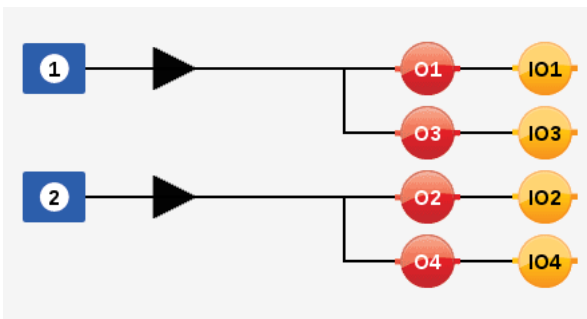
L

1 x Single RX SFP



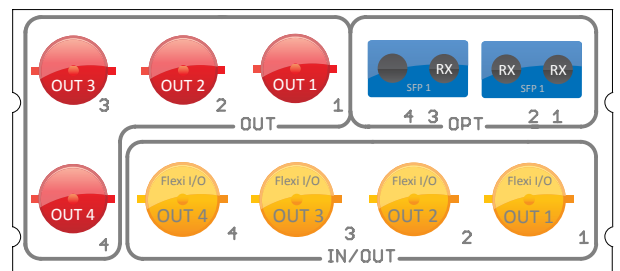
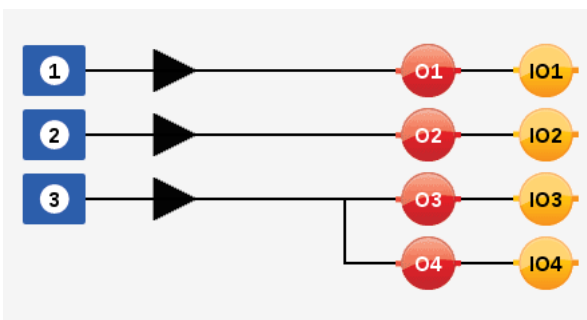
L

1 x Dual RX SFP



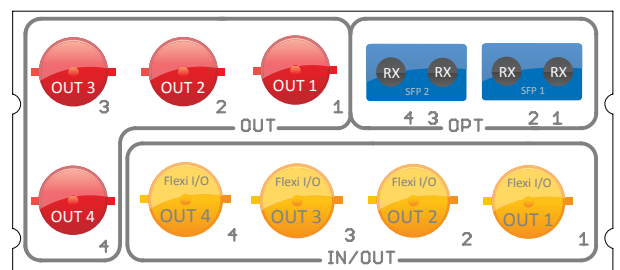
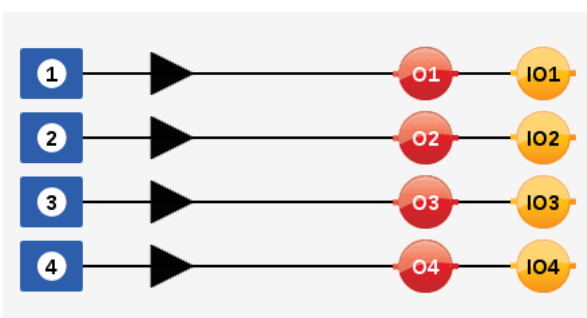
L

1 x Single + Dual RX SFP



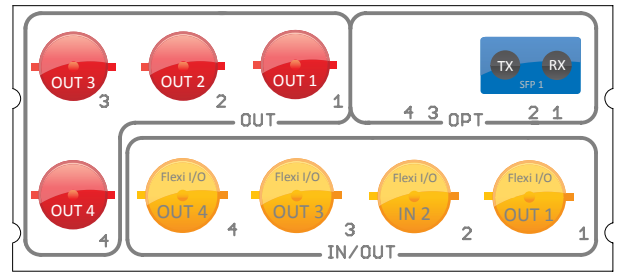
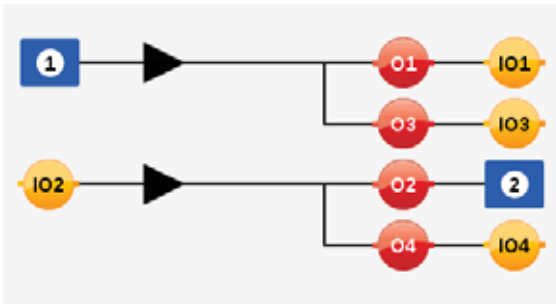
L

2 x Dual RX SFP

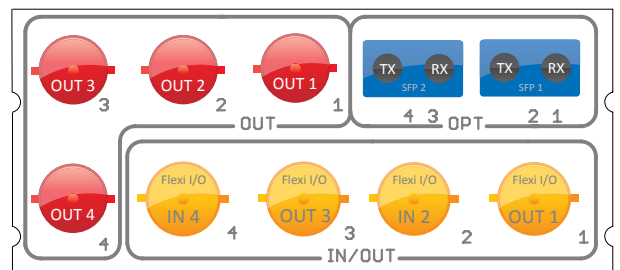
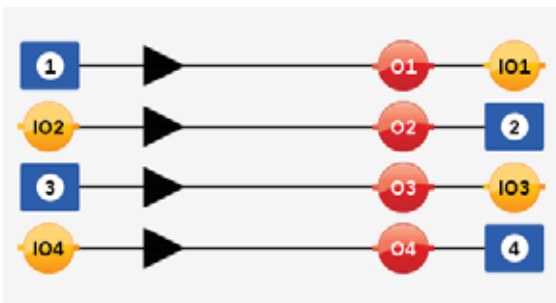


Transceiver

1 x Transceiver SFP

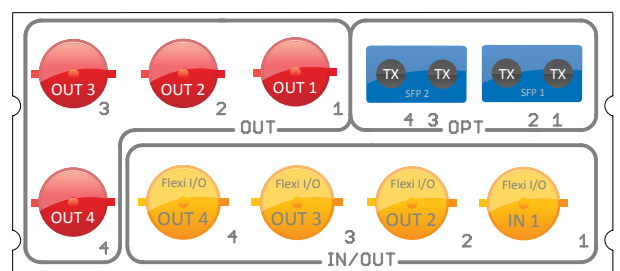
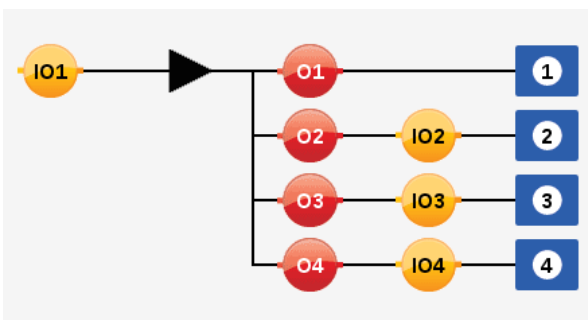


2 x Transceiver SFP



Optical distribution

2 x TX SFP

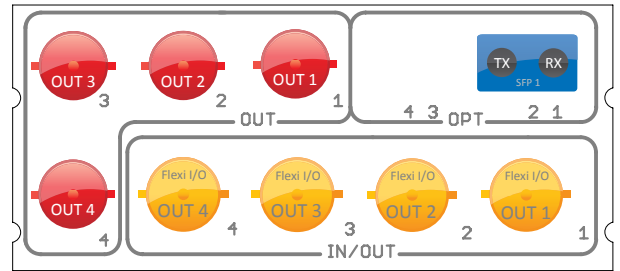
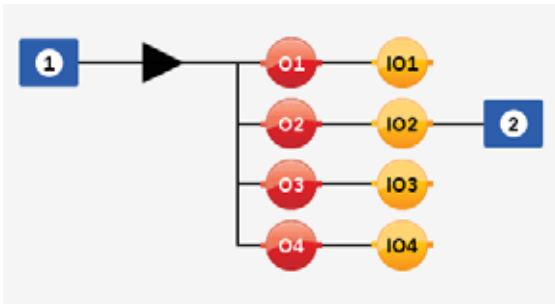


Format Flexible
Application Flexible
Lower cost of ownership

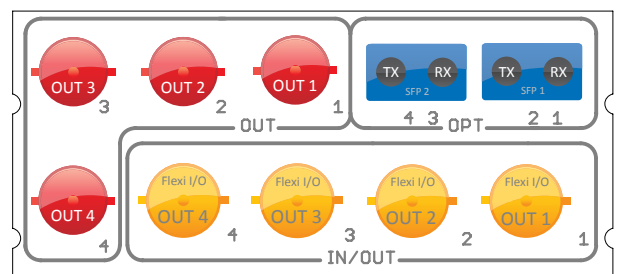
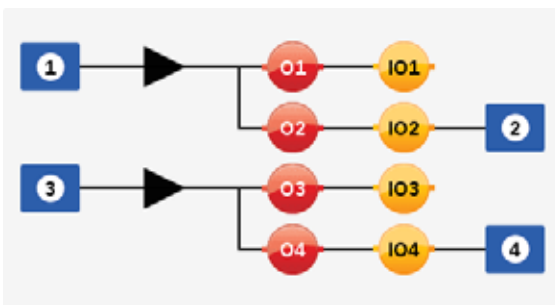


Transponder

D 1 x Transceiver SFP

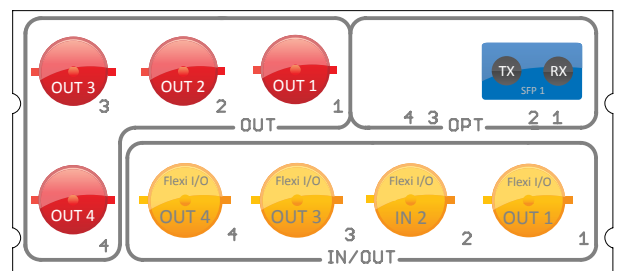
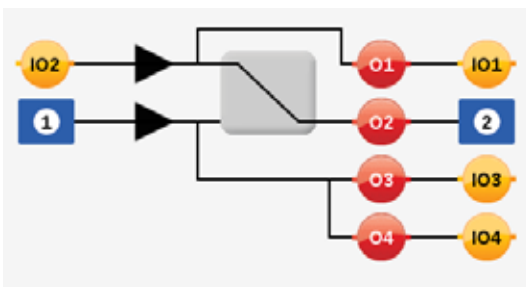


D 2 x Transceiver SFP



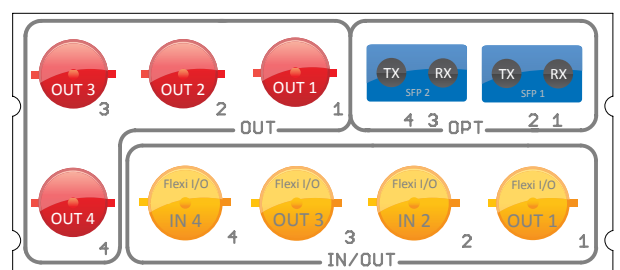
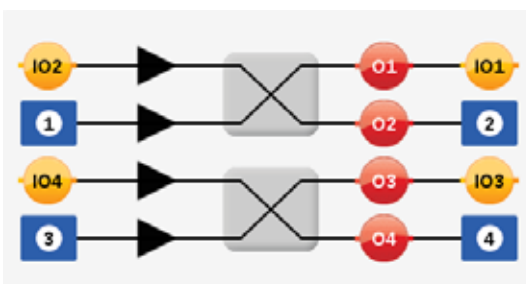
Intelligent Add/Drop/Pass

ADP 1 x Transceiver SFP



1 x Intelligent Add/Drop/Pass circuits

ADP 2 x Transceiver SFP

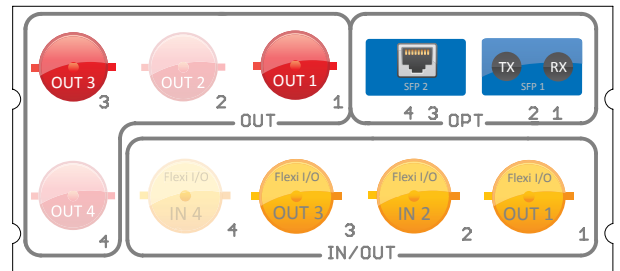
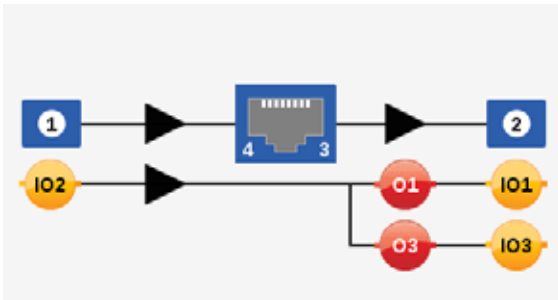


2 x Intelligent Add/Drop/Pass circuits

Ethernet

1 x Ethernet + 1 x transceiver

(E)

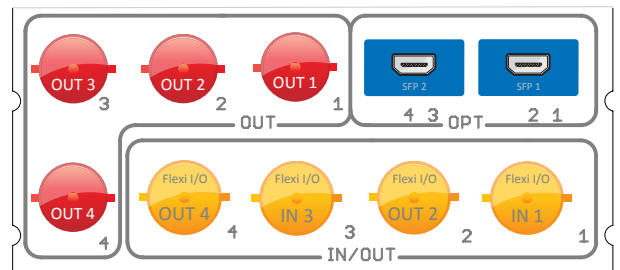
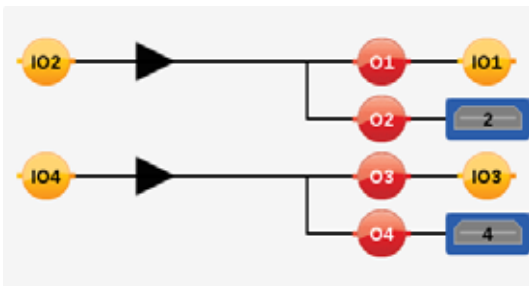


As the BNC connections are not used for the Ethernet functionality, they are programmed via DIP 1 & 2 to provide basic 3G-SDI functions. 3G-SDI reclocking and Distribution DA functions

HDMI

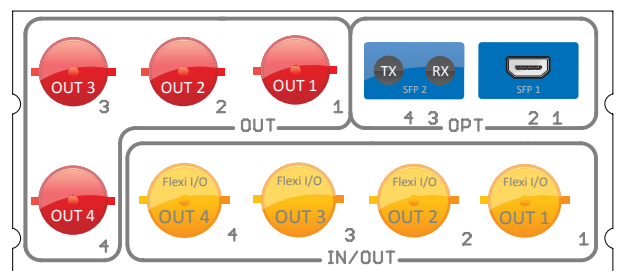
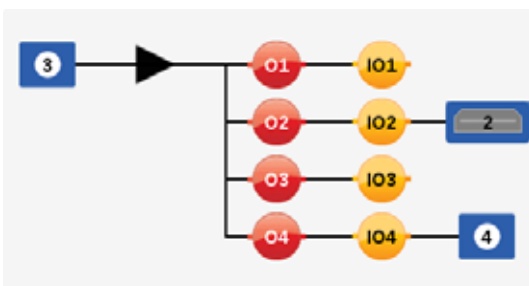
Dual SDI to HDMI with SDI DA

(L)



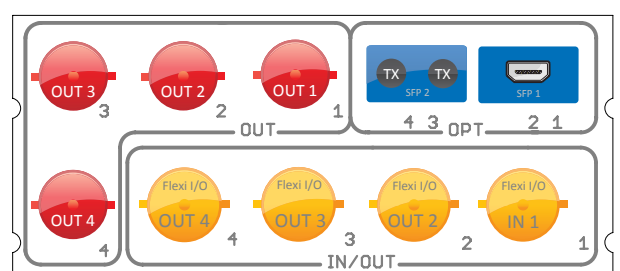
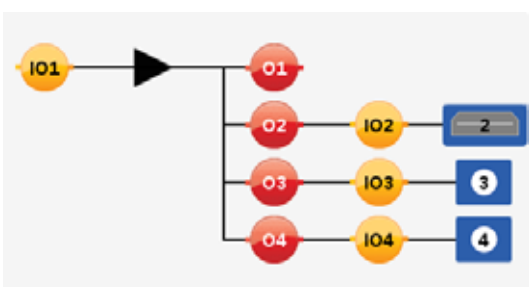
Optical transceiver with HDMI output and SDI DA

(D)



Optical transceiver with HDMI output and SDI DA

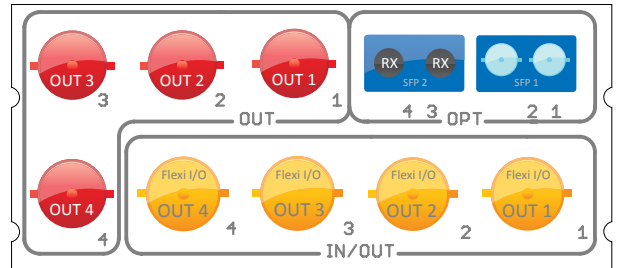
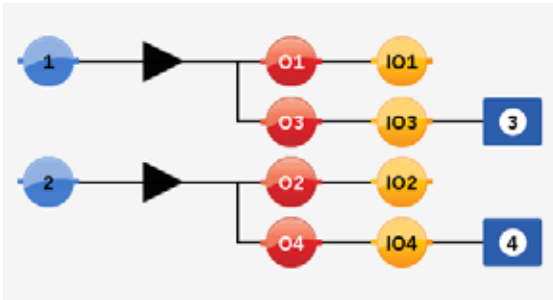
(D)



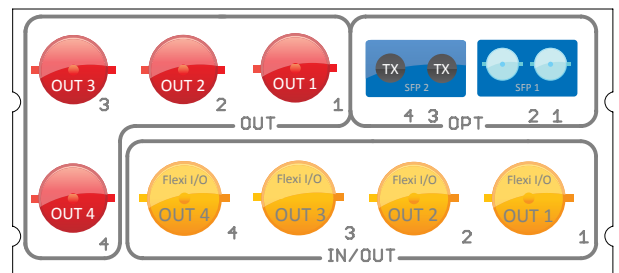
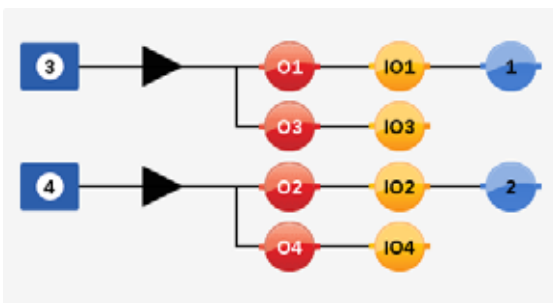
Analog Video



Dual Analog Video to Optical fiber with SDI conversion



Dual Optical fiber to SDI DA conversion with Analog Video output



For further information on other configurations please refer to the OC-4B-SDI manual.

Format flexible
Application flexible
Lower cost of ownership

Norwia is a fresh breath of air and unlike all other predecessors will bring innovation and cutting edge thinking to the broadcast optical distribution domain.

Competitive technology edge

Key industry personnel with the right stuff!

Better business philosophies

Customer centric ideologies

These are our core fundamental and together this forms the value statement, giving value!



Vision statement

Norwia will be the best for Optical Distribution products in the sense of technical innovation, value for investment and customer relations.

... giving value

Norwia as
P.O. Box 14
Sandefjord 3201
Norway

Norwia as
Kilgata 12
Sandefjord 3217
Norway

Sales
p. +47 33 45 20 90
e. info@norwia.no
w. norwia.no