

Engel

nas and

**Antennas and
mast amplifiers**



UHF ANTENNAS - AC & MAX SERIES



AC 42/44/90

Flat reflectors Elements with double director configuration

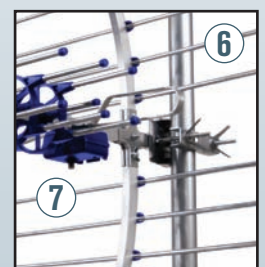
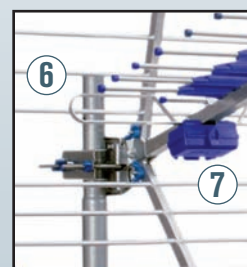
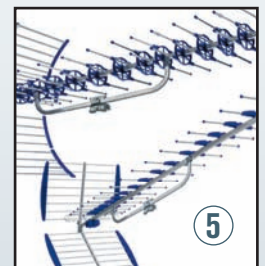
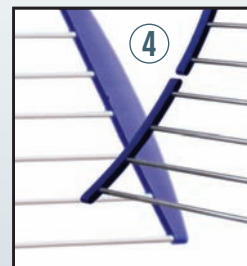
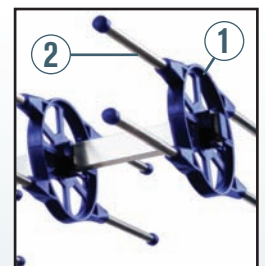
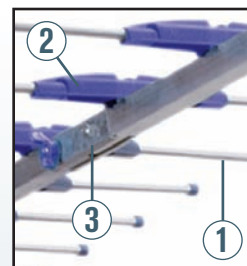
MAX 44/84

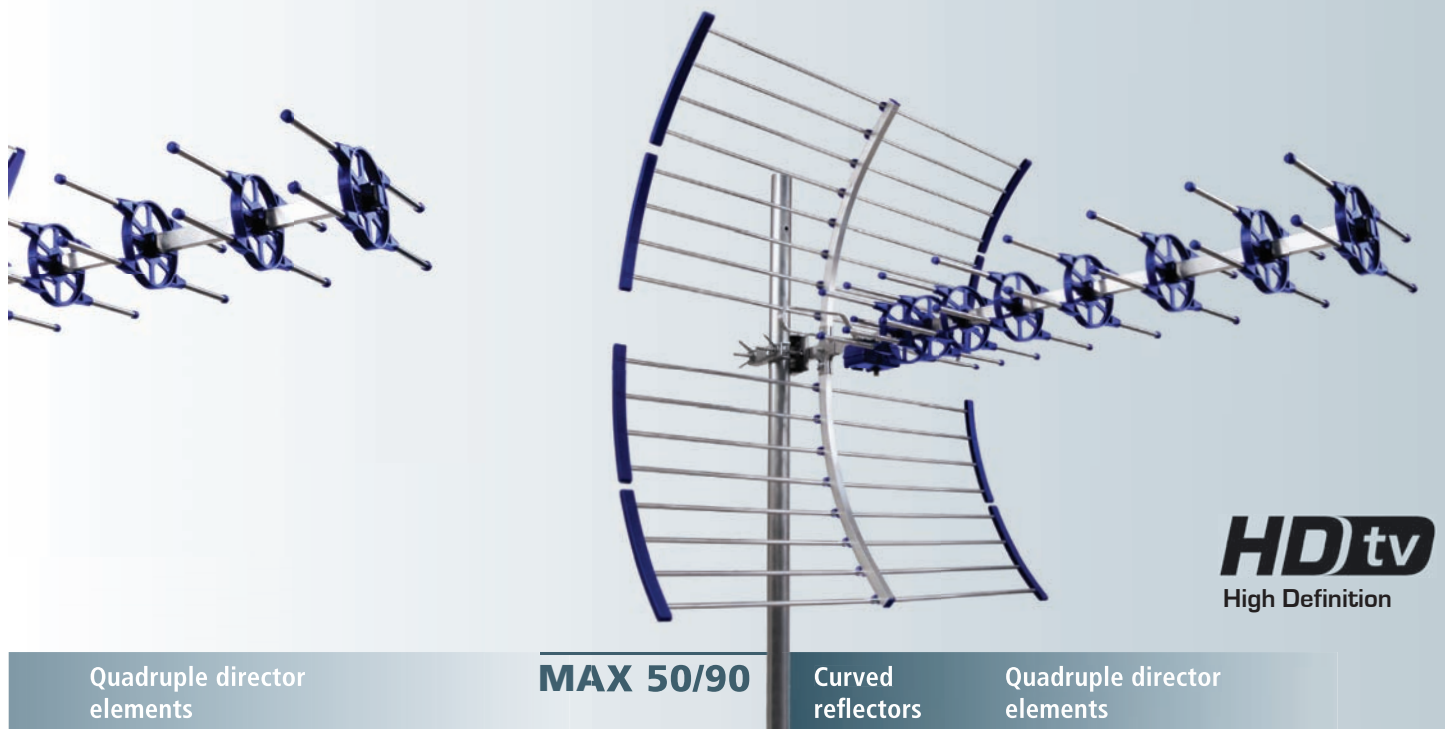
Flat reflectors

- 1 ● Rigid and robust extrusion aluminium elements.
- 2 ● Directors with robust fixation to the central axle.
● Anti-corrosion plastic.
- 3 ● Arms joined together by galvanized bridles and brackets.

- 4 ● Double large area reflector panel providing a good front to back ratio.
● Stiff reflector elements.
- 5 ● High gain models with more than 50 directors (AC 90 - MAX 90)

- 6 ● Reinforced bridles. ● Reinforced dipoles.
- Galvanized iron.
- H/V Polarity adjustment.
- Easy tilt adjustment.
- Oversized and robust brackets.
- No additional tools needed for assembly.
- 7 ● Short-circuits, humidity and rain protected casing.



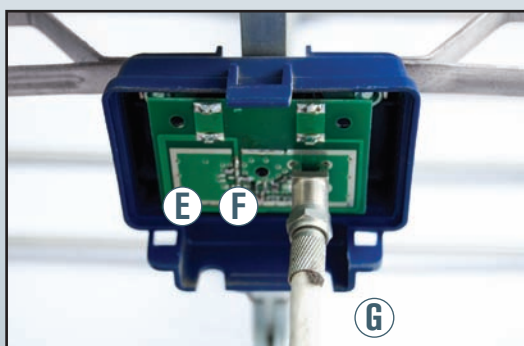
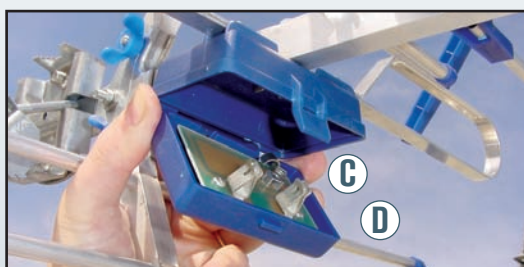
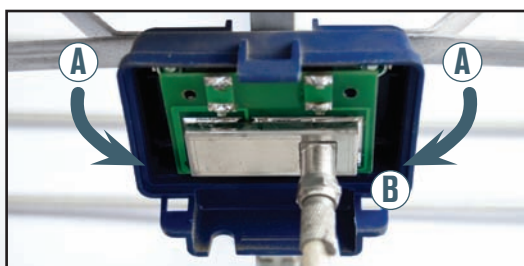


Quadruple director elements

MAX 50/90

Curved reflectors

Quadruple director elements



A • **Maximum power transfer**
Antennas with the maximum directivity and gain for an optimum power transfer to the balun.

B • **Shielded F connector**
Impulsion noise shield ideal for DTT reception.

C • **Wide band balun**
Special design of antennas and balun to get a maximum adaptation and reception in the full UHF band (ch21-ch69).

D • **Easy to replace passive dipole by DIGIPOLE AM8000 (optional accessory)**
High output level and low noise figure amplifier.

E • **DIGIPOLE/AM8000 low noise pre-amplifier**
Ideal amplifier for low DTT signal reception (<2dB noise factor)

F • **DIGIPOLE/AM8000 with maximum output power**
Up to (>105dBuV) output power.

G • **Universal power supply**
5V-24 Vdc.

UHF ANTENNAS - AC RANGE



Code	Description	Pack/Pallet
AN6000B	Antenna AC42 C21-69 14dB F connector	10/80

AN6000Bi	Antenna AC42 C21-69 - F conector individual carton box	1/56
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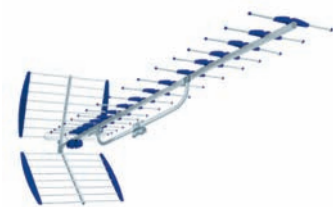


AN6003	Antenna DTT-42 c21-69 13dB	10/80
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AN6001B	Antenna AC44 c21-69 15,5dB - F connector	10/50
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AN6001Bi	Antenna AC44 c21-69 15,5dB - F connector , individual carton box	1/32
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AN6021B	Antenna AC90 c21-69 18,5dB- F connector individual carton box	1/22
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AM8000	Pre-amplifier DIGIPOLE for UHF antennas (24Vdc)	1
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AM8002	Pre-amplifier DIGIPOLE for UHF antennas (Multi-Voltage 5/24Vdc)	1
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Gain: 18 dB
 Noise Factor: < 2 dB
 Output max level: 105 dBμV

Power Supply: 24 Vdc (AM8000)
 5/24 Vdc (AM8002)
 Consumption: 35 mA



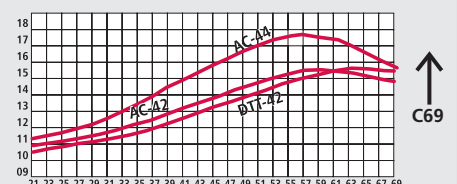
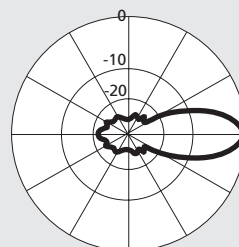
DIGIPOLE / AM8000

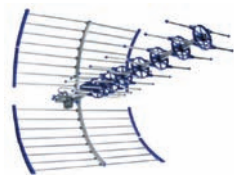
In cases of low coverage, the installer can easily exchange the usual balun of the antennas for the DIGIPOLE amplifier. With this amplifier (of low noise and Output high voltage), the antennas win an extraordinary efficiency in low coverage areas or with weak and strong simultaneous signals.

In collective installations DigiPOLE AM8000 can be supplied from the single channels AM6000. Moreover the multivoltage model AM8002 allows to be supplied from DTT receivers (Vdc) or even from satellite receivers (13/18Vdc) connected to the same cable.

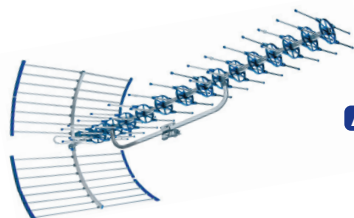
TECHNICAL CHARACTERISTICS

Code	AN6003	AN6000B	AN6001B	AN6021B
Model	DTT-42	AC-42	AC-44	AC90
Band	UHF	UHF	UHF	UHF
Channels	21-69	21-69	21-69	21-69
Directors	17	17	25	-
Max Gain (dB)	13	14	15,5	18,5
Beamwidth H/V	38/43	38/43	35/42	29/34
Front/back ratio	25	25	28	32
Polarization adjustment	H-V	H-V	H-V	H-V
Inclination adjustment	Si	Si	Si	Si
Winload(150Km/h)	7,9 Kp	7,9 Kp	11 Kp	15 kp
Lenght(m)	1,015	1,015	1,09	1,94





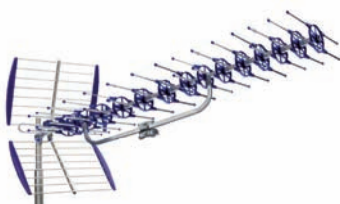
Code	Description	Pack/Pallet
AN6002B	Antenna MAX50 c21-69 17,5dB F connector	2/24



AN6006B	Antenna Max90 c21-69 19dB F connector	2/16
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AN6014B	Antenna MAX44 c21-69 16dB F connector	2/24
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AN6015B	Antenna MAX84 c21-69 18dB F connector	1/16
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AM8000	Pre-amplifier DIGIPOLE for UHF antennas (24Vdc)	1
AM8002	Pre-amplifier DIGIPOLE for UHF antennas (Multi-Voltage 5/24Vdc)	1

Gain: 18 dB
 Noise Factor: < 2 dB
 Output max level: 105 dBμV

Power Supply: 24 Vdc (AM8000)
 5/24 Vdc (AM8002)
 Consumption: 35 mA

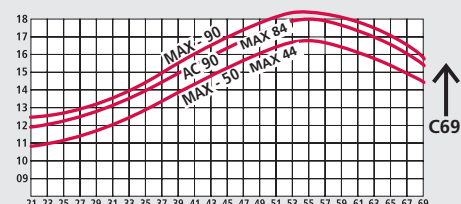
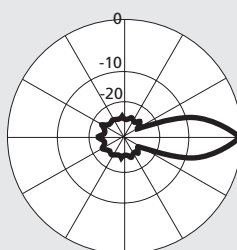


TDT-MAX ANTENNAS

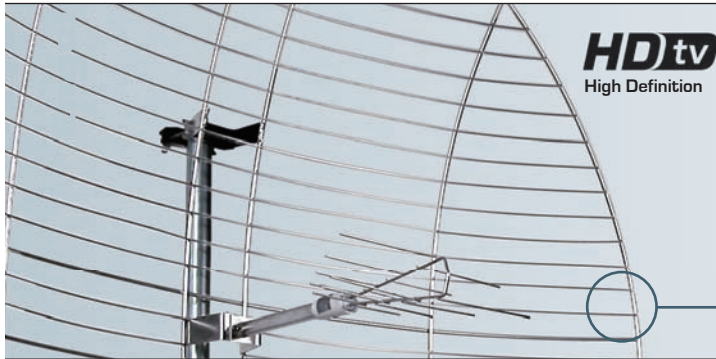
Generally the antennas have a fall in gain in the end of the band, which is exactly where are located the transponders of national global network of DTT. The Engel antennas are optimized to increase its gain in the high channels (66-69) for a better reception of the DTT signal.

TECHNICAL CHARACTERISTICS

Code	AN6014B	AN6002B	AN6015B	AN6006
Model	MAX44	MAX50	MAX84	MAX90
Channels	21-69	21-69	21-69	21-69
Directors	34	34	62	62
Max Gain (dB)	16	17,5	18	19,0
Beamwidth H/V	34/40	32/38	30/36	26/31
Front/back ratio	24	29	30	33
Polarization adjustment	H-V	H-V	H-V	H-VH-V
Inclination adjustment	Si	Si	Si	Si
Winload(150Km/h)	12,5 kp	13,4 kp	14,6 kp	15 kp
Lenght(m)	0,99	0,99	1,76	1,76



UHF ANTENNAS - DIGIMAX-120



HDtv
High Definition

- Satellite tecnologia for a maximum terrestrial reception.
- Parabolic antenna of 120cm for analog and digital terrestrial
- Extraordinary gain, directivity and front/back ratio.
- Incorporates a logarithmic array in wide band(UHF).
- Integrated and shielded balun with F connector.
- Active model with amplifier of high gain and very low noise factor(1dB).
- Improvement S/N and BER relation with conventional antennas.
- Suitable for low coverage areas or with multiple reflections.

MANUFACTURED IN ALUMINIUM EXTRUSION OF HIGH QUALITY AND DURATION WITH ANTICORROSION TREATMENT.



Code	Description	Pack/Palet
AN6111	Parabolic Terrestrial Antenna 120 cm Active 24V	1/5
AN6111K	Kit Parabolic Terrestrial Antenna 120 cm Active 24V + Power supply 230Vac	1

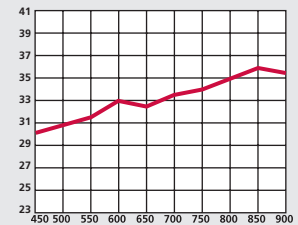
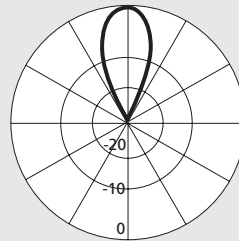


AN6111

The most powerful antenna of the market, which is able to receive DTT where any other gets it. Ideal for its installation in low coverage areas or in areas with multiple receptions from several transmitters, its directivity of AN6111 allows filtering the reception of unwanted signals.

TECHNICAL CHARACTERISTICS

Model	AN6111
Diametre	120 cm
Band	UHF
Gain	35dB
Front/back ratio	30dB
Noise Factor	1dB
Output Max level	95dBµV
Power Supply	24V/50mA



selfpowered 4 dipole

HDtv
High Definition

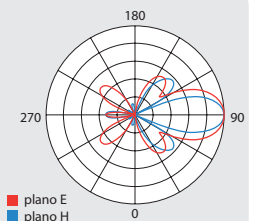
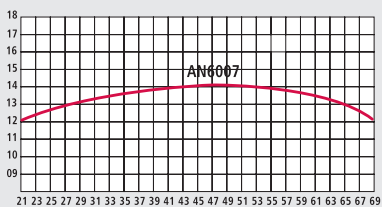
- Pre-assembled antenna of very easy installation.
- Flat frequency response.
- Flat type Reflector of high front/back ratio.
- Manufactured in aluminium extrusion of high quality and duration with anticorrosion treatment.
- Useful in DTT receptions for its high wide band and for its attenuation of rebounds, impulsion noise or signals from other transmitters from back or ground.

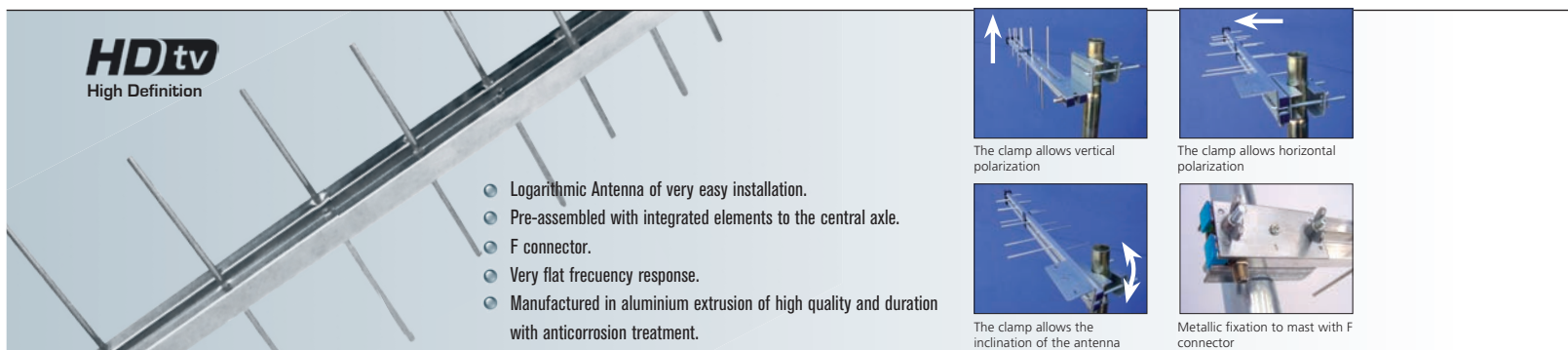
Code	Description	Pack/Pallet
AN6007	Panel UHF antenna, c21-69 14dB	2/18



TECHNICAL CHARACTERISTICS

Code	AN6007
Type	Panel
Band	UHF
Channels	21-69
Max Gain (dB)	14
Beamwidth H/V	45/26
Front/back ratio	28
Polarization adjustment	H
Winload(150Km/h)	10Kp
Lenght (m)	0,8





- Logarithmic Antenna of very easy installation.
- Pre-assembled with integrated elements to the central axle.
- F connector.
- Very flat frequency response.
- Manufactured in aluminium extrusion of high quality and duration with anticorrosion treatment.

The clamp allows vertical polarization

The clamp allows horizontal polarization

The clamp allows the inclination of the antenna

Metallic fixation to mast with F connector

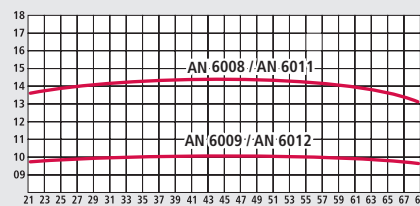
Code	Description	Pack/Pallet
AN6008	Logarithmic UHF antenna c21-69, G=14dB, F connector	10/100
AN6016	Fixation Clamp H/V for Logarithmic antenna	1
AN6009	Logarithmic UHF antenna c21-69, G=10,5dB, F connector	10/350
AN6011	Logarithmic 32 elements BIII/UHF antenna, (G=12/14 dB) F connector	10/50
AN6012	Logarithmic 16 elements BIII/UHF antenna, (G=8/10 dB) F connector	10/50



LOGARITHMIC ANTENNAS
All logarithmic ENGEL antennas, allow a new fixation system (AN6016) for its installation in horizontal and vertical polarization. Special for wide band. Its reduced size allows its installation in small spaces like balconys, terraces and roofs.

TECHNICAL CHARACTERISTICS

Code	AN6008	AN6009	AN6011	AN6012
Type	Logarithmic	Logarithmic	Logarithmic	Logarithmic
Band	UHF	UHF	BdIII/UHF	BdIII/UHF
Channels	21-69	21-69	5-12/21-69	5-12/21-69
Max Gain (dB)	14	10,5	12/14	8/10
Beamwidth H/V	40/35	50/75	35/95	35/50
Front/back ratio	28	18	30	25
Polarization adjustment	H-V	H-V	H-V	H-V
Winload	6,5 kp	4,5 kp	7,5 kp	6,8 kp
Lenght (m)	1,00	0,55	1,20	1,20



FM ANTENNAS



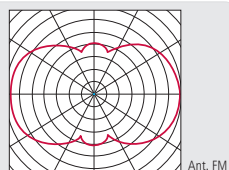
Code	Description	Pack/Pallet
AN6005	Circular FM Antenna	1/90



Code	Description	Pack/Pallet
AN6027	Band III DAB antenna, 3 elements	1/24
AN6004B	Band III antenna, 7 elements with F connector	1/84

TECHNICAL CHARACTERISTICS

Code	AN6005
Elements	1
Band	FM
Max Gain (dB)	1
Polarization adjustment	H
Winload (m2)	0,031
Diametre	0,57 m



ELECTRONIC INDOOR/OUTDOOR ANTENNAS



Code	Description	Pack/Pallet
AN0264G	Active Outdoor/indoor antenna Gain 20dB (470-870 MHz) Power supply by Coaxial cable (5 Vdc) or by 9 Vdc power supply (included)	1/6
AN0263G	Active indoor antenna / Gain 20dB (470-870 MHz) Power supply by Coaxial cable (5 Vdc) or by 9 Vdc power supply (included)	1/6
AN0256E	Indoor amplified antenna (black colour)	1/6

MAST AMPLIFICATION - BLUE RANGE



AM6105
1 V/UHF input



AM6112/6212/6110/6210
1 UHF input
1 VHF input

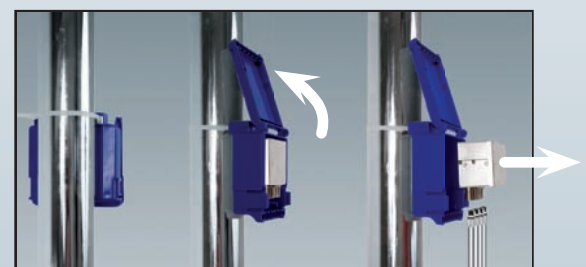
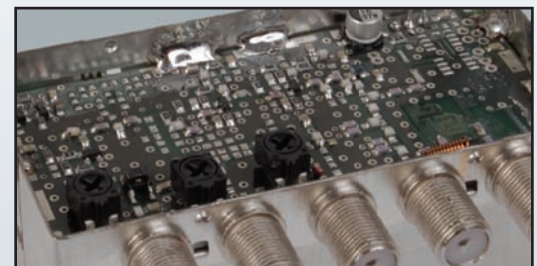


AM6113/6213/6111/6211
2 UHF Inputs
1 VHF Input

- Complete mast amplification range for individual analogue and digital reception.
- 1 to 4 inputs models with independent band gain regulation.

- Low noise transistors with high output for good reception in areas with low or variable levels.
- Electromagnetic shield to remove impulsive noise and unwanted interferences. F connectors included.

- Durable anti-corrosion casing.
- Easy installation on the mast.
- Possibility to remove the electronics for an easy connection.





AM6114/6115
2 UHF Inputs
1 DAB/I/III Input
1 FM Input

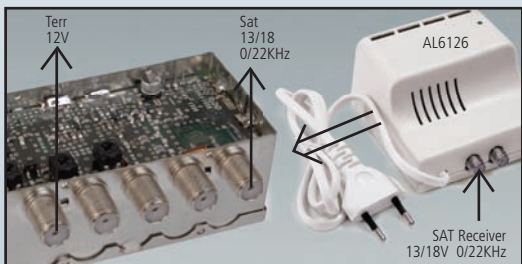
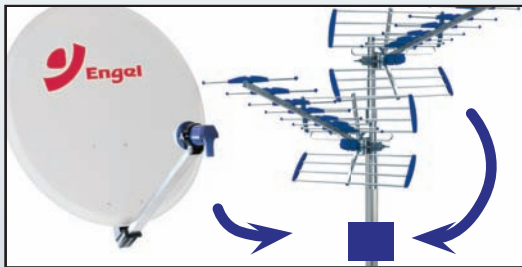


AM6106
1 UHF Input
4 UHF Outputs



AM6302
1 FI Input
1 UHF Input
1 VHF Input

AM6304
1 FI Input
2 UHF Inputs
1 VHF Input



- Multi-input models for installations with several VHF & UHF antennas. DAB Inputs available.
- 1 input and 4 outputs special models for distribution to 4 televisions or TV outlets.

- Special models with satellite signal mix for single cable distribution.
- 13/18V power supply with 22KHz and DiSEqC pass for full LNB control from the satellite receiver.

- No additional supply needed if connected to a receiver. Internal 12V power supply taken from the 13/18 V of the satellite receiver.
- External power supply (AL6126) with 13V. Bypasses the supply from the receiver and takes over when the receiver is in standby mode.

MAST AMPLIFIERS







- Complete mast amplification range ideal for digital TV
- Models adaptable to every need (110 and 100dB μ V)
- Band-adjustable gain
- Very low noise factor
- Interference-free, thanks to electromagnetic shielding
- Very easy assembly and hook-up (F connectors included)
- Water -and dust- proof box made from durable, corrosion-proof material



Mast Amplifier 40dB-110dB μ V (shielded)

Code	Description	Pack
 AM6112	Mast amplifier 2 inputs UHF (40dBreg)-VHF (0dBreg)	1/35
 AM6212	Mast amplifier 2 inputs UHF (40dBreg)-VHF (25dBreg)	1/35
 AM6113	Mast amplifier 3 inputs: UHF (40dB) - UHF (40dBreg) VHF (0dBreg)	1/35
 AM6213	Mast amplifier 3 inputs UHF (40dBreg)-UHF (40dBreg) VHF (25dBreg)	1/35
 AM6114	Mast amplifier 4 inputs IV Band (40dB) V(40dB)-I/III (30dB)-FM (20dB)	1/35
 AM6115	Mast amplifier 4 inputs UHF (40dB) UHF (40dB)-I/III (30dB)-FM (20)	1/35

Mast Amplifier 30dB-100dB μ V (shielded)

Code	Description	Pack
 AM6105	Mast amplifier 1 input UHF+BdI/BdIII (30dBreg)	1/35
 AM6106	Mast amplifier 1 input 24 dB SPECIAL 4 OUTPUTS	1/35
 AM6110	Mast amplifier 2 inputs UHF(30dBreg)-VHF (0dBreg)	1/35
 AM6210	Mast amplifier 2 inputs UHF(30dBreg)-VHF (25dBreg)	1/35
 AM6111	Mast amplifier 3 inputs UHF (30dBreg) UHF (30dBreg)-VHF (0dBreg)	1/35
 AM6211	Mast amplifier 3 inputs UHF (30dBreg) UHF (30dBreg)-VHF (25dBreg)	1/35


Power supplies for mast amplifiers

Code	Description	Pack
 AL6121	Power supply for 40dB mast amplifiers 24V/120 mA-(2 RF outputs) F Connector	1/35
 AL6120	Power supply for 30 dB mast amplifiers 24 V-75mA (2 RF outputs)	1/35
 AL6126	Power supply for mast amplifiers with IF mixing 13V/280mA 2Out(RF,FI), PASO 13/18V/22KHz	1/35

Mast Amplifiers 30 dB-100dB μ V with IF mixing

Code	Description	Pack
 AM6302	Mast amplifier UHF (30dB + I/III/DAB(20dB)+IF(mix)	1/35
 AM6304	Mast amplifier UHF+UHF (30dB + I/III/DAB(20dB)+IF(mix)	1/35

Mast Mixers

Code	Description	Pack
 MP6100	Mast mixer 3 inputs VHF-UHF-UHF (DC pass through)	1/35
MP6101	2 inputs VHF-UHF, F Connect.	1/35
MP6102	3 inputs VHF-UHF-UHF, F Connector	1/35

Indoor Amplifiers

Code	Description	Pack
 AM6140	Indoor amplifier-2 RF outputs UHF (25dB reg), VHF (15 dB reg)	1/35
AM6142	Indoor amplifier-4 output 14dB (VHF) 23dB (UHF) 90 dB μ V, F 5,5dB	1/35
AM6141	Indoor amplifier-2 RF outputs	1/40

TECHNICAL CHARACTERISTICS

Code	AM6105	AM6112	AM6212	AM6110	AM6210	AM6113	AM6213	AM6111	AM6211	AM6114	AM6115	AM6106	AM6302	AM6304
Inputs	1	2	2	2	2	3	3	3	3	4	4	1	3	4
Outputs	1	1	1	1	1	1	1	1	1	1	1	4	1	1
UHF1 input gain (dB)	-	40 reg	40 reg	30 reg	30 reg	40 reg	40 reg	30 reg	30 reg	40 (IV)	40	25	30	30
UHF2 input gain (dB)	-	-	-	-	-	40 reg	40	30 reg	30 reg	40 (IV)	40	-	-	30
VHF input gain (dB)	-	0 reg	25 reg	0 reg	25 reg	0 reg	25 reg	0 reg	25 reg	30 (I/III)	30 (I/III)	-	20	20
FM input gain (dB)	-	-	-	-	-	-	-	-	-	20	20	-	-	-
V/U input gain (dB)	30 reg	-	-	-	-	-	-	-	-	-	-	-	-	-
Fi input gain (dB)	-	-	-	-	-	-	-	-	-	-	-	-	-2	-2
Output level (dB μ V)	100	110	110	100	100	110	110	100	100	110	110	100	104	104
Typ noise Factor (dB)	3	3	3	3	3	3	3	3	3	3	3	3	3	3
24Vdc consumption (mA)	40	80	80	40	40	80	80	40	40	80	80	80	60	60

Accessories (Trap filters, Attenuators,...)



Code	Description	Pack
MP7680	UHF adjustable trap (400-900MHz) -1dB, -20dB, DC pass	1
MP7681	Band III adjustable trap (140-330MHz) -0.5dB, -20dB, DC pass	1
MP7682	Band I adjustable trap (50-900MHz) -1dB, -25dB, DC pass	1



MP7683	GSM trap (880-960MHz) -0.5dB, -50dB, DC pass	1
MP7684	FM trap(87.5-108MHz)-1dB,-45dB, DC pass	1
MP7685	CB trap (27MHz) -1dB, -45dB	1



MP7662V	IF reg. attenuator VHF/UHF + FI -20dB	1
MP7690	Watertight box for mast or wall (includes clamp, screws, rawplugs and adhesive tape)	1/35

Terrestrial TV Indoor Amplifiers (F Connectors)



Code	Description	Pack
AM6140	Indoor Amplifier 2 RF outputs V+U (U-25dBreg, V-15dBreg) GainU: 12dB, GainV: 9dB, Output: 90dBuV F connector	1/35

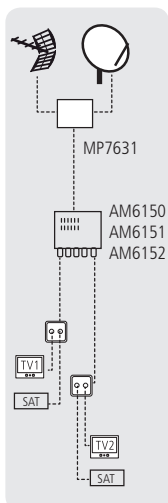


AM6144	Indoor amplifier, 2 outputs V+U (GainU: 12/23dBreg, GainV: 12dB) Output: 105dBuV. Return 5/65MHz (5dB) F connector	1/35
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AM6142	Indoor amplifier, 4 outputs. Gain V: 5-0-13dBreg, GainU: 14-9-9-22dBreg, 90dBuV, F=5.5dB F connector	1/35
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Terrestrial + Satellite TV Indoor Amplifiers (F Connectors)



Code	Description	Pack
AM6150	Indoor amplifier SAT-Terrestrial TV 1 output 22dB-108dBuV (FI), 22dB (UHF), 22dB (VHF). 1 output terrestrial/satellite 22dBreg 108dBuV	1/35









AM6151	Indoor amplifier TV-SAT (22dB) - Terrestrial TV (25dB) 2 outputs. Gain Regulation Independent terrestrial/satellite (15dB) 108dBuV	1/35
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AM6152	Indoor amplifier TV-SAT (18dB) - Terrestrial TV (20dB) 2 outputs. Gain Regulation Independent terrestrial/satellite (15dB)	1/35
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MECHANICAL ACCESSORIES

Standard Towers-200 series (up to 15m high)



	Code	Description	Pack
	AC06010	Top section 1 m	1
	AC06011	Top section 2,5 m	1
	AC06012	Intermediate section 2,5 m	1
	AC06012	Fixed base plate 200 mm	1
	AC06012	Tiltable base plate 200 mm	1
	AC06012	Embedded base plate 200 mm	1

Reinforced Towers-200R (up to 25m high)

	Code	Description	Pack
	AC06012	Reinforced top section 1,5 m	1
	AC06012	Reinforced top section 3 m	1
	AC06012	Reinforced intermediate section 3 m	1
	AC06012	Reinforced fixed 200 mm	1
	AC06012	Reinforced tiltable 200 mm	1
	AC06012	Reinforced embedded 200 mm	1

NOTE: Available model 400R for towers up to 51 m high.








Supports

	Code	Description	Pack
	AC06012	Horizontal aerial support L 500 mm - Ø 35 mm	1/10
	AC06012	Double horizontal aerial support L 1000 mm - Ø 35 mm	1/10

MULTI-TOWERS ASSEMBLY

KITS (Towers + Mast)	Tower Height							
	4,5m	5m	7m	8m	9,5m	11m	14m	
Figure	A	A	B	B	C	C	D	
Tower series	200R	200	200R	200	200R	200R		
Mast code (2,5m)	6020	6020	6020	6020	6020	6020	6020	
Top tower code (2,5-3m)	6011	6011R	6011	6011R	6011	6011R	6011R	
Intern tower code (2,5-3m)	-	-	1x6012	1x6012R	2x6012	2x6012R	3x6012R	
Bse code	6015/6/7	6017R	6015/6/7	6017R	6015/6/7	6017R	6017R	
«OP» distance (3x120°)	-	-	2,1m	2,6m	3,3m	4,0m	5,4m	
VH charge in «O» (Kp)	154-84	154-84	807-31	807-31	980-20	980-20	1105-28	
Moment in «O» (Kgxm)	240	240	-	-	-	-	-	
V/H effort in «P» (Kp)	-	-	255-118	255-118	318-188	318-188	363-228	
Support cables diam (mm)	-	-	4	4	4 - 3	4 - 3	4 - 3	
Support cables effort (Kp)	-	-	147	147	126-60	126-60	133-85	
Antenna max charge (Kp)	56	56	56	56	52	52	52	










Masts

	Code	Description	Pack
	AC06020	Mast 2500 x 35 x 1.2 mm	6
	AC06021	Mast 1500 x 35 x 1.5 mm	6
	AC06022	Mast 3000 x 25 x 2 mm	1
	AC06023	Mast 3000 x 32 x 2 mm	1
	AC06024	Mast 3000 x 38 x 2 mm	1
	AC06025	Mast 3000 x 45 x 2 mm	1
	AC06026	Mast 3000 x 50 x 1,5 mm	1

Wall Clamps

	Code	Description	Pack
	AC06032	250 mm wall clamp	1/20
	AC06033	500 mm wall clamp	1/20
	AC06034	200 mm plate clamp	1/20
	AC06035	400 mm plate clamp	1/20
	AC06034R	300 reinforced plate clamp	1/20
	AC06042	Square support	1/40
	AC06036	Metallic lag screw M-8	100
	AC06045M	Reinforced chimney clamp	1/5
	AC06046M	Double reinforced chimney clamp	1/5

Accessories

	Code	Description	Pack
	AC06041	Tiltable base for root-top	1/6
	AC06043	Chimney clamp	1/10
<td>AC06044</td> <td>Tightener 1/4"</td> <td>1/50</td>	AC06044	Tightener 1/4"	1/50
	AC06055	Cable clamp	1/100
	AC06056	Bar clamp M8	1/100
	AC06057	Double reinforced bar clamp M8	1/75
	AC06058	35 mm ring and clamp for steel cables support	1
	AC06060	Steel cable 2 mm	100 m
	AC06061	Steel cable 3 mm	100 m
	AC06062	Steel cable 4 mm	100 m