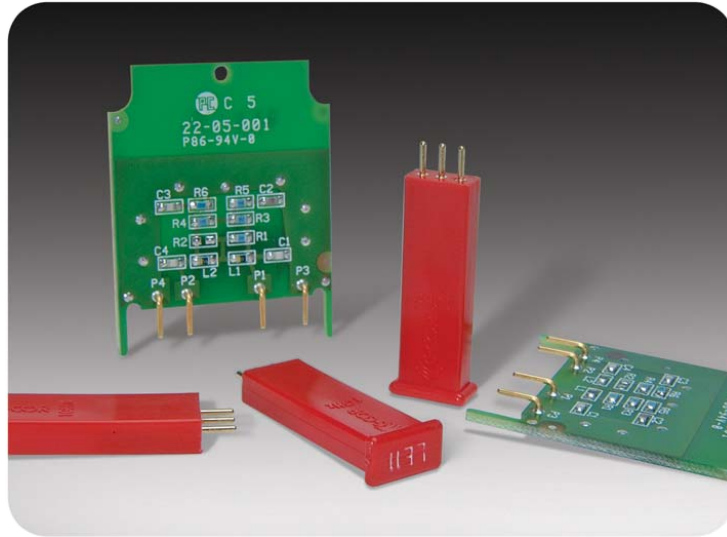# HFC Product Accessories

Reference Guide

ARRIS offers a full complement of plug-in accessories for our strand-mount, cabinet-mount, and rack-mount transmission and distribution equipment. In most cases, these plug-in accessories can be shared across similar product lines.

- Tested and designed specifically for ARRIS products by our ARRIS engineers

- ARRIS accessories are designed for full functionality over operating temperature

- ARRIS authorized accessories should be used for guaranteed performance

- Product warranties are applicable exclusively to ARRIS authorized accessories

Options include:

- forward and return attenuators (PADs)

- forward and return equalizers

- forward cable simulators

- input configuration modules

- output distribution accessories

- active and passive return channel modules

- diplexers

- automatic gain control modules

- control (signature correction) modules

The first section, Accessories By Product Line, provides a broad overview of the accessories available for each ARRIS product. The second section, Accessories at a Glance, lists all accessories with a photo and basic information regarding the product usage. The last section, provides Technical Specifications for each accessory listed. Contact your ARRIS sales professional if you do not see the ARRIS broadband transmission or distribution product of interest.

Accessories by Product Line

Table 1   ARRIS Flex Max® RF Amplifiers

Model	P/N Prefix	Forward PADs	Forward Equalizers	Cable Simulators	Return PADs	Return Equalizers	Output Distribution Accessories
FM901e-T[1] Trunk	FMTEG	NPB	SEQ-1G SEQ-862 SEQ-750 GEQC-1G (O/P) GEQC-870 (O/P) GEQL-1G (O/P)	SCS-1G	NPB[2]	MEQ-42, 55, 65, 85 MEQT-42, 85	S-Series
FM901e-B[1] Bridger	FMBEG	NPB	SEQ-1G SEQ862 SEQ750	SCS-1G	NPB[2]	MEQ-42, 55, 65, 85 MEQT-42, 85	S-Series
FM601e-T Trunk[1]	FM6T	10-A-WC	PEQ-1G 7-2E862-WC 7-2E750-WC	PCS-1G	10-A-WC	7-REF42/x-WC 7-REF55/x-WC 7-REF65/x-WC	7-DC-Series
FM601e-B Bridger[1]	FM6B	10-A-WC THRM	PEQ-1G 7-2E862-WC 7-2E750-WC	PCS-1G	10-A-WC[2]	7-REF42/x-WC 7-REF55/x-WC 7-REF65/x-WC	7-DC-Series
FM601e-LE Line Extender[1]	FM6E	10-A-WC THRM	PEQ-1G 7-2E852-WC 7-2E750-WC	PCS-1G	10-A-WC[2]	7-REF42/x-WC	N/A
FM331-LE Line Extender[1]	FML1G	NPB Amini (interstage)	SEQ-1G SEQ-862 W/O SEQ-750 W/O	SCS-1G	NPB	MEQ-42, 55, 65, 85 MEQT-42, 85	N/A
FM321e-LE Line Extender[1]	FM321G	10-A-WC THRM	PEQ-1G 7-2E862-WC 7-2E750-WC	PCS-1G	10-A-WC	10-A-WC	N/A
Key N/A: not applicable W/O:without covers WC: with covers							

1. Signature Correction Modules are available for all ARRIS Flex Max RF amplifiers.
2. Noise Filter may be used in the Return PAD location. FM901e-T/B require a standard height noise filter be used in combination with an adaptor in the Return PAD location. For FM401, the taller (1.4 inch) noise filter is recommended for ease of installation and removal.

Accessories by Product Line

Table 2   ARRIS Starline RF Amplifiers

Model	PN Prefix	Forward PADs	Forward Equalizers	Cable Simulators	Return PADs	Return Equalizers	Output Distribution Accessories	Automatic Gain Control
BT100 Amplifier	BT100	JXP-* B	SFE-100-* -R	SCS-*	JXP-* B	SRE	N/A	TDU ADU QADU
MBV3 MiniBridger	MBV3	JXP-* B	SFE-100-* -R	SCS-*	JXP-* B	SRE	N/A	TDU/V ADU/V QADU/V
MB100 MiniBridger	MB100	JXP-* B	SFE-100-* -R	SCS-*	JXP-* B	SRE	SP100 DC100	TDU ADU QADU
BLE100 Line Extender	BLE100	JXP-* B	SFE-100-* -R	SCS-*	JXP-* B	SRE	N/A	TDU ADU QADU
SLE100 Line Extender	SLE100	JXP-* B	SFE-100-* -R	SCS-*	JXP-* B	SRE	SP100 DC100	SLE-ADU

Table 3   ARRIS Optical Products

Model	P/N Prefix	Forward PADs	Forward Equalizers	Cable Simulators	Return PADs	Output Distribution Accessories
CHP Dual TX		Amini Short	CHP Plug-in EQ	N/A	N/A	N/A
CHP Single TX		CHP PAD	N/A	N/A	N/A	N/A
Opti Max OM4100	OM41	NPB	GEQL-1GHZ GEQL-870	N/A	NPB	N/A
Trans Max TM4100	TM41	N/A	N/A	N/A	NPB (analog only)	N/A
Opti Max OM3101	OM31C	10-A-WC[1]	GEQL-1GHZ-xxx-1 GEQL-870-xxx-1	N/A	10-A-WC	7-DC-Series
Opti Max OM3100	OM31G	10-A-WC 9-A-S (RX only)	GEQL-1GHZ-xxx-1 GEQL-870-xxx-1	N/A	10-A-WC	N/A
Opti Max OM2700[1]	OM27	NPB	GEQL-1GHZ GEQL-870 GEQC-1GHZ GEQC-870 SEQ-1G SEQ-870 SEQ-750	SCS-1G	NPB	S-Series
Opti Max OM2100	OM21G	NPB Amini	GEQL-1GHZ GEQL-870	N/A	NPB Amini	NPB/Amini 7-DC-Series
Opti Max OM1111	OM11G	10-A-WC[1]	GEQL-1GHZ-xxx-1 GEQL-870-xxx-1	N/A	10-A-WC	N/A
Key N/A: not applicable						
W/O:without covers WC: with covers						

1. D30/47, D42/54, D55/70, D65/85 plug-in diplex filters are available. The original diplex filters were qualified for use in 870 MHz systems. The new diplex filters are qualified for use in 1 GHz systems. The new diplex filters have the same model numbers as the original diplex filters.

Accessories by Product Line

Legacy products listed below have been discontinued by ARRIS.

Please consult your authorized ARRIS sales representative for upgrade options.

The following tables list available accessories that support the installed legacy products.

Table 4   Legacy Flex Max® RF Amplifiers

Model	P/N Prefix	Forward PADs	Forward Equalizers	Cable Simulators	Return PADs	Return Equalizers	Output Distribution Accessories
Flex Max901 Trunk/Bridger	FMT1G FMB1G	NPB	SEQ-1G SEQ-862 W/O SEQ-750 W/O	SCS-1G	NPB	MEQ-42 MEQT-42	S-Series
Flex Max900 Trunk/Bridger	FNT9 FNB9	SPB	SEQ-862 SEQ-750 SEQPB	SCS-862	SPB	MEQ-42, 55, 65, 85 MEQT-42, 85	S-Series
Flex Max601 Bridger	FM6B	10-A-WC	PEQ-1G 7-2E862-WC 7-2E750-WC	PCS-1G	10-A-WC[1]	7-REF42/x-WC	7-DC-Series
Flex Max601 Line Extender	FM6L	10-A-WC	PEQ-1G 7-2E862-WC 7-2E750-WC	PCS-1G	10-A-WC[1]	7-REF42/x-WC	N/A
FM401[1,2]	FM401	NPB	FEQC-1G FEQC-870 FEQC-750	CBSM-1G	NPB[2]	REQC-42 REQC-65 REQC-85	7-DC-Series[3]
Flex Max340	NL1x NL2x	SPB	SEQ-862 SEQ-750	SCS-862	SPB	MEQ-42, 55, 65, 85 MEQT-42, 85	N/A
Flex Max330	FM330	NPB	SEQ-862 W/O SEQ-750 W/O	SCS-862 W/O	NPB	MEQ-42 MEQT-42	N/A
Flex Max321	FM321G	10-A-WC	PEQ-1G 7-2E862-WC 7-2E750-WC	PCS-1G	10-A-WC	7-REF42/x-WC	N/A
Flex Max320	AMP008x	10-A-WC THRM	7-2E862-WC 7-2E750-WC	PCS-1G	10-A-WC	7-REF42/x-WC 7-REF55/x-WC 7-REF65/x-WC	N/A
Flex Max222	FM222	NPB Amini	Amini	N/A	Amini[1]	Amini	7-DC-Series
Flex Max220P	FM220-P	NPB Amini	E862/xx E606/xx	CE862/x	Amini[1]	Amini	N/A
Flex Max220B	FM220-B	NPB Amini	Amini	N/A	Amini[1]	Amini	N/A
Key	N/A: not applicable						
	W/O:without covers	WC:with covers					

1. Noise Filter may be used in the Return PAD location.
2. D30/47, D42/54, D55/70, D65/85 plug-in diplex filters are available. The original diplex filters were qualified for use in 870 MHz systems. The new diplex filters are qualified for use in 1 GHz systems. The new diplex filters have the same model numbers as the original diplex filters.
3. 7-DC-Series accessories may also be used in the Input Splitter location.

Accessories at a Glance

Table 5 Legacy C-COR & Philips RF Amplifiers

Model	P/N Prefix	Forward PADs	Forward Equalizers	Cable Simulators	Return PADs	Return Equalizers	Output Distribution Accessories
FlexNet800	FNT8 FNB8 E8	SPB	SEQ-862 SEQ-750 SEQPB	SCS-862	SPB RPB	MEQ-42, 55, 65, 85 MEQT-42, 85	S-Series
FlexNet700	FNT7 FNB7	SPB	SEQ-750 SEQPB	SCS-862	SPB RPB	MEQ-42, 55, 65, 85 MEQT-42, 85	S-Series
E900	E9	SPB	SEQ-862 SEQ-750	SCS-862	SPB RPB	MEQ-42, 55, 65, 85 MEQT-42, 85	N/A
E700	E7	SPB	SEQ-862 SEQ-750 SEQPB	SCS-862	SPB RPB	MEQ-42, 55, 65, 85 MEQT-42, 85	N/A
Diamond Line I & II	T3A	10-A-WC	7-2E862-WC 7-2E750-WC	7-2E862C-WC	10-A-WC	7-REF42/x-WC 7-REF55/x-WC 7-REF65/x-WC	7-DC-Series
Diamond Line III	G3A	10-A-WC	7-2E862-WC 7-2E750-WC	7-2E862C-WC	10-A-WC	7-REF42/x-WC 7-REF55/x-WC 7-REF65/x-WC	N/A
GNA/TNA		10-A-L	7-2E750 W/O	7-2E862C-W/O	10-A-L	7-REF42/x-WC 7-REF55/x-WC 7-REF65/x-WC	7-DC-Series
Key	N/A: not applicable						
	W/O:without covers	WC:with covers					

Legacy products listed below have been discontinued by ARRIS.

Please consult your authorized ARRIS sales representative for upgrade options.

The following tables list available accessories that support the installed legacy products.

Accessories at a Glance

Table 6   Legacy Optical Products

Model	P/N Prefix	Forward PADs	Forward Equalizers	Cable Simulators	Return PADs	Return Equalizers	Output Distribution Accessories
Opti Max4000	OM41G	NPB	NEQL-870	N/A	NPB[1]	N/A	N/A
Opti Max3000		10-A-WC 9-A-S (RX only)	7-TG862-WC	N/A	10-A-WC[1]	N/A	N/A
Opti Max2000[2,3]		Amini	Amini	N/A	Amini	Amini	N/A
Opti Max1220		Amini	N/A	N/A	Amini	N/A	7-DC-Series
Opti Max1000		10-A-WC	7-2E862/x-WC	7-2E862C-WC	10-A-WC[1]	N/A	N/A
Optiworx ISX3040 Optiworx ISX3025		IPADxxx	ISX750EQyy ISX870EQyy IX7EQyy IX8EQyy	N/A	IPADxxx	ISX750EQyy ISX870EQyy IX7EQyy IX8EQyy	N/A
Optiworx ISX3030		TPADxxx	ISX750EQyy	N/A	TPADxxx	ISX750EQyy	N/A
LN-SM3x		IPB	N/A	N/A	N/A	N/A	S-Series
LN-SM7x		SPB	SEQ-750	SCS-862	SPB	SM-MEQF42 MEQ-42 MEQT-42	S-Series
Key	N/A: not applicable						
	W/O:without covers	WC:with covers					

1. Noise Filter may be used in the Return PAD location.
2. Legacy D30/47, D42/54, D55/70, D65/85 plug-in diplex filters are available.
3. CM862 and A862 control modules are available.

Table 7   Legacy Accessories

The following accessories are no longer available from ARRIS:

9A	9-A-S series attenuators have replaced the 9-A series attenuators.
9-A-WC	10-A-WC series attenuators have replaced the 9-A-WC series attenuators.
6-2E862 6-2E750	7-2E862 forward equalizers may be used in place of 6-2E862 and 6-2E750 forward equalizers. The plastic cover must be removed from 7-series accessories to enable them to fit into equalizer locations designed for the 6-series accessories.
7-2E750C	PCS-1G and 7-2E862C forward cable simulators may be used in place of the 7-2E750C forward cable simulators.
IPB	Amini PADs replace IPB style PADs (AT0xxx).
SCS-750	SCS-862 forward cable simulators may be used in place of the SCS-750 forward cable simulators.

Accessories at a Glance

NPB Forward/Return Path Attenuators

Product Usage: Flex Max FM901e-T/B, Flex Max FM401, Flex Max FM331-LE, Opti Max OM4100, Trans Max TM4100, Opti Max OM2700, Opti Max OM2100

Legacy Product Usage: Flex Max901, Flex Max330, Flex Max222, Flex Max220 Plus, Flex Max220 Basic, Opti Max4000

Notes:
1. Height is 1.4", pin spacing is 0.125"
2. Molded green plastic
3. Same footprint as 10-A and Amini PADs but may be limited by height constraints

SPB-xxx Forward/Return Attenuators

Legacy Product Usage: Flex Max900, Flex Max340, FlexNet 800, FlexNet 700, E900, E700, LN-SM7x

Notes:
1. Height is 1.10", pin spacing is 0.20"
2. Molded green plastic
3. SPB-0 can be used as a jumper in the distribution accessory location for a single output

RPB-xxx Return Attenuators

Legacy Product Usage: FlexNet 800, FlexNet 700, E900, E700

Notes:
1. Height is 1.10", pin spacing is 0.20"
2. Molded red plastic

SEQPB-xx EQ Form Factor Attenuators

Legacy Product Usage: Flex Max900, FlexNet 800, FlexNet 700, E700

Note:
1. Plugs into the equalizer location to add flat attenuation across the passband

JXP Forward/Return Path Attenuators

Product Usage: BLE100, MB100, MBV3, BT100, SLE100, SG4000, VSN

Note:
1. Height is 1.375", pin spacing is 0.125"
2. Molded blue plastic

10-A-L and 10-A-WC Forward/Return Attenuators

Product Usage: 10-A-WC: Flex Max FM601e T/B/LE, Flex Max FM321e-LE, OptiMax OM3101, OptiMax OM3100, OptiMax OM1111

Legacy Product Usage: 10-A-L: GNA/TNA; 10-A-WC: Flex Max601 Bridger & Line Extender, Flex Max321, Flex Max320, Diamond Line I, II, & III, Opti Max3000, Opti Max1000

Notes:
1. Height is 1.15", pin spacing is 0.125"
2. 10-A-L: molded blue plastic without guide pins; 10-A-WC: molded blue plastic with guide pins
3. 10-A-WC cannot be plugged into products using NPB or Amini PADs because of guide pins
4. Same footprint as NPB and Amini PADs but may be limited by height constraints
   Zero value is possible exception due to performance

9-A-S Forward/Return Attenuators

Product Usage: Opti Max OM3100 (RX only), CHP Max5000 Single TX

Legacy Product Usage: Opti Max3000 (RX only)

Notes:
1. Height is 0.6", pin spacing is 0.125"
2. Molded blue plastic
3. Same footprint as Amini Short PADs but may be limited by height constraints
   Zero value is possible exception due to performance

Table 9   SPB Series Forward/Return PAD Attenuators

Model	P/N	5–1002MHz Flat Loss (dB)	Model	P/N	5–1002MHz Flat Loss (dB)	Model	P/N	5–1000MHz Flat Loss (dB)
SPB-0	724681	0.0	SPB-7	724879	7.0	SPB-14	725057	14.0
SPB-1	724789	1.0	SPB-8	724929	8.0	SPB-15	725034	15.0
SPB-2	724844	2.0	SPB-9	724919	9.0	SPB-16	725142	16.0
SPB-3	724720	3.0	SPB-10	724867	10.0	SPB-17	725147	17.0
SPB-4	724784	4.0	SPB-11	724927	11.0	SPB-18	725123	18.0
SPB-5	724830	5.0	SPB-12	724994	12.0	SPB-19	725094	19.0
SPB-6	724913	6.0	SPB-13	724896	13.0	SPB-20	725192	20.0
Passband Flatness: ±0.3dB Return Loss I/O: 19/19dB min. All in green plastic.						Specification Document Number 600437		

Table 10   RPB Series Return PAD Attenuators (reverse SPB-style PAD)

Model	P/N	5–200MHz Flat Loss (dB)	Model	P/N	5–200MHz Flat Loss (dB)
RPB-21	726092	21.0	RPB-24	762237	24.0
RPB-22	762235	22.0	RPB-25	762238	25.0
RPB-23	762236	23.0'			
Passband Flatness: ±0.3dB Return Loss I/O: 25/25dB min. All in red plastic.			Specification Document Number 600701		

Table 11   SEQPB Series EQ Form Factor PAD Attenuators

Model	P/N	5–1002MHz Flat Loss (dB)	Model	P/N	5–1002MHz Flat Loss (dB)
SEQPB-1000-01	725614	1.0	SEQPB-1000-06	762137	6.0
SEQPB-1000-02	762134	2.0	SEQPB-1000-07	762138	7.0
SEQPB-1000-03	762135	3.0	SEQPB-1000-08	726084	8.0
SEQPB-1000-04	762136	4.0	SEQPB-1000-09	726085	9.0
SEQPB-1000-05	726083	5.0	SEQPB-1000-10	762139	10.0
Passband Flatness: ±0.3dB Return Loss I/O: 19/19dB min. (SEQPB-01 to 06) 18.5/18.5dB min. (SEQPB-07 to 010) Slope: –0.2 to –0.7dB			Specification Document Number 600668		