Pi4 AirPlay Speaker — One-Page Cheat Sheet (High-Fidelity Version)

1. Install PipeWire & disable PulseAudio

```
sudo apt update
sudo apt install -y pipewire pipewire-pulse pipewire-utils

# Stop & disable PulseAudio
systemctl --user stop pulseaudio.service pulseaudio.socket
systemctl --user disable pulseaudio.service pulseaudio.socket

# Enable PipeWire
systemctl --user enable --now pipewire pipewire-pulse

# Verify
pactl info   # Should show "PulseAudio (on PipeWire …)"
```

2. Install Shairport Sync

```
sudo apt install -y shairport-sync
```

3. Configure ALSA → PipeWire

`/etc/asound.conf` :

```
pcm.!default {
    type pipewire
}

ctl.!default {
    type pipewire
}
```

4. Configure Shairport Sync for High-Fidelity Audio

`/etc/shairport-sync.conf` :

```
general = {
    name = "Luchtspel";
    output_backend = "alsa";           # ALSA → PipeWire
    interpolation = "soxr";            # High-quality resampling
    soxr_quality = "high";             # maximize fidelity
    drift_tolerance_in_seconds = 0.010; # relaxed sync for music
    ignore_volume_control = "no";
    volume_range_db = 60;
    metadata_enabled = "yes";
};

sessioncontrol = {
    allow_session_interruption = "yes";
    allow_session_termination = "yes";
};

alsa = {
    output_device = "default";
    mixer_control_name = "Master";
    mixer_device = "default";
    playback_format = "S24_LE";         # 24-bit audio if DAC supports it
    buffer_time = 100000;                # 100ms buffer for smoother, high-
fidelity playback
    disable_silence = "no";              # preserve silence for precise timing
    audio_backend_latency = 0;            # default PipeWire latency
};
```

5. Create systemd user service

`~/.config/systemd/user/shairport-sync.service` :

```
[Unit]
Description=Shairport Sync AirPlay Receiver (User)
After=pipewire.service pipewire-pulse.service
Requires=pipewire.service pipewire-pulse.service

[Service]
Type=simple
ExecStart=/usr/bin/shairport-sync -c /etc/shairport-sync.conf -vv
Restart=on-failure
Environment=XDG_RUNTIME_DIR=/run/user/%U
ExecStartPre=/bin/sleep 2    # ensure PipeWire ready
```

```
[Install]
WantedBy=default.target
```

Enable service:

```
sudo loginctl enable-linger pi   # replace 'pi' with your username
systemctl --user daemon-reload
systemctl --user enable --now shairport-sync
```

---

6. Verify & test

```
pactl list short sinks         # USB DAC should appear
pw-top                         # Confirm Shairport Sync connected
paplay /usr/share/sounds/alsa/Front_Center.wav   # Test audio
```

- Works headless, high-fidelity audio, routed to USB DAC
- Optimized for music listening (slightly higher latency, clean sound)

✅**Optional tweaks:** - Adjust `buffer_time` 80,000–120,000 for DAC/stability balance - Ensure Wi-Fi signal quality >50/70 for smooth streaming