

## USER MANUAL

### RESEARCH

PROFESSIONAL POWER AMPLIFIERS:

A500 • A700v • A750 • A1000 • A1004 • A1500 • A2000 • A3000 • A4000 A5000 • A5003 • A6000 • Q6 • Q900 • Q1004 • QB1000/600 • Line250 • Line500



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# Installation

### **Box contents**

In addition to your amplifier and this manual, the carton should contain the following items:

- Neutrik<sup>®</sup> Speakon<sup>®</sup> plugs, depending on your amplifier model:
  - Line250, Line500 no Speakon plugs
    A700v: one Speakon plug
    Q6, Q1004, QB1000/600, Q900: four Speakon plugs
    All other models: two Speakon plugs
- A500 and A700v only. Detachable power cable with IEC connector.
- Warranty card. Please complete this card and return it to Chevin Research. Failure to register may result in delays if you require warranty service. See rear cover for warranty.

### Positioning

- Your amplifier must have good ventilation. Air is drawn in at the rear panel and is expelled at the front. It is vital to keep front and rear of unit free from obstruction.
- Your amplifier may be used free-standing or installed in a 19" rack. If installed in a rack, the rear of the chassis should be supported. Rear rack-mount supports are integral on all models except the A500 & A700v.

### Power

#### Wiring

- EARTHING: All Chevin amplifiers **must** be earthed.
- A500 & A700v models connect to the mains supply via a supplied detachable power cable.
- All other models have fixed power cables, colour coded to European standards: *Green/Yellow = Earth Blue=Neutral Brown= Live*
- The A5000, A6000 and Q900 have 2 power cables.
- The live connector in certain 115V models is coloured RED.
- The amplifier must be connected to a 3-pin grounded outlet via a 3-pin connector of sufficient voltage and current rating. If the connector has provision for a fuse, a suitable fuse must be fitted.

#### Mains supply

- The power rating of the supply should be at least twice the total audio output of the system.
- VOLTAGE SELECTION: Your amplifier is factory set to your local supply voltage and should be changed only by an authorised Chevin dealer.
- ELECTRIC SHOCK/FIRE HAZARD: The unit must be connected to an adequately rated grounded outlet. All related cables, connectors and switch gear must be sufficiently rated to avoid risk of overheating and fire.



### Power (continued)

#### Three phase systems

- IMPORTANT: The neutral current will not balance on three-phase systems.
- Use individual neutral connections from each phase outlet back to the distribution point.
- Alternatively, ensure the neutral conductor is of sufficient capacity to handle a return current equal to the sum total of the current in the three phases.

### Inputs

- XLR connectors are used on all amplifier inputs except for Line250 and Line500 models.
- Do not directly connect any channel to more than one signal source, these are **not** mixing amplifiers.
- All inputs are electronically balanced and can accept signals from balanced and unbalanced sources. Maintain the same phase polarity on all equipment in the signal chain.

#### Inputs from balanced sources

Use shielded cable with XLR connectors at both ends (except Line250 and Line500):

- Ground/screen: Connect cable braid to XLR pin 1.
- HOT (+) signal: XLR pin 2
- COLD (-) signal: XLR pin 3

#### Inputs from unbalanced sources

Use shielded cable with an XLR connector at the amplifier end (except Line250 and Line500) and either a jack plug, phono plug or XLR connector, as appropriate:

- Ground/screen and COLD (-): At the source end, connect the COLD signal wire and cable braid to the sleeve of jack plug or phono connector, or pin 1 of an XLR connector (if used).
- At the source end of the cable, connect the HOT (+) signal to the tip of the jack plug, the pin of the phono plug or pin 2 of an XLR connector (if used).
- Connect the XLR at the amplifier end as per 'Inputs from balanced sources' above.

#### Inputs to Line250 and Line500 models

The Line250 and Line500 models use block connectors at the rear panel. Use connections at the source end as explained above for balanced or unbalanced sources. At the amplifier end, make wire connections rather than using an XLR connector.

#### Mono bridging

Various models can have their channels bridged together (except A700v, A5000, A6000, QB1000/600, Line250 or Line500). For details about the necessary wiring, see page 6.

Speakon is a registered trademark of Neutrik AG XLR is a registered trademark of ITT Cannon Ltd.



### Outputs

Connections are made to the amplifier load using Neutrik Speakon sockets (except for Line250 and Line500 models). As with input connectors, maintain phase polarity throughout the system.

IMPORTANT: High voltages are present at output terminals during operation and for a period afterwards. Do not connect the amplifier to any other amplifier output or to any equipment other than a speaker system.

Take great care to note the wiring specifications particular to your amplifier model:

#### A700v

One Speakon socket per channel, wired as follows:

| <b>1+</b> = HOT                | <b>2+</b> = NO CONNECTION |
|--------------------------------|---------------------------|
| <b>1</b> – = COLD (not Ground) | 2- = NO CONNECTION        |

WARNING: The A700v output is permanently connected in bridge mode. Both hot and cold outputs carry high level signal. Further bridging is impossible. No terminal of the speaker socket is connected to ground. Do not connect any part of the speaker system to ground.

#### A500 • A750 • A1000 • A1004 • A1500 • A2000 • A3000 • A4000 • A5003 • Q900

Two parallel-connected Speakon sockets (A500: one socket) per channel, wired as follows:

| <b>1+</b> = HOT    | <b>2+</b> = NO CONNECTION |
|--------------------|---------------------------|
| <b>1–</b> = GROUND | <b>2–</b> = GROUND        |

#### A5000 • A6000

Two parallel-connected Speakon sockets per channel, wired as follows:

| <b>1+</b> = HOT               | <b>2+</b> = NO CONNECTION     |
|-------------------------------|-------------------------------|
| <b>1–</b> = COLD (not Ground) | <b>2–</b> = COLD (not Ground) |

WARNING: The A5000 / A6000 outputs are permanently connected in bridge mode. Both hot and cold outputs carry high level signal. Further bridging is impossible. Do not connect any part of the A5000 or A6000 outputs to ground. Take care when using loudspeaker controllers or processors.

#### Q6 • Q1004

One Speakon socket per channel, parallel connected in channel pairs: A & B, C & D. Each socket in the pair carries the output of both channels, wired as follows:

| Channel A & B sock | ets:               | Channel C & D sock | ets:               |
|--------------------|--------------------|--------------------|--------------------|
| <b>1+</b> = HOT A  | <b>2+</b> = HOT B  | <b>1+</b> = HOT C  | <b>2+</b> = HOT D  |
| 1– = GROUND        | <b>2–</b> = GROUND | 1– = GROUND        | <b>2–</b> = GROUND |

#### QB1000/600

One Speakon socket per channel, parallel connected in pairs: A & B, C & D. Each socket in the pair carries the output of both channels, wired as follows:

| Channel A & B sockets   |                        | Channel C & D sockets   | :                      |
|-------------------------|------------------------|-------------------------|------------------------|
| <b>1+</b> = HOT B 1000W | <b>2+</b> = HOT A 600W | <b>1+</b> = HOT C 1000W | <b>2+</b> = HOT D 600W |
| 1– = GROUND             | <b>2–</b> = GROUND     | 1– = GROUND             | <b>2–</b> = GROUND     |

#### Line250 • Line500

Connect load to output connector blocks using the 0v terminal and either the 70v or 100v HOT terminals, as appropriate to the system.



### Speaker power ratings

Suggested speaker ratings per amplifier channel, in watts.

| Model          | 16Ω | 8Ω   | 4Ω   | 2Ω   |
|----------------|-----|------|------|------|
| A500           | 115 | 230  | 460  | -    |
| A700v          | 450 | 900  | _    | _    |
| A750           | 160 | 300  | 600  | _    |
| A1000 • Q6     | 230 | 450  | 900  | _    |
| A1004 • Q1004  | 400 | 750  | 1500 | _    |
| A1500          | 500 | 1000 | 1900 | _    |
| QB1000/600 A&D | 230 | 450  | 900  | _    |
| B&C            | 400 | 750  | 1500 | -    |
| A2000          | 230 | 500  | 1000 | 1800 |
| A3000          | 350 | 650  | 1300 | 2300 |
| A4000          | 450 | 800  | 1500 | 3000 |
| A5000 • A5003  | 500 | 1000 | 2000 | 3600 |
| A6000          | 800 | 1200 | 2600 | 4500 |
| Q900           | 350 | 650  | 1300 | 2300 |

### Speaker impedances

Correct loadings for all models are shown here. Multiple speakers are connected in parallel.

#### A700v

WARNING: Do not use a system with a total impedance less than  $8\Omega$ .

The A700v can be used to drive a 70 volt distribution system (maximum loading 600W) or a 100 volt line system at a reduced output. Note: Do not connect a transformer between the A700v output and distribution system. Where line transformers are used to match speakers to the distribution system, adjust to suit the characteristics of the speaker.

#### A500 • A750 • A1000 • A1004 • A1500 • Q6 • Q1004 • QB1000/600 (per channel)

WARNING: Do not use a system with a total impedance per channel less than  $4\Omega$ .

| 4 or less               | OR | 2 or less             | OR | 1 speaker |
|-------------------------|----|-----------------------|----|-----------|
| speakers of 16 $\Omega$ |    | speakers of $8\Omega$ |    | of 4Ω     |

#### A2000 • A3000 • A4000 • A5000 • A5003 • A6000 • Q900 (per channel)

WARNING: Do not use a system with a total impedance per channel less than  $2\Omega$ .

| 8 or less              | OR | 4 or less             | OR | 2 or less             | OR | 1 speaker |
|------------------------|----|-----------------------|----|-----------------------|----|-----------|
| speakers of $16\Omega$ |    | speakers of $8\Omega$ |    | speakers of $4\Omega$ |    | of 2Ω     |

Note: The A5000 and A6000 models both incorporate an adjustable output limiting control, concealed behind the front panel. Consult an authorised Chevin dealer to enable this feature.



### Mono bridge mode

WARNING: You cannot bridge the A700v, A5000, A6000, QB1000/600, Line250 or Line500.

#### Inputs

#### A500

- 1 Make a lead from the source with two XLR plugs at the amplifier end.
- 2 HOT output from the source goes to pin 2 of Channel A XLR and pin 3 of Channel B XLR.
- 3 COLD output from the source goes to pin 3 of Channel A XLR and pin 2 of Channel B XLR.
- 4 The cable screen goes to pin 1 of both XLR plugs.

#### Q6 • Q1004

- 1 Make two leads, one for each source channel. Each lead needs 2 XLR plugs at the amplifier end.
- 2 In each lead, HOT output from the source goes to pin 2 of the first XLR & pin 3 of the second XLR.
- 3 In each lead, COLD output from the source goes to pin 3 of first XLR & pin 2 of second XLR.
- 4 The cable screen goes to pin 1 of both XLR plugs.
- 5 In each lead, first XLR goes to INPUT A (INPUT C) and second XLR goes to INPUT B (INPUT D).

#### A750 • A1000 • A1004 • A1500 • A2000 • A3000 • A4000 • A5003 • Q900

- 1 Bring the input signal into channel A as usual.
- 2 Make a lead with an inline XLR socket to go to the Channel A LINK connector and an XLR plug to go to the Channel B INPUT socket.
- 3 Connect socket pin 2 to plug pin 3 and similarly, socket pin 3 to plug pin 2.

Q900: Make a second lead as above for channels C & D.

#### Outputs

#### A500 • A750 • A1000 • A1004 • A1500 • A2000 • A3000 • A4000 • A5003 • Q900

- 1 Split the speaker cable by separating the two conductors for a distance of 20cm along cable.
- 2 Connect the red conductor to terminal 1+ of the Channel A Speakon connector.
- 3 Connect the black connector to terminal 1+ of the Channel B Speakon connector.

Do not make connections to any other terminals. **Q900**: Repeat the above for channels C & D.

#### Q6•Q1004

- 1 Connect the red conductor of the speaker cable to terminal 1+ of channel A (C) Speakon conn.
- 2 Connect the black conductor of the speaker cable to terminal 2+ of channel B (D) Speakon conn. WARNING: Do not make connections to terminals 1– or 2–.

#### Operation

Set the gain controls of both channels in the same position (preferably at maximum), and control the gain from elsewhere in the system. This ensures the load is shared equally between channels.

#### Loading and power output

Please see the rear page for mono bridge loading and power output values.



## **Operation & Servicing**

#### Switching on

- 1 Turn the gain controls to the minimum positions.
- 2 Connect the unit to a mains supply of sufficient power and click the front panel switch(es) to the ON position. Depending on the internal temperature, the fans may run.
  - The green *Power* indicators will illuminate.
  - The red *Clip* indicators will illuminate if overdriving is imminent.

WARNING: Keep sound levels down. High levels of sound can damage hearing.

#### Switching off

• Turn the gain control(s) to the minimum position(s). Click the front panel switch(es) to the OFF position and disconnect from the mains supply.

WARNING: High voltages are present at output terminals for a period after switching off.

### **Protection systems**

- Mains power supply failure: When power is restored, the amp will AutoMute for five seconds. Do not increase gain settings during this period. Note: A500, A700v, Line250 and Line500 do not AutoMute.
- **Shorted output:** The unit can operate indefinitely into a shorted output. Normal operation will resume upon removal of the short circuit.
- Low load impedance: Protection is immediate.
- **Clipping:** The affected channel's red Clip indicator will illuminate shortly before clipping. A further increase in signal level will activate the SoftClip circuit.
- **RF, DC or very low frequency signal at output:** A self resetting circuit will activate to protect the load.
- **Cooling systems:** The internal fans react to both high signal level and temperature inside the unit. If the ambient temperature is high, fan speed will increase even in the absence of a signal.

### Servicing

WARNING: All servicing and internal maintenance must be referred to an authorised Chevin dealer. Chevin Research accepts no responsibility or liability relating to injury or damages suffered as a result of misuse or unauthorised tampering with amplifiers.

- Do not remove any covers or touch any internal parts. Do not allow any objects (e.g. screwdrivers, cable ends, etc.) to enter the unit.
- If the unit of any other electrical equipment in the system becomes wet during operation, disconnect the power source immediately. Do not touch the amplifier. Consult a qualified engineer.
- If there are any signs of mechanical damage, disconnect the power source and consult a qualified engineer.



#### A500



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A500

SEE PAGE 3 FOR INPUT WIRING • SEE PAGES 4 & 5 FOR OUTPUT WIRING • REAR PANEL



A700v

SEE PAGE 3 FOR INPUT WIRING • SEE PAGES 4 & 5 FOR OUTPUT WIRING • REAR PANEL



Q1004 • QB1000/600 SEE PAGE 3 FOR INPUT WIRING • SEE PAGES 4 & 5 FOR OUTPUT WIRING • REAR PANELS



#### A750 • A1000 • A1004 • A1500 • A2000 • A3000



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A4000 • A5003
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SEE PAGE 6 FOR OPERATION DETAILS • FRONT PANEL



#### A5000 • A6000

SEE PAGE 6 FOR OPERATION DETAILS • FRONT PANEL

Model shown is A6000. Signal indicator values are different for A5000.



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#### A750 • A1000 • A1004 • A1500 • A2000 • A3000

SEE PAGES 3, 4 & 5 • REAR PANEL



SEE PAGE 6 FOR OPERATION DETAILS • FRONT PANEL



Q900

**Q6** 

SEE PAGE 6 FOR OPERATION DETAILS • FRONT PANEL



Line250 • Line500

SEE PAGE 6 FOR OPERATION DETAILS • FRONT PANEL

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**Q**6



Q900

SEE PAGE 3 FOR INPUT WIRING • SEE PAGES 4 & 5 FOR OUTPUT WIRING • REAR PANEL



Line250 • Line500

SEE PAGE 3 FOR INPUT WIRING • SEE PAGES 4 & 5 FOR OUTPUT WIRING • REAR PANEL



|    | General specifications             | A500           | A700v          | A750           | A1000          | A1004          | A1500          | 90             | 01004          | QB1000/600                               |
|----|------------------------------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|----------------|------------------------------------------|
|    | RMS nower output                   |                |                |                |                |                |                |                |                |                                          |
|    | into An (ner chan )                | 3501/1         | e/u            | 175/1/         | 600M           | 10001/         | 175000         | 600W           | 10001          | 7~1000////////////////////////////////// |
|    |                                    |                | 11/4           | VVC 24         |                |                | 110021         |                |                |                                          |
|    | into 8Ω (per chan.)                | 200W           | 600W           | M042           | WUG5           | 600W           | VV049          | WUGE           | 600W           | VVU25X2/VVU09X2                          |
| _  | No. of channels                    | 2              | -              | 2              | 2              | 2              | 2              | 4              | 4              | 4                                        |
| _  | Power bandwidth +0dB, -3dB         | 2Hz - 40kHz    | 2Hz - 40kHz    | 2Hz - 80kHz                              |
|    | Slew rate in excess of             | 40V/µS         | 40V/µS         | 75V/µS         | 75V/µS         | 75V/µS         | 60V/µS         | 75V/µS         | 75V/µS         | 75V/µS                                   |
|    | Gain                               | x37.5          | x70            | x40            | x50            | x65            | x70            | x50            | x65            | x65 / x50                                |
|    | Total harmonic distortion          |                |                |                |                |                |                |                |                |                                          |
|    | typical @ 1dB below clip           | 0.06%          | 0.06%          | 0.04%          | 0.04%          | 0.04%          | 0.04%          | 0.04%          | 0.04%          | 0.04%                                    |
|    | 20kHz @ 1dB below clip             | 0.08%          | 0.08%          | 0.07%          | 0.07%          | 0.07%          | 0.07%          | 0.07%          | 0.07%          | 0.07%                                    |
|    | Signal to noise ratio              |                |                |                |                |                |                |                |                |                                          |
|    | typ. ref. full output, unweighted  | -120dB         | -120dB         | 125dB          | -125dB         | -125dB         | -125dB         | -125dB         | -125dB         | -125dB                                   |
|    | Worst case 10Hz - 30kHz            | -95dB                                    |
|    | Crosstalk                          |                |                |                |                |                |                |                |                |                                          |
|    | typical                            | -115dB         | n/a            | -115dB                                   |
|    | worst case 10Hz - 30kHz            | -95dB          | n/a            | -95dB                                    |
|    | Damping factor                     | 400            | 400            | 400            | 400            | 400            | 400            | 400            | 400            | 400                                      |
|    | Input impedance                    |                |                |                |                |                |                |                |                |                                          |
|    | electronically balanced            | 10ka           | 10ka           | 10kn           | 10ka           | 10kn           | 10kn           | 10ka           | 10ka           | 10kn                                     |
| -  | Common mode rejection (typ.)       | -70dB                                    |
|    | Input sensitivity                  |                |                |                |                |                |                |                |                |                                          |
|    | ref. full output into $4 \alpha$   | 1V RMS                                   |
|    | Protection                         |                |                |                |                |                |                |                |                |                                          |
|    | clipping                           | soft                                     |
|    | load below 2.40                    | dynamic linear                           |
|    | shorted output, DC or RF at output | immediate                                |
|    | Power consumption                  | 1.2kVA         | 1.2kVA         | 1.5kvA         | 2kva           | 3.3kVA         | 4kvA           | 4kvA           | 6.6kva         | 5.2kVA                                   |
|    | 50/60Hz AC in volts                | 220-240V                                 |
|    | internally selectable for          | 100-120V       | n/a            | 100-120V                                 |
|    | Dimensions/weight                  |                |                |                |                |                |                |                |                |                                          |
|    | rack units                         | 10             | 10             | 2U             | 2U             | 2U             | 2U             | 2U             | 3U             | 3U                                       |
| C  | height x width x depth (inches)    | 1.75x19x8.5    | 1.75x19x8.5    | 3.5x19x15      | 3.5x19x15      | 3.5x19x15      | 3.5x19x15      | 3.5x19x15      | 5.25x19x15     | 5.25x19x15                               |
| HF | height x width x depth (mm)        | 44x483x215     | 44x483x215     | 88x483x381     | 88x483x381     | 88x483x381     | 88x483x381     | 88x483x381     | 132x483x381    | 132x483x381                              |
| VI | gross weight                       | 5.2kg/11.5lbs  | 5.1kg/11.2lbs  | 10kg/22lbs     | 10kg/22lbs     | 13.3kg/29lbs   | 14kg/31lbs     | 14kg/30.9lbs   | 16kg/34lbs     | 20kg/44lbs                               |
| J  | וופר אפולוור                       | 4. / KU/ 9105  | 4kg/o.olus     | suic.oi /yy+.o | suir i yasc.o  | 1.1.7 kg/20105 | 12.4Ky/2/1US   | sul12/byc.21   | 14kg/23.0105   | suic.04/40.                              |

#### Mono bridge loading and power outputs (see page 6 for details)

| Model | Minimum load                          | Power output           |
|-------|---------------------------------------|------------------------|
| A500  | 1 load of 8 $\Omega$                  | 650W                   |
| A750  | 1 load of 8 $\Omega$                  | 850W                   |
| A1000 | 1 load of 8 $\Omega$                  | 1200W                  |
| A1004 | 1 load of 8 $\Omega$                  | 2000W                  |
| A1500 | 1 load of 8 $\Omega$                  | 2500W                  |
| A2000 | 1 load of $4\Omega$                   | 2400W                  |
| A3000 | 1 load of $4\Omega$                   | 3000W                  |
| A4000 | 1 load of $4\Omega$                   | 4000W                  |
| A5003 | 1 load of $4\Omega$                   | 5000W                  |
| Q900  | 1 load of 4 $\Omega$ per channel pair | 3000W per channel pair |
| Q6    | 1 load of 8 $\Omega$ per channel pair | 1200W per channel pair |
| Q1004 | 1 load of $8\Omega$ per channel pair  | 2000W per channel pair |

### Warranty

This precision engineered CHEVIN product is guaranteed against defects due to faulty materials and workmanship for a period of twenty four (24) months from the date of the original purchase, subject to the following restrictions:

- This warranty is only valid in the country of purchase
- The equipment has not been abused or operated in conjunction with unsuitable or faulty apparatus. The equipment has not been disassembled, modified or tampered with by any person other than our CHEVIN staff or overseas by our own or distributors' staff.
- The equipment has not suffered damage in transit.

Should service be required, notify the dealer from whom you purchased the equipment to arrange for an authorised CHEVIN agent to confirm the need for attention.

- Do not dispatch the goods without the prior approval of CHEVIN or its authorised agents. If asked to return the goods, pack them carefully (preferably in the original carton) and return pre-paid. Insurance is recommended as goods are returned at owner's risk.
- Packing insurance and freight on the return journey will be paid for by CHEVIN or its authorised agents only if warranty work proves necessary. If warranty work proves unnecessary, goods will be released upon payment by the owner for charges for non-warranty repair work and return packing, insurance and freight.
- The attached warranty card should be completed and returned to CHEVIN RESEARCH LTD.
- Failure to register by not returning the warranty card in no way limits or invalidates the warranty, but in the event of service being required, delay may result since warranty work cannot begin until the original sale has been verified.
- In case of difficulty, contact CHEVIN RESEARCH LTD. This warranty in no way affects your statutory rights.

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