Triax Multiband and Distribution Amplifiers for community networks

Flexibility from trunk line to subscriber in current to future networks

Simply more
- more simply

TRIAX

Powerful, reliable and easy to install HFA Distribution Amplifiers

With the HFA series of broadband distribution amplifiers, both the installer and the network operator obtain all the benefits of a quality product: Reliability and a long lifetime, quick installation, effective shielding and the option to use the network for all conceivable interactive services.

The high performance amplifiers are available in versions with different gain levels (22 dB, 30 dB and 40 dB). They all have adjustable gain, variable tilt (0-18 dB) and are available for both line and mains powering.

No plug-in modules are needed for the forward path

Triax' newly developed Automatic Link Pass (ALP) automatically establishes the forward signal ensuring a linear amplification in the entire 47-862 MHz range. No plug-in link modules are needed for forward path, only for the return path.

Passive or active return path - you decide when and how

When the return path is to be used, it is simply done by mounting Diplex plug-in modules on input and output. The type of module inserted determines, whether the return path range is 5-30 MHz, 5-55 MHz or 5-65 MHz, and whether it is passive or active. The return path is automatically established by the ALP function.

If you have chosen a return path range of 5-30 MHz and want to increase it to 5-55 MHz or 5-65 MHz you just exchange the two Diplex plug-in modules. The amplifier is the same and needs not to be replaced.

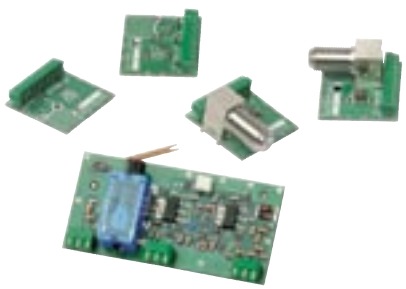
High performance and effective shielding

The amplifiers use push-pull technology, which ensures low distortion and a high output voltage. Input and outputs are efficiently transient protected up to 4 kV.

Few types cover it all

HFA amplifiers are available in 6 versions:

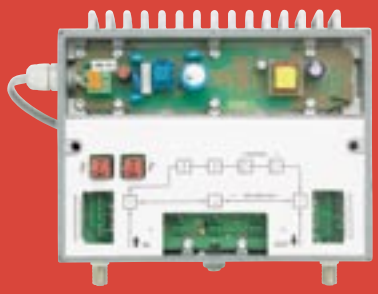
- 22 dB, mains or line powered
- 30 dB, mains or line powered
- 40 dB, mains or line powered

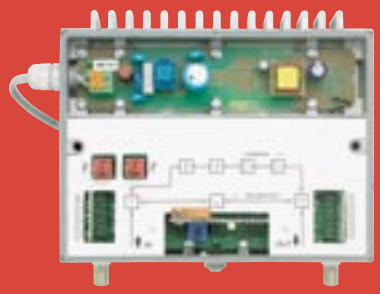


Diplex plug-in modules

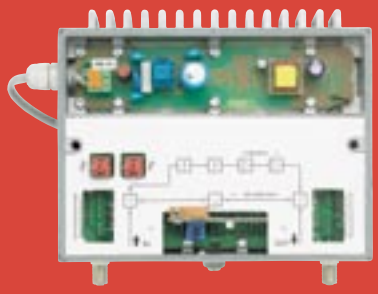
- with or without test point
- with a return path range of 5-30, 5-55 or 5-65 MHz

Active plug-in return path amplifier with 17 dB gain covering the whole return path frequency range at 5-65 MHz is also available.

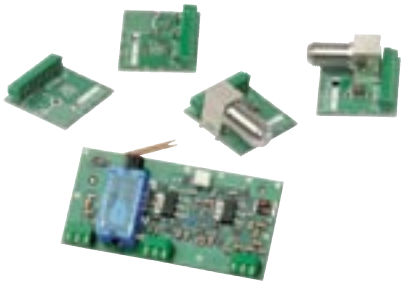




The passive return path is established by inserting two Diplex plug-in modules.



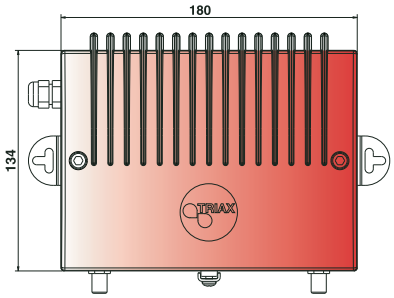
The active return path is quickly established, simply by inserting a plug-in return path amplifier. The active frequency range is determined by the Diplex modules.

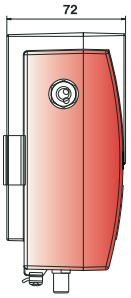


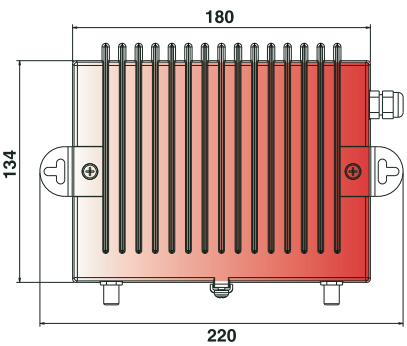
Quality housing ensures long life

The aluminium die-cast housing of the amplifier offers high mechanical stability and ensures a high shielding factor. Aluminium dissipates the heat much better than comparative materials. This results in a constant value and a long product life. The HFA housing complies with the IP65 requirements for efficient dust and water protection.

The installation of the amplifier can either be left/right or top/bottom. All mounting accessories are delivered with the amplifier.







Quality

Efficient switch mode power supply adds to reliability

The switch mode power supply has a high efficiency that minimizes heat generation and power consumption. The excellent transient and surge protection combined with the low operating temperature all contribute to increase and ensure a long lifetime of the amplifier. An LED indicator shows whether the power supply is working correctly.

Low-cost trouble solving IFA Distribution Amplifiers

At the subscriber end of almost any community network, the installer will need handy and reliable broadband amplifiers to provide signals of sufficient strength to, for example, a distant block of flats or to subscribers wanting outlets in more than one room.

From both a technical and economical point of view Triax IFA amplifiers are ideal for this kind of installation. Relative to their high performance and effective shielding, they are inexpensive and quick to mount anywhere indoors.

Integrated return path for support of interactive services

All amplifiers in the IFA-series have an integrated passive return path to the frequency ranges 5-30, 5-55 or 5-65 MHz. If or when the network has to be used for interactive services such as fast Internet connections, interactive TV or cable telephony, IFA amplifiers will thus support these interactive applications.

High output voltage and transient protection

IFA amplifiers have a very high output voltage of 116 dBµV or 2 x 112 dBµV (EN 50083-3). This makes them suitable for aerial systems with many channels. They are transient protected up to 4 kV on all inputs and outputs.

A wide range of solutions

IFA amplifiers are available with 1 or 2 outputs and in 20 dB as well as 30 dB gain variants, all provided with variable attenuator. Moreover, some types have 5-7 dB fixed tilt, others are provided with variable tilt to equalize the uneven attenuation of the low and the high frequencies of the cable.

"Click-on" bracket saves installation time

When the amplifier is to be mounted on a wall or rafter, the rear grey/white bracket is screwed on, cables with F-connectors are screwed on to the amplifier, which can now be clicked on to the rearmounting bracket.

In case of subsequent changes to the cables, the amplifier is easily demounted by pressing down the small ratchet and then pulling the amplifier loose from the rearmounting bracket.

IFA 203 Amplifier with 2 outputs and gain adjustment

IFA 231 Amplifier
with 1 output,
equalizer and gain
adjustment

IFA 236 Amplifier
with 2 outputs,
equalizer and gain
adjustment

IFA 205 Amplifier
with 1 output,
equalizer and gain
adjustment

Design and installation

With a modern and elegant design, IFA Distribution Amplifiers are suitable for mounting even inside homes and in situations, where the installation cannot be hidden away in a loft or under a staircase.

Flexibility

Facts about HFA Distribution Amplifiers

HFA 602

HFA 603

HFA 604

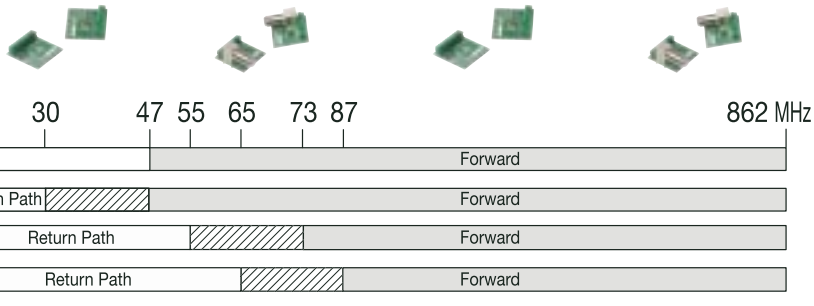
Technical Data - Mains powered

TYPE Part No.		HFA 602 324602	HFA 603 324603	HFA 604 324604
Forward Path				
Frequency range	MHz	47, 73 or 87 - 862 (depending on module)	47, 73 or 87 - 862 (depending on module)	47, 73 or 87 - 862 (depending on module)
Gain adjustable	dB	**22**	**30**	**40**
Attenuation	dB	0 - 20	0 - 20	0 - 20
Noise figure	dB	< 8.5 (Typical 7.5)	< 7.5 (Typical 6.5)	< 7.0 (Typical 6.0)
Linearity	dB	± 1.0	± 1.0	± 1.0
Equalization	dB	0 - 18	0 - 18	0 - 18
Output level				
60 dB 3 order (DIN 45004B)	dBµV	118	118	118
60 dB 3 order (DIN 45004A1)	dBµV	112	112	112
60 dB CTB [1]	dBµV	101	101	101
60 dB CSO [1]	dBµV	101	101	101
Return loss input (-1.5 dB/Octave)	dB	>14 @ 40 MHz (Min. 10)	>14 @ 40 MHz (Min. 10)	>14 @ 40 MHz (Min. 10)
Return loss output (-1.5 dB/Octave)	dB	>14 @ 40 MHz (Min. 10)	>14 @ 40 MHz (Min. 10)	>14 @ 40 MHz (Min. 10)
Return path				
Frequency range	MHz	5-30, 5-55 or 5-65 (depending on module)	5-30, 5-55 or 5-65 (depending on module)	5-30, 5-55 or 5-65 (depending on module)
Gain (adjustable)	dB		passive -1.0/active 17.0	
Linearity	dB	± 1.0	± 1.0	± 1.0
Return loss input (-1.5 dB/Octave)	dB	> 14 @5 MHz to 65 MHz	> 14 @5 MHz to 65 MHz	> 14 @5 MHz to 65 MHz
Return loss output (-1.5 dB/Octave)	dB	> 14 @5 MHz to 65 MHz	> 14 @5 MHz to 65 MHz	> 14 @5 MHz to 65 MHz
General				
Power supply type		Mains powered	Mains powered	Mains powered
Power supply	V/AC	230 ± 10%	230 ± 10%	230 ± 10%
Power consumption	W	7.5	7.5	7.5
Shielding Efficiency VHF	dB	100	100	100
Shielding Efficiency UHF	dB	90	90	90
Housing - Protection class		IP65	IP65	IP65
Connectors		F-connectors	F-connectors	F-connectors
Certification		CE	CE	CE
Impedance	Ohm	75	75	75
Operation temperature range	^{0}C	0...+55	0...+55	0...+55
Weight	kg	1.325	1.325	1.325
Dimensions (H x D x W)	mm	145 x 70 x 170	145 x 70 x 170	145 x 70 x 170

1) DIN/EN 50083 Part 3 CTBA (Composite trible beat ratio) @ 60 dB IMR, CENELEC-raster 42 channels

Diplex filter modules

TYPE Part No.		MD 3047 324681	MD 3047T 324682	MD 5573 324685	MD 5573T 324686
Frequency range (return path)	MHz	5 - 30	5 - 30	5 - 55	5 - 55
Frequency range (forward path)	MHz	47 - 862	47 - 862	73 - 862	73 - 862
Testpoint	dB	-	- 20	-	- 20
Packing size	pcs.	2	2	2	2



Facts about HFA Distribution Amplifiers

Technical Data - Line powered

TYPE Part No.		HFA 622L 324622	HFA 623L 324623	HFA 624 L 324624
Forward Path				
Frequency range	MHz	47, 73 or 87 - 862 (depending on module)	47, 73 or 87 - 862 (depending on module)	47, 73 or 87 - 862 (depending on module)
Gain adjustable	dB	**22**	**30**	**40**
Attenuation	dB	0 - 20	0 - 20	0 - 20
Noise figure	dB	< 8.5 (Typical 7.5)	< 7.5 (Typical 6.5)	< 7.0 (Typical 6.0)
Linearity	dB	± 1.0	± 1.0	± 1.0
Equalization	dB	0 - 18	0 - 18	0 - 18
Output level				
60 dB 3 order (DIN 45004B)	dBµV	118	118	118
60 dB 3 order (DIN 45004A1)	dBµV	112	112	112
60 dB CTB [1]	dBµV	101	101	101
60 dB CSO [1]	dBµV	101	101	101
Return loss input (-1.5 dB/Octave)	dB	>14 @ 40 MHz (Min. 10)	>14 @ 40 MHz (Min. 10)	>14 @ 40 MHz (Min. 10)
Return loss output (-1.5 dB/Octave)	dB	>14 @ 40 MHz (Min. 10)	>14 @ 40 MHz (Min. 10)	>14 @ 40 MHz (Min. 10)
Return path				
Frequency range	MHz	5-30, 5-55 or 5-65 (depending on module)	5-30, 5-55 or 5-65 (depending on module)	5-30, 5-55 or 5-65 (depending on module)
Gain	dB		passive -1.0/active 17.0	
Linearity	dB	± 1.0	± 1.0	± 1.0
Return loss input (-1.5 dB/Octave)	dB	> 14 @5 MHz to 65 MHz	> 14 @5 MHz to 65 MHz	> 14 @5 MHz to 65 MHz
Return loss output (-1.5 dB/Octave)	dB	> 14 @5 MHz to 65 MHz	> 14 @5 MHz to 65 MHz	> 14 @5 MHz to 65 MHz
General				
Power supply type		Line supply	Line supply	Line supply
Power supply	V/AC	24 - 60	24 - 60	24 - 60
Power consumption	W	7.5	7.5	7.5
Shielding Efficiency VHF	dB	100	100	100
Shielding Efficiency UHF	dB	90	90	90
Housing - Protection class		IP65	IP65	IP65
Connectors		F-connectors	F-connectors	F-connectors
Certification		CE	CE	CE
Impedance	Ohm	75	75	75
Operation temperature range	°C	0...+55	0...+55	0...+55
Weight	kg	1.325	1.325	1.325
Dimensions (H x D x W)	mm	145 x 70 x 170	145 x 70 x 170	145 x 70 x 170

1) DIN/EN 50083 Part 3 CTBA (Composite trible beat ratio) @ 60 dB IMR, CENELEC-raster 42 channels

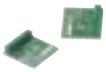
HFA 622L

HFA 623L

HFA 624L

Diplex filter modules

TYPE Part No.		MD 6587 324683	MD 6587T 324684
Frequency range (return path)	MHz	5 - 65	5 - 65
Frequency range (forward path)	MHz	87 - 862	87 - 862
Testpoint	dB	-	- 20



Return-path amplifier

TYPE Part No.		MA 617 324617
Frequency range	MHz	5 - 65
Gain	MHz	17
Attenuation	dB	20

Line power supply

TYPE Part No.		TRP 416014
Power supply	V/AC	48
Max. current	A	1.25
Dimensions (Height x Diameter)	mm	60 x 100

Power inserter with F-con

TYPE Part No.		TPI - 01 347001
Frequency range	MHz	5 - 2400
Through loss 5-862 MHz	dB	≤ 0.5
1000-2150 MHz	dB	≤ 1.5
Max. current	A	2.5
Power	V	65

Facts about IFA Distribution Amplifiers

Technical Data

TYPE Part No.		IFA 201 339201	IFA 202 339202	IFA 203 339203	IFA 205 339205	IFA 206 339206
Forward Path						
Frequency range	MHz	47 - 862	47 - 862	73 - 862	87 - 862	87 - 862
Gain @47 or 87 MHz/@862 MHz	dB	**2...22**	**-4...15/1...20**	**-5...13/0...18**	**-3...17/2...22**	**-7...13/2...18**
Noise figure	dB	< 5 (typical 4.5)	< 5 (typical 4.5)	< 6.5 (typical 5.5)	< 8.5 (typical 7.5)	< 8.5 (typical 7.5)
Linearity	dB	± 1.0	± 1.0	± 1.0	± 1.0	± 1.0
Slope	dB		5.0	5.0	5	5.0
Equalizer	dB				0 - 18	0 - 18
Outputs	pcs	**1**	**2**	**2**	**1**	**2**
Output level						
60 dB 3 order (DIN 45004B)	dBµV	116.0	2 x 112.0	2 x 112.0	116.0	2 x 112.0
60 dB 3 order (DIN 45004A1)	dBµV	102.0	2 x 97.0	2 x 97.0	104.0	2 x 100.0
60 dB CTB [1]	dBµV	99.5	2 x 95.5	2 x 95.5	98.5	2 x 95.5
60 dB CSO [1]	dBµV	96.5	2 x 92.5	2 x 92.5	96.5	2 x 92.5
Return loss (-1.5 dB/Octave)	dB	> 14 @47 MHz	> 14 @47 MHz	> 14 @73 MHz	> 14 @87 MHz	> 14 @87 MHz
Return path						
Frequency range	MHz	**5 - 30**	**5 - 30**	**5 - 55**	**5 - 65**	**5 - 65**
Through loss	dB	0.5	4.0	4.0	1.0	4.0
General						
Power supply	V/DC	230 ± 10%	230 ± 10%	230 ± 10%	230 ± 10%	230 ± 10%
Power consumption	W	6.5	6.5	6.5	6.5	6.5
Shielding Efficiency VHF	dB	65	65	65	65	65
Shielding Efficiency UHF	dB	75	75	75	75	75
Connectors		F-connector	F-connector	F-connector	F-connector	F-connector
Certification		CE	CE	CE	CE	CE
Impedance	Ohm	75	75	75	75	75
Operation temperature range	^{0}C	0...+50	0...+50	0...+50	0...+50	0...+50
Weight	kg	0.475	0.475	0.475	0.475	0.475
Dimensions (H x D x W)	mm	65 x 50 x 175	65 x 50 x 175	65 x 50 x 175	65 x 50 x 175	65 x 50 x 175

1) DIN/EN 50083 Part 3 CTBA (Composite trible beat ratio) @ 60 dB IMR, CENELEC-raster 42 channels

Facts about IFA Distribution Amplifiers

Technical Data

TYPE Part No.		IFA 210 339210	IFA 211 339211	IFA 231 339231	IFA 232 339232	IFA 235 339235	IFA 236 339236
Forward Path							
Frequency range	MHz	47 - 862	47 - 862	47 - 862	47 - 862	87 - 862	87 - 862
Gain @47 or 87 MHz/@862 MHz	dB	**0...20**	**0...20**	**-5...25/12...32**	**1...21/8...28**	**5...25/12...32**	**1...21/8...28**
Noise figure	dB	< 5.0 (typical 4.5)	< 5.0 (typical 4.5)	< 6.5 (typical 6.0)	< 6.5 (typical 6.0)	< 7.0 (typical 6.5)	< 7.0 (typical 6.5)
Linearity	dB	± 1.0	± 1.0	± 1.0	± 1.0	± 1.0	± 1.0
Slope	dB			7.0	7.0	7.0	5
Equalizer	dB			0 - 18	0 - 18	0 - 18	0 - 18
Outputs	pcs	**1**	**1**	**1**	**2**	**1**	**2**
Output level							
60 dB 3 order (DIN 45004B)	dBµV	112.0	112.0	116.0	2 x 112.0	116.0	2 x 112.0
60 dB 3 order (DIN 45004A1)	dBµV	104.0	104.0	104.0	2 x 100.0	104.0	2 x 100.0
60 dB CTB [1]	dBµV	94.5	94.5	97.5	2 x 93.5	97.5	2 x 94.5
60 dB CSO [1]	dBµV	90.5	90.5	93.5	2 x 89.5	93.5	2 x 90.5
Return loss (-1.5 dB/Octave)	dB	> 14 @47 MHz	> 14 @47 MHz	> 14 @47 MHz	> 14 @47 MHz	> 14 @87 MHz	> 14 @87 MHz
Return path							
Frequency range	MHz	**5 - 30**	**5 - 65**	**5 - 30**	**5 - 30**	**5 - 65**	**5 - 65**
Through loss	dB	1.0	1.0	1.5	5.5	1.0	4.5
General							
Power supply	V/DC	230 ± 10%	230 ± 10%	230 ± 10%	230 ± 10%	230 ± 10%	230 ± 10%
Power consumption	W	3.0	3.0	6.5	6.5	6.5	6.5
Shielding Efficiency VHF	dB	65	65	65	65	65	65
Shielding Efficiency UHF	dB	75	75	75	75	75	75
Connectors		F-connector	F-connector	F-connector	F-connector	F-connector	F-connector
Certification		CE	CE	CE	CE	CE	CE
Impedance	Ohm	75	75	75	75	75	75
Operation temperature range	^{0}C	0...+50	0...+50	0...+50	0...+50	0...+50	0...+50
Weight	kg	0.400	0.400	0.475	0.475	0.475	0.475
Dimensions (H x D x W)	mm	61 x 44 x 118	61 x 44 x 118	65 x 50 x 175	65 x 50 x 175	65 x 50 x 175	65 x 50 x 175

1) DIN/EN 50083 Part 3 CTBA (Composite trible beat ratio) @ 60 dB IMR, CENELEC-raster 42 channels

ACB/ATB Sat IF Distribution Amplifiers

Technical Data

TYPE Part No.			ACB 280 324280	ATB 2200 300571
Forward Path				
Frequency range	Terrestrial Satellite	MHz MHz	10 - 862 950 - 2150	86 - 862 950 - 2150
Gain	Terrestrial Satellite	dB dB	- 2.0 21...28	20...28 20...28
Noise figure	Terrestrial Satellite	dB dB	 < 8.0	< 5.0 < 10.0
Linearity		dB	± 1.0	± 1.0
Attenuation	Terrestrial Satellite	dB dB	 0 - 10	0 - 12 0 - 10
Equalizer	Terrestrial Satellite	dB dB		-8.0 (fixed) -8.0 (fixed)
Inputs / Outputs		pcs	2/1	1/1
Output level Terrestrisk Sat - IM3-35		 dBµV dBµV	 116.0	 116.0 116.0
Isolation	SAT/TV TV/SAT	dB dB		
Return loss (-1.5 dB/Octave)		dB	> 14 @47 MHz	> 14 @ 86 MHz
Return path				
Frequency range		MHz		4 - 65
Through loss		dB		1.5
General				
Power supply		V/AC V/DC	230 ± 10% 12	230 ± 10% 24
Power consumption		mA		250 (v. 15V)
Connectors			F-female	F-female
Certification			CE	CE
Impedance		ohm	75	75
Operation temperature range		°C	0...+50	0...+50
Weight		kg	1.4	1.4
Dimensions (H x D x W)		mm	100 x 62 x 185	100 x 68 x 187

1) DIN/EN 50083 Part 3 CTBA (Composite triple beat ratio) @ 60 dB IMR, CENELEC-raster 42 channels

ARM multiband amplifiers

Technical data - ARM multiband amplifiers

TYPE Part No.		ARM 404 324121	ARM 455 324122	ARM 486 324123
Input 1 - Frequency range	MHz	47 - 68 + 87.5 - 108	47 - 68 + 87.5 - 108	87.5 - 108
Input 1 - Gain	dB	32	34	36
Input 1 - Noise figure	dB	5.0	5.0	8.0
Input 2 - Frequency range	MHz	174 - 230	174 - 230	47 - 68 + 174 - 230
Input 2 - Gain	dB	32	34	36
Input 2 - Noise figure	dB	5.0	5.0	8.0
Input 3 - Frequency range	MHz	470 - 862	470 - 862	174 - 230
Input 3 - Gain	dB	40	47	36
Input 3 - Noise figure	dB	8.0	5.0	7.0
Input 4 - Frequency range	MHz	470 - 862	470 - 862	470 - 862
Input 4 - Gain	dB	40	40	47
Input 4 - Noise figure	dB	8.0	9.0	5.0
Input 5 - Frequency range	MHz		470 - 862	470 - 862
Input 5 - Gain	dB		40	44
Input 5 - Noise figure	dB		9.0	9.0
Input 6 - Frequency range	MHz			470 - 862
Input 6 - Gain	dB			44
Input 6 - Noise figure	dB			9.0
Output level 3.order - VHF @ 60 dB IMD - UHF	dBµV dBµV	117.0 117.0	117.0 117.0	121.0 121.0
Connectors		F	F	F
Impedance	Ohm	75	75	75
Power consumption	W	7	7.5	11.3
Remote supply	V/mA	12/60	12/60	12/60
Operation voltage	V/AC	185 - 265	185 - 265	185 - 265
Operation temperature range	^{0}C	-20 to +55	-20 to +55	-20 to +55
Weight	kg	1.250	1.250	1.250
Dimensions (H x D x W)	mm	122 x 70 x 210	122 x 70 x 210	122 x 70 x 210

ARM 404

ARM 455

ARM 486

Thinking one step ahead...

Triax philosophy is customer-orientation: In both our markets, TV-systems and enclosures, our objective is to save time and trouble for the installers, operators and distributors building their business on our products.

Simplicity and support are key words, expressed both in products and in service.
Our products offer more in performance and simplifying logic, and in our support customers have easy access to understandable, useful and competent answers.

Innovative thinking, service-oriented people and advanced technology has made Triax one of the leading European suppliers of both TV-systems and enclosures.

We offer everything that can be expected from a professional supplier within these fields.
Triax is of course ISO 9001 certified and delivers products according to all acknowledged local and international quality standards.

TRIAX A/S
Bjørnkærvej 3
DK - 8783 Hornsyld
Tel.: +45 76 82 22 00
Fax: +45 75 68 79 66
mail: triax@triax.dk
www.triax.com

Tri
AB.52.3.02

Simply more
- more simply

TRIAX