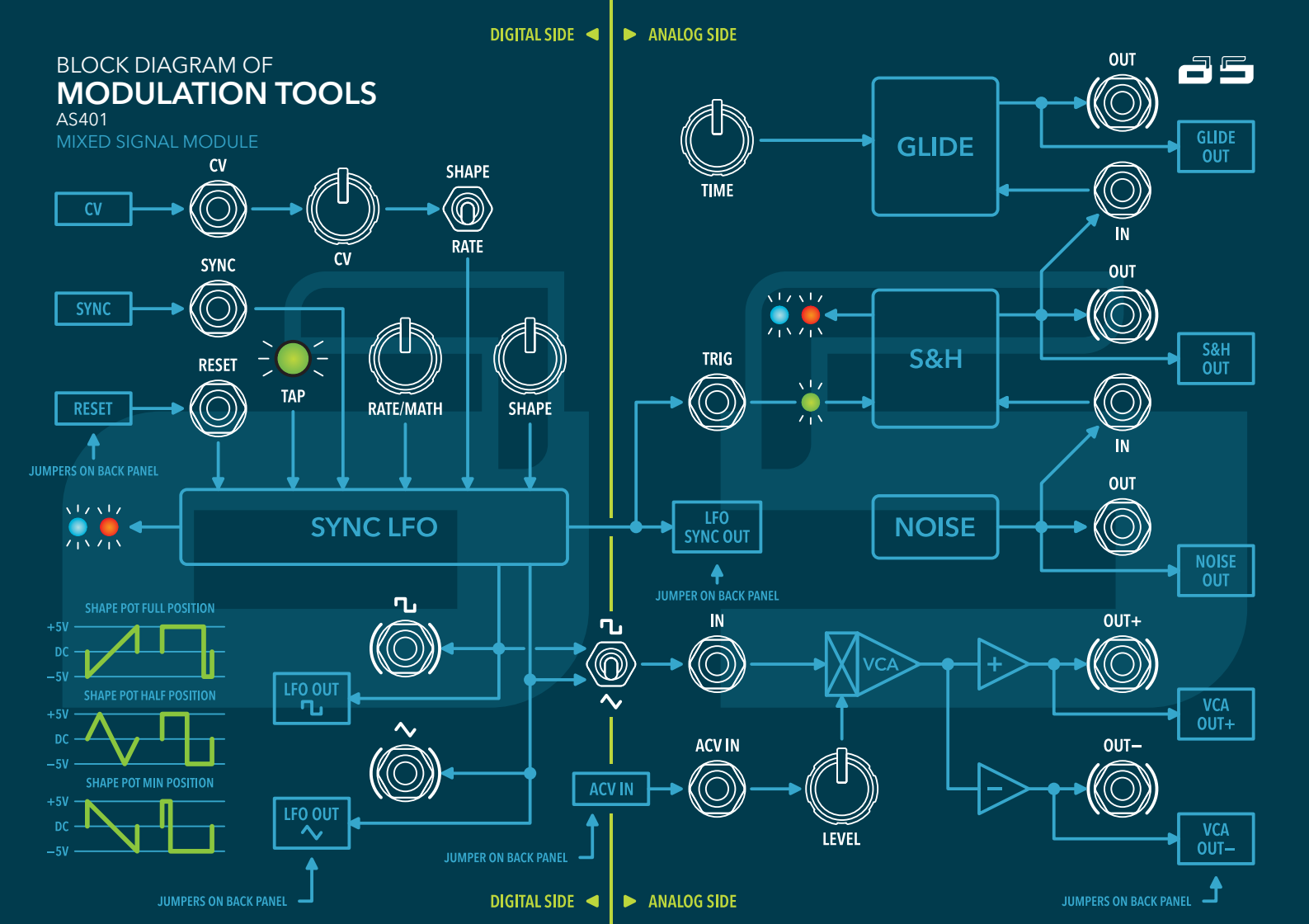

DIGITAL SIDE
ANALOG SIDE
BLOCK DIAGRAM OF
MODULATION TOOLS
AS401
MIXED SIGNAL MODULE
CV
CV
CV
SHAPE
RATE
SYNC
SYNC
RESET
RESET
TAP
RATE/MATH
SHAPE
JUMPERS ON BACK PANEL
SYNC LFO
SHAPE POT FULL POSITION
+5V
DC
–5V
SHAPE POT HALF POSITION
+5V
DC
–5V
SHAPE POT MIN POSITION
+5V
DC
–5V
LFO OUT
LFO OUT
JUMPERS ON BACK PANEL
TIME
GLIDE
OUT
GLIDE OUT
IN
TRIG
S&H
OUT
S&H OUT
IN
LFO SYNC OUT
JUMPER ON BACK PANEL
NOISE
OUT
NOISE OUT
IN
ACV IN
ACV IN
JUMPER ON BACK PANEL
LEVEL
VCA
OUT+
VCA OUT+
OUT–
VCA OUT–
JUMPERS ON BACK PANEL
DIGITAL SIDE
ANALOG SIDE

FRONT PANEL OF

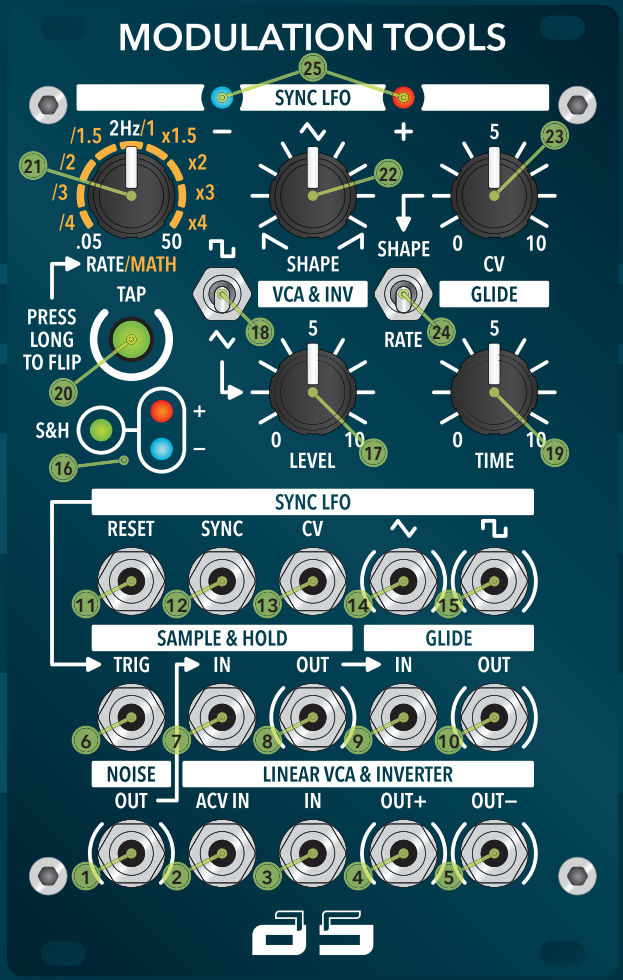
MODULATION TOOLS

AS401

MIXED SIGNAL MODULE

1. WHITE NOISE OUT, level: 10Vpp
2. VCA CV IN, range: 0V to +10V
3. VCA IN, range -10V to +10V
4. VCA POS OUT, range -10V to +10V
5. VCA NEG OUT, range -10V to +10V
6. S&H TRIG IN, range +5V, min 1ms
7. S&H IN, range -10V to +10V
8. S&H OUT, range -10V to +10V
19. GLIDE IN, range -10V to +10V
10. GLIDE OUT, range -10V to +10V
11. LFO RESET IN, range +5V, min 1ms
12. LFO SYNC IN, range +5V, min 1ms
13. LFO CV IN, range -5V to +5V
14. LFO TRIANGLE OUT, range -5V to +5V
15. LFO SUARE OUT, range -5V to +5V

16. S&H TRIG & OUT indicators
17. VCA LEVEL / VCA CV depth
18. LFO waveform to VCA IN
19. GLIDE TIME
20. TAP tempo & MODE SELECTOR button
21. RATE/MATH potentiometer
22. SHAPE potentiometer
23. LFO CV DEPTH potentiometer
24. LFO CV DESTINATION selector
25. LFO OUT indicators



Switching Sync LFO mode, press and hold TAP button (20) for 2 sec

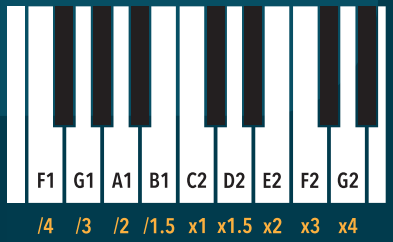
When TAP button flashes green, Sync LFO is in "NORMAL" mode. RATE potentiometer (21) and RATE CV control from 0.05Hz up to 50Hz

When TAP button flashes yellow, Sync LFO is in "MATH" mode. RATE potentiometer and RATE CV work as beat divider and multiplier.

Using LFO CV destination selector (24) choose between controlling RATE or SHAPE.
CV knob (23) adjusts CV depth

If Sync LFO in "MATH" mode and CV destination selector (24) in RATE position, then CV knob (23) won't adjust CV depth, also CV input switches into note CV mode.

LFO Divider note control:



BACK PANEL OF

MODULATION TOOLS

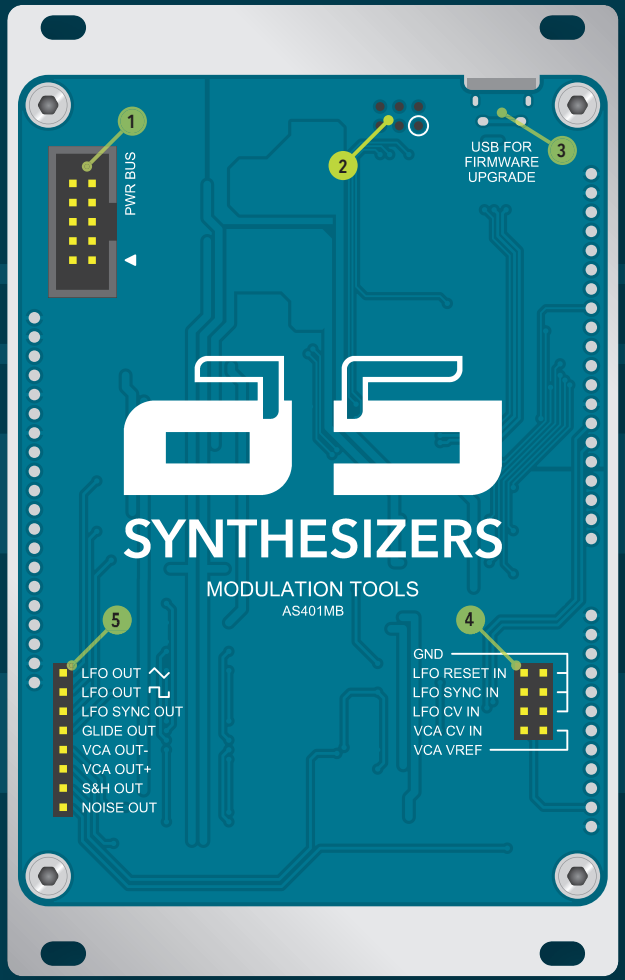
AS401

MIXED SIGNAL MODULE

1. Power bus connector IDC10
2. Factory programmer port
3. USB for firmware upgrade
4. VCA CV & Sync LFO control inputs from internal rails

   When no use of input pins, connect jumper between input and GND also between VCA CV and VCA REF pins
5. Signal outputs to internal rails

   Do not use jumpers on output pins, also do not connect to ground or power rails!



168MHz 32bit FloatingPoint CPU

16bit High Speed DACs

D A MIXED SIGNAL

USB FIRMWARE UPGRADE

FIRMWARE UPGRADE:

1. Download MODULATION TOOLS firmware from our website
2. Turn off your modular system
3. Connect Micro USB cable to Firmware upgrade port
4. Turn on your modular system
5. Module's library appears in pop-up window
6. Drag and drop downloaded file into pop-up window
7. When upload is done turn off your modular system and disconnect USB cable.
8. Restart your modular system and enjoy
9. If upload process was unsuccessful, repeat the whole procedure.

TECHNICAL SPECIFICATION:

- Module depth: 33mm
- Module width: 16HP (80.4mm)
- Module weight: 200g
- Connector type: 10P IDC Eurorack
- Power consumption: +12V / 110mA & 12V / 20mA
- Analog outputs: True Rail-to-Rail
- Analog outputs range: 0V to +10V or -5V to +5V
- Digital inputs range: 0V /+5V
- Digital inputs pulse time: min 1ms