



BLE
(1 Output Line Extender)



MB
(2 or 3 Output Mini Bridger)

ASEM™ Replacement Upgrade RF Modules 1218 MHz For GI/Motorola® BLE & MB

The ACI ASEM 1.2G replacement upgrade RF modules for the Moto BLE and MB are designed to work up to a high forward output of 57 dBmV. The return bandwidth split can be easily changed from 42 to 85 or 204 MHz with the use of field conversion kits. ACI's patented DSIM advanced technology keeps both the forward and return signals stable and reliable over extreme temperature swings. Having return band stabilization over temperature has become much more important as return band is increased to 204 MHz. Having the increased return gain of 28 dB enables these amplifiers to drop into existing designs from 750 MHz to 1 GHz.

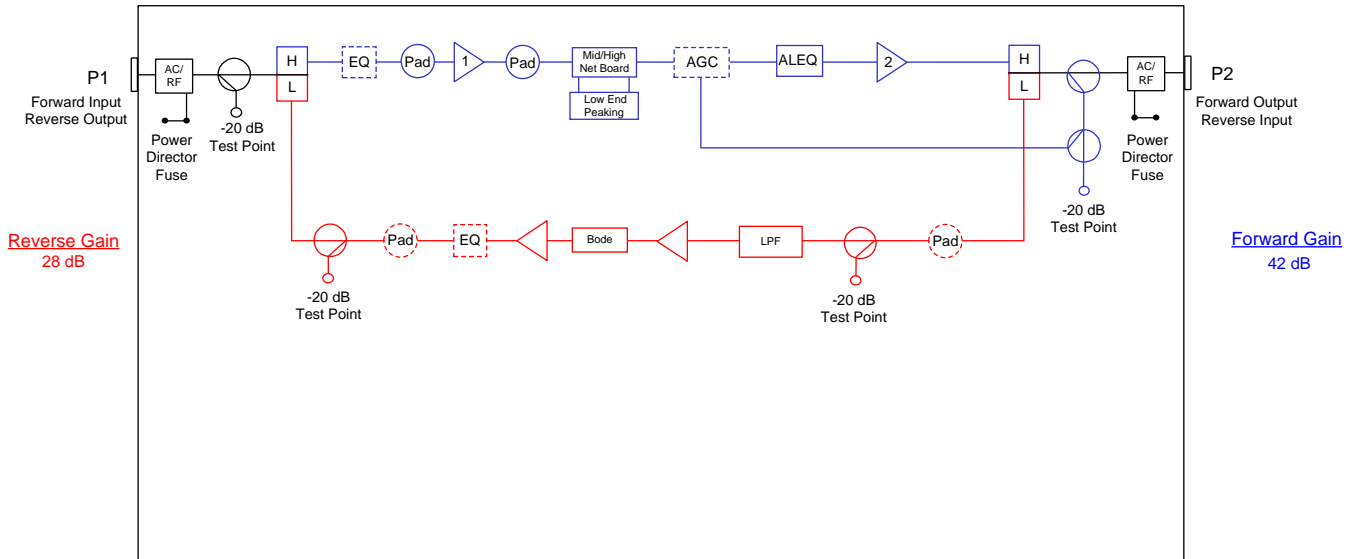
Features

- ◆ Drop-in 1.2G replacement RF modules for Motorola® Starline® MB Mini-Bridger and BLE Line Extender
- ◆ Easy upgrade to 85/105 or 204/258 MHz return bandwidth.
- ◆ -20.0 dB directional coupler test points
- ◆ 28 dB return gain
- ◆ RoHS Compliant
- ◆ Patented DSIM® Technology (programmable AGC)
- ◆ Increased reliability with higher surge protection
- ◆ DSIM controlled return band AGC
- ◆ Pad adjustable forward and return EQ's
- ◆ DSIM Android & Apple iOS setup applications

BLOCK DIAGRAMS

ASEM-BLE

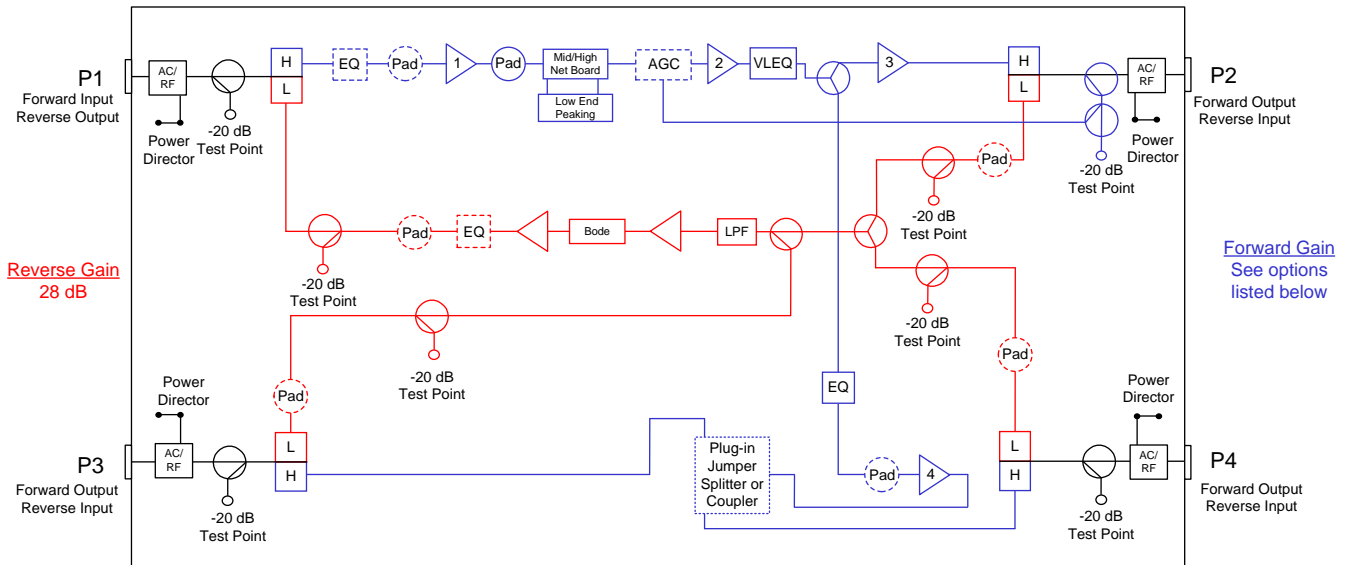
ASEM BLE 1218 MHz Amplifier Block Diagram



Note:
1. Forward gain stated at 1218 MHz with AGC. Reverse gain stated at 42, 85 or 204 MHz.

ASEM-MB

ASEM MB 1218 MHz Amplifier Block Diagram



Notes:
1. Forward gain stated at 1218 MHz with AGC. Reverse gain stated at 42, 85 or 204 MHz.
2. Amplifiers are configured at the factory with jumper in Position #2 to have P2 & P4 active.
Splitters and Couplers are sold separately.

| Jumper Position #1 | Jumper Position #2 | SDA1.2-SPLT | SDA1.2-DC8 | SDA1.2-DC8 | SDA1.2-DC10 | SDA1.2-DC10 | SDA1.2-DC12 | SDA1.2-DC12 |
|--------------------|--------------------|-------------|------------|------------|-------------|-------------|-------------|-------------|
| | | | | | | | | |
| Port | Port | Port | Port | Port | Port | Port | Port | Port |
| P2 | P2 | P2 | P2 | P2 | P2 | P2 | P2 | P2 |
| 48.0 | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 | 48.0 |
| P3 | P3 | P3 | P3 | P3 | P3 | P3 | P3 | P3 |
| 48.0 | N/A | 44.0 | 40.0 | 45.0 | 38.0 | 46.0 | 36.0 | 46.0 |
| P4 | P4 | P4 | P4 | P4 | P4 | P4 | P4 | P4 |
| N/A | 48.0 | 44.0 | 45.0 | 40.0 | 46.0 | 38.0 | 46.0 | 36.0 |

Station Parameters 42/53

| STATION PARAMETERS: | | 1218 MHz 42-53 MHz Split | | ASEM For Motorola 1218 MHz MB & BLE | |
|--|-----------------------------------|--------------------------|-------|--|------------------------|
| | | CONDITIONS | UNITS | SPECIFICATIONS | |
| Housing passband | | | MHz | 5 to 1218 | |
| Input current capacity | Any port, worst case | | Amp | 15 | |
| Hum modulation | Time domain @ rated current above | | -dBc | 65 @ 5-42 MHz 65 @ 54-1218 MHz | |
| Return loss | Any port, worst case | | dB | 16.0 | |
| Test Points | | | | | |
| Frequency range | | | MHz | 5 to 42 (Reverse) / 54 to 1218 (Forward) | |
| Test point type | Directional coupler | | N / A | | |
| Test point level | Forward & reverse | | -dB | 20.0 | |
| Test point accuracy | Forward & reverse | | ±dB | 0.75 | |
| Station Slope | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Operational slope (Tilt) | @ 54 / 550 / 1218 MHz | | dB | 0 / 8.1 / 19.0 | 0 / 8.1 / 19.0 |
| Slope control type | Cable equalizers | | dB | Pad Adjustable EQ's | |
| Slope control range | Includes cable equivalent | | dB | -12.0 to +22 | |
| Slope control steps | Equalizer value steps | | dB | 1.0 | |
| Station Group Delay | | | | | |
| Group delay | Channel 2 (Std) | nSec / 3.58 MHz | | 37 | |
| Group delay | Channel 3 | | | 16 | |
| Group delay | Channel 4 | | | 10 | |
| Group delay | Channel 5 & up | | | 4 | |
| AGC | | | | | |
| Pilot channel type | Up to 1002 MHz | | N / A | DSIM-A Single Pilot Channel AGC Analog or QAM | |
| Compensation range | | | dB | System compensation input change +4/-8 @ 1218 MHz | |
| Accuracy | | | ±dB | 0.5 | |
| Nominal loss | @ 77 °F (25 °C) | | dB | 6.25 | |
| Configuration | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Operational Specifications | | | | | |
| Station flatness | Normalized w / 0 dB slope | | ±dB | 0.50 | 0.30 |
| Gain - Port 2 (W/DSIM) | +1.0 / -0 @ 1218 MHz | | dB | 48.0 | 42.0 |
| Gain - Port 3 (W/DSIM) | | | dB | - | - |
| Gain - Port 4 (W/DSIM) | | | dB | 48.0 | - |
| 496 MHz analog channel loading, 79 channels + 660 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier | | | | | |
| Station Referenced Output Levels | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Port 2 | @ 54 / 550 / 1218 MHz | | dBmV | 38.0 / 46.1 / 57.0 | |
| Port 3 | | | | - | |
| Port 4 | | | | 38.0 / 46.1 / 57.0 | |
| Reference output slope (Tilt) | 54-1218 MHz | | dB | 19.0 | 19.0 |
| Station Noise Figure | | | | | |
| Noise figure (W/1 dB for input EQ loss) | Typ. @ 54 to 1002 MHz | | dB | 9.0 | 9.0 |
| | Typ. @ 1218 MHz | | dB | 9.5 | 10.5 |
| Station Distortions (Worse Case) | | | | | |
| Composite Triple Beat (CTB) | | | -dBc | 67 | 67 |
| Cross Modulation (XMOD) | | | -dBc | 65 | 64 |
| Composite Second Order (CSO-) | (Vc +0.75 & -1.25 MHz) | | -dBc | 67 | 67 |
| Composite Second Order (CSO+) | (Vc +1.25 MHz) | | -dBc | 67 | 67 |
| MER | | | dB | ≥40 | ≥40 |
| BER | | | N / A | ≤ 1 x 10 ⁻⁹ | ≤ 1 x 10 ⁻⁹ |

Station Parameters 85/105

| STATION PARAMETERS: | | 1218 MHz 85-105 MHz Split | | ASEM For Motorola 1218 MHz MB & BLE | |
|--|-----------------------------------|---------------------------|----------|--|------------------------|
| | | CONDITIONS | UNITS | SPECIFICATIONS | |
| Housing passband | | | MHz | 5 to 1218 | |
| Input current capacity | Any port, worst case | | Amp | 15 | |
| Hum modulation | Time domain @ rated current above | | -dBc | 65 @ 5-85 MHz 65 @ 105-1218 MHz | |
| Return loss | Any port, worst case | | dB | 16.0 | |
| Test Points | | | | | |
| Frequency range | | | MHz | 5 to 85 (Reverse) / 105 to 1218 (Forward) | |
| Test point type | Directional coupler | | N / A | | |
| Test point level | Forward & reverse | | -dB | 20.0 | |
| Test point accuracy | Forward & reverse | | ±dB | 0.75 | |
| Station Slope | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Operational slope (Tilt) | @ 105 / 550 / 1218 MHz | | dB | 0 / 7.2 / 18.0 | 0 / 7.2 / 18.0 |
| Slope control type | Cable equalizers | | dB | Pad Adjustable EQ's | |
| Slope control range | Includes cable equivalent | | dB | -12.0 to +22.0 | |
| Slope control steps | Equalizer value steps | | dB | 1.0 | |
| Station Group Delay | | | | | |
| Group delay | Channel A-2 | | | 30 | |
| Group delay | Channel A-1 | | nSec / | 16 | |
| Group delay | Channel 14 | | 3.58 MHz | 10 | |
| Group delay | Channel 15 & up | | | 3 | |
| AGC | | | | | |
| DSIM-A Single Pilot Channel AGC | | | | | |
| Pilot channel type | Up to 1002 MHz | | N / A | Analog or QAM | |
| Compensation range | | | dB | System compensation input change +4/-8 @ 1218 MHz | |
| Accuracy | | | ±dB | 0.5 | |
| Nominal loss | @ 77 °F (25 °C) | | dB | 6.25 | |
| Configuration | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Operational Specifications | | | | | |
| Station flatness | Normalized w / 0 dB slope | | ±dB | 0.50 | 0.35 |
| Gain - Port 2 (W/DSIM) | +1.0 / -0 @ 1218 MHz | | dB | 48.0 | 42.0 |
| Gain - Port 3 (W/DSIM) | | | dB | - | - |
| Gain - Port 4 (W/DSIM) | | | dB | 48.0 | - |
| 442 MHz analog channel loading, 74 channels + 660 MHz digital channel loading, 256 QAM at -6 dBc relative to its associated visual carrier | | | | | |
| Station Referenced Output Levels | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Port 2 | @ 105 / 550 / 1218 MHz | | dBmV | 39.0 / 46.2 / 57.0 | 39.0 / 46.2 / 57.0 |
| Port 3 | | | dBmV | - | - |
| Port 4 | | | dBmV | 39.0 / 46.2 / 57.0 | - |
| Reference output slope (Tilt) | 105-1218 MHz | | dB | 18.0 | 18.0 |
| Station Noise Figure | | | | | |
| Noise figure (W/1 dB for input EQ loss) | Typ. @ 105 to 1002 MHz | | dB | 9.0 | 9.0 |
| | Typ. @ 1218 MHz | | dB | 9.5 | 10.5 |
| Station Distortions (Worse Case) | | | | | |
| Composite Triple Beat (CTB) | | | -dBc | 67 | 67 |
| Cross Modulation (XMOD) | | | -dBc | 65 | 64 |
| Composite Second Order (CSO-) | (Vc +0.75 & -1.25 MHz) | | -dBc | 67 | 67 |
| Composite Second Order (CSO+) | (Vc +1.25 MHz) | | -dBc | 67 | 67 |
| MER | | | dB | ≥40 | ≥40 |
| BER | | | N / A | ≤ 1 x 10 ⁻⁹ | ≤ 1 x 10 ⁻⁹ |

Station Parameters 204/258

| STATION PARAMETERS: | | 1218 MHz 204-258 MHz Split | | ASEM For Motorola 1218 MHz MB & BLE | |
|---|-----------------------------------|----------------------------|----------|--|----------------------------|
| | | CONDITIONS | UNITS | SPECIFICATIONS | |
| Housing passband | | | MHz | 5 to 1218 | |
| Input current capacity | Any port, worst case | | Amp | 15 | |
| Hum modulation | Time domain @ rated current above | | -dBc | 65 @ 5-204 MHz 65 @ 258-1218 MHz | |
| Return loss | Any port, worst case | | dB | 16.0 | |
| Test Points | | | | | |
| Frequency range | | | MHz | 5 to 204 (Reverse) / 258 to 1218 (Forward) | |
| Test point type | Directional coupler | | N / A | | |
| Test point level | Forward & reverse | | -dB | 20.0 | |
| Test point accuracy | Forward & reverse | | ±dB | 0.75 | |
| Station Slope | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Operational slope (Tilt) | @ 258 / 550 / 1218 MHz | | dB | 0 / 4.7 / 15.5 | 0 / 4.7 / 15.5 |
| Slope control type | Cable equalizers | | dB | Pad Adjustable EQ's | |
| Slope control range | Includes cable equivalent | | dB | -12.0 to +22 | |
| Slope control steps | Equalizer value steps | | dB | 1.0 | |
| Station Group Delay | | | | | |
| Group delay | Channel 30 | | | 30 | |
| Group delay | Channel 31 | | nSec / | 16 | |
| Group delay | Channel 32 | | 3.58 MHz | 10 | |
| Group delay | Channel 33 & up | | | 3 | |
| AGC | | | | | |
| | | | | DSIM-A Single Pilot Channel AGC | |
| Pilot channel type | Up to 1002 MHz | | N / A | Analog or QAM | |
| Compensation range | | | dB | System compensation input change +4/-8 @ 1218 MHz | |
| Accuracy | | | ±dB | 0.5 | |
| Nominal loss | @ 77 °F (25 °C) | | dB | 6.25 | |
| Configuration | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Operational Specifications | | | | | |
| Station flatness | Normalized w / 0 dB slope | | ±dB | 0.50 | 0.35 |
| Gain - Port 2 (W/DSIM) | +1.0 / -0 @ 1218 MHz | | dB | 48.0 | 42.0 |
| Gain - Port 3 (W/DSIM) | | | dB | - | - |
| Gain - Port 4 (W/DSIM) | | | dB | 48.0 | - |
| Station Referenced Output Levels | | | | MB (Mini Bridger) | BLE (Line Extender) |
| Port 2 | @ 258 / 550 / 1218 MHz | | dBmV | 41.5 / 46.2 / 57.0 | 41.5 / 46.2 / 57.0 |
| Port 3 | | | | - | - |
| Port 4 | | | | 41.5 / 46.2 / 57.0 | - |
| Reference output slope (Tilt) | 258-1218 MHz | | dB | 15.5 | 15.5 |
| Station Noise Figure | | | | | |
| Noise figure (W/1 dB for input EQ loss) | Typ. @ 258 to 1002 MHz | | dB | 9.0 | 9.0 |
| | Typ. @ 1218 MHz | | dB | 9.5 | 10.5 |
| Station BER/MER Performance | | | | | |
| MER | | | dB | ≥40 | ≥40 |
| BER | | | N / A | ≤ 1 x 10 ⁻⁹ | ≤ 1 x 10 ⁻⁹ |

Reverse Spectrum

| REVERSE SPECTRUM: | | | ASEM For Motorola 1218 MHz MB & BLE | |
|--|---|-------------------|--|---|
| REVERSE | | | | |
| Reverse - General | | CONDITIONS | UNITS | |
| Station passband | | | MHz | 5 to 42, 5 to 85, 5 to 204 |
| Station flatness - 5 to 42 MHz | Normalized w / 0 dB slope | | ±dB | 0.50 |
| Station flatness - 5 to 85 MHz | Normalized w / 0 dB slope | | ±dB | 0.50 |
| Station flatness - 5 to 204 MHz | Normalized w / 0 dB slope | | ±dB | 0.65 |
| Reverse - Station Gain | | | | |
| Gain | +1.0 / -0 @ HF | | dB | 28.0 |
| Gain control type | | | | JXP Plug-in pads |
| Reverse - Station Slope | | | | |
| Slope control type | Cable equalizers | | N / A | Pad Adjustable Eqs |
| Slope control range | | | dB | 0 to 15.0 |
| Slope control steps | Equalizer value steps | | dB | 1.0 |
| Reverse - Station Group Delay | | | | |
| Group delay | 5 MHz | nSec / 1.5 MHz | | 45 |
| Group delay | 7 MHz | | | 16 |
| Group delay | 10 MHz | | | 5 |
| Group delay | 35 / 80 / 199 MHz | | | 10 |
| Group delay | 38.5 / 83.5 / 202.5 MHz | | | 25 |
| Configuration | | | MB (Mini Bridger) | BLE (Line Extender) |
| Reverse - Station Dynamic Range | | | | |
| Reference Output Level | | | dBmV | 42.0 |
| NPR at 50 dB CNR at 42 MHz | 42/53 Split | | dB | 21.0 |
| NPR at 50 dB CNR at 85 MHz | 85/105 Split | | dB | 18.0 |
| NPR at 50 dB CNR at 204 MHz | 204/258 Split | | dB | 12.0 |
| Reverse - Noise Figure | | | | |
| Noise figure (W/1 dB for input EQ loss) | Maximum | | dB | 11.5 |
| Power Requirements: | | | | |
| Max Watts | Includes reverse & DSIM (Worst case) | | W | 42.9 |
| AC Voltage | | | | |
| Input ranges | | | VAC | 45 to 90 |
| Current Draw (with DSIM AGC) | | | | |
| @ 45 VAC | Maximum | | A | 1.28 |
| @ 50 VAC | | | A | 1.15 |
| @ 60 VAC | | | A | 1.07 |
| @ 70 VAC | | | A | 0.93 |
| @ 80 VAC | | | A | 0.81 |
| @ 90 VAC | | | A | 0.74 |
| Weight | | | | |
| Weight | | | lbs. (kg) | 3.75 (1.7) |
| Physical | | | | |
| Dimensions | (H X W X D) | | In. (cm) | 5.9 X 12.6 X 2.36 (15 X 32 X 6) |
| | | | | 5.12 X 8.72 X 3.20 (13.0 X 22.14 X 8.20) |
| Environmental | | | | |
| Operating temperature | | | °F (°C) | -40 to +140 (-40 to +60) |

Accessory Ordering Information:

The ASEM Moto ordering matrix provides the part number information to order the configured stations. This page contains the ordering information for the required accessories that will be needed to make the stations functional in the field or the optional accessories that can be ordered separately.

Required Accessories

| Description | Part Numbers (Where XX = dB value) |
|--|---|
| JXP style attenuator pads <ul style="list-style-type: none"> • 1 Required for forward input • 1 Required for reverse output • 1 Required for forward input Equalizer • 1 Required for reverse output Equalizer | JXP137B-XX (0 to 20 dB in 1.0 dB steps) |

Optional Accessories

| Description | Part Numbers |
|---|---|
| Digital Station Intelligence Manager - Single Pilot AGC Module (Analog or Digital) | DSIM-A-MDL-1201 |
| Digital Station Intelligence Manager -Controller | DSCT-xxx-yyy xxx = Pilot Channel Number yyy = Channel Type IRC = Analog IRC Spacing DIG = Digital / QAM |
| DSIM Bluetooth Dongle Apple iOS or android | DSIM-DONGLE-02 |
| Cable assembly DSIM adaptor to connect controller | 240330-01 |
| Pad Adjustable Equalizer JXP Platform 0-22 dB | AEQ1.2G |
| Pad Adjustable Cable Equivalent Equalizers JXP Platform 0-12 dB | ACEQ1.2G |
| Pad Adjustable Reverse Equalizers 5-42, 85 and 204 MHz JXP Platform 0-12 dB (5 Pin) | AREQPE42 AREQPE85 AREQPE204 |
| Motorola MB DC/SP2 For P3 or P4 | SDA1.2-SPLT SDA1.2-DC8 SDA1.2-DC10 SDA1.2-DC12 |
| Test Probe (5.5" Long) | 100685-01 |
| Test Probe (1.57" / 4 cm Long) | TP-7504 |
| Seizure 15 Amp Red 15 Amp Housing for Motorola MB (QTY 4) | 120578-04 |
| Seizure 15 Amp White 15 Amp Housing Motorola BLE (QTY 2) | 120636-02 |
| Split Conversion Kit, Moto MB 85/105 1.2G 18 dB Slope | 120620-01 |
| Split Conversion Kit, Moto BLE 85/105 1.2G 18 dB Slope | 120619-01 |
| Split Conversion Kit, Moto BLE 85/105 1.2G 11 dB Slope | 120662-01 |
| Split Conversion Kit, Moto MB 204/258 1.2G 15.5 dB Slope | 120622-01 |
| Split Conversion Kit, Moto BLE 204/258 1.2G 15.5 dB Slope | 120621-01 |
| Split Conversion Kit, Moto BLE 204/258 1.2G 8.5 dB Slope | 120663-01 |
| Moto MB 45-90 VAC Power Supply for Jerrold Housings | MB-MPPS |
| Moto MB 45-90 VAC Power Supply for GI/Motorola Housings | MB-MPPS-II |

Ordering Matrix

| | | | | | | | | | | | | |
|--|---|---|-----------|---------|----------|-------------------|---|---|---|---|----|----|
| ASEM™ 1.2G Moto Product Configuration Worksheet | | | | | | | | | | | | |
| Customer: _____ | | | | | | | | | | | | |
| Created By: _____ | | | | | | Order Date: _____ | | | | | | |
| ORDERING MATRIX January 25, 2023 | | | | | | | | | | | | |
| | Position | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 |
| PART NUMBER | | | | | | | | | | | | |
| 1,2 | <input type="checkbox"/> <input type="checkbox"/> | STATION TYPE | | | | | | | | | | |
| | | BL = 1 Output LE MB = 2 or 3 Output Bridger | | | | | | | | | | |
| 3 | <input type="checkbox"/> | BANDWIDTH FREQUENCY | | | | | | | | | | |
| | | 2 = 1218 MHz Upper Frequency | | | | | | | | | | |
| 4 | <input type="checkbox"/> | BANDPASS SPLIT | | | | | | | | | | |
| | | K = 5-42 MHz / 54- 1218 MHz MHz H = 5-204 MHz / 258-1218 MHz | | | | | | | | | | |
| | | N = 5-85 MHz / 105-1218 MHz MHz | | | | | | | | | | |
| 5,6 | <input type="checkbox"/> <input type="checkbox"/> | STATION GAIN (Forward) | | | | | | | | | | |
| | | Amplifier Model | BL | MB | | | | | | | | |
| | | Max gain with DSIM-A AGC | 42 | 48 | | | | | | | | |
| 7 | <input type="checkbox"/> | FORWARD GAIN CONTROL TYPE | | | | | | | | | | |
| | | D = Digital Station Intelligence Manger (DSIM-A) | | | | | | | | | | |
| 8 | <input type="checkbox"/> | STATION SLOPE | | | | | | | | | | |
| | | | Type | 54-1218 | 105-1218 | 258-1218 | | | | | | |
| | | V = | MB or BLE | 19.0 | 18.0 | 15.5 | | | | | | |
| | | W = | BLE Only | 12.0 | 11.0 | 8.5 | | | | | | |
| 9 | <input type="checkbox"/> | STATION GAIN (Reverse) | | | | | | | | | | |
| | | L = 28 dB | | | | | | | | | | |
| 10 | <input type="checkbox"/> | HOUSING OPTIONS | | | | | | | | | | |
| | | M = RF Module Only | | | | | | | | | | |
| | | C = Complete Station With Housing | | | | | | | | | | |
| 11 | <input type="checkbox"/> | CUSTOM OPTIONS | | | | | | | | | | |
| | | 0 = NONE | | | | | | | | | | |
| | | X = Determined by Product Management | | | | | | | | | | |
| Generic Order Form: Not all configurations are available | | | | | | | | | | | | |

ACI[®]
 ACI Communications, Inc.
 23307 66th Avenue South
 Kent, WA 98032

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