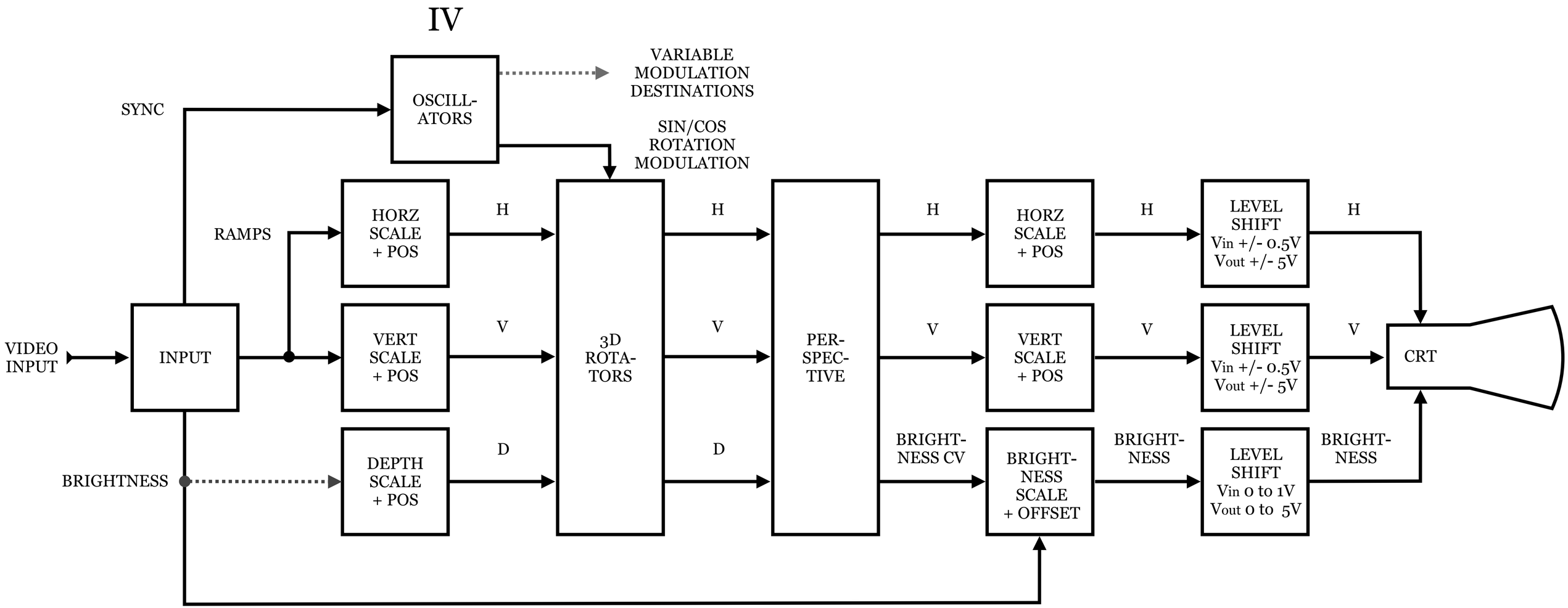
SCAN PROCESSOR BLOCK DIAGRAM

Combining elements of the Rutt/Etra, Scanimate, and Optical Electronics Inc devices

DEREK HOLZER
STOCKHOLM FEB 2022



SCAN PROCESSOR BLOCK DIAGRAM

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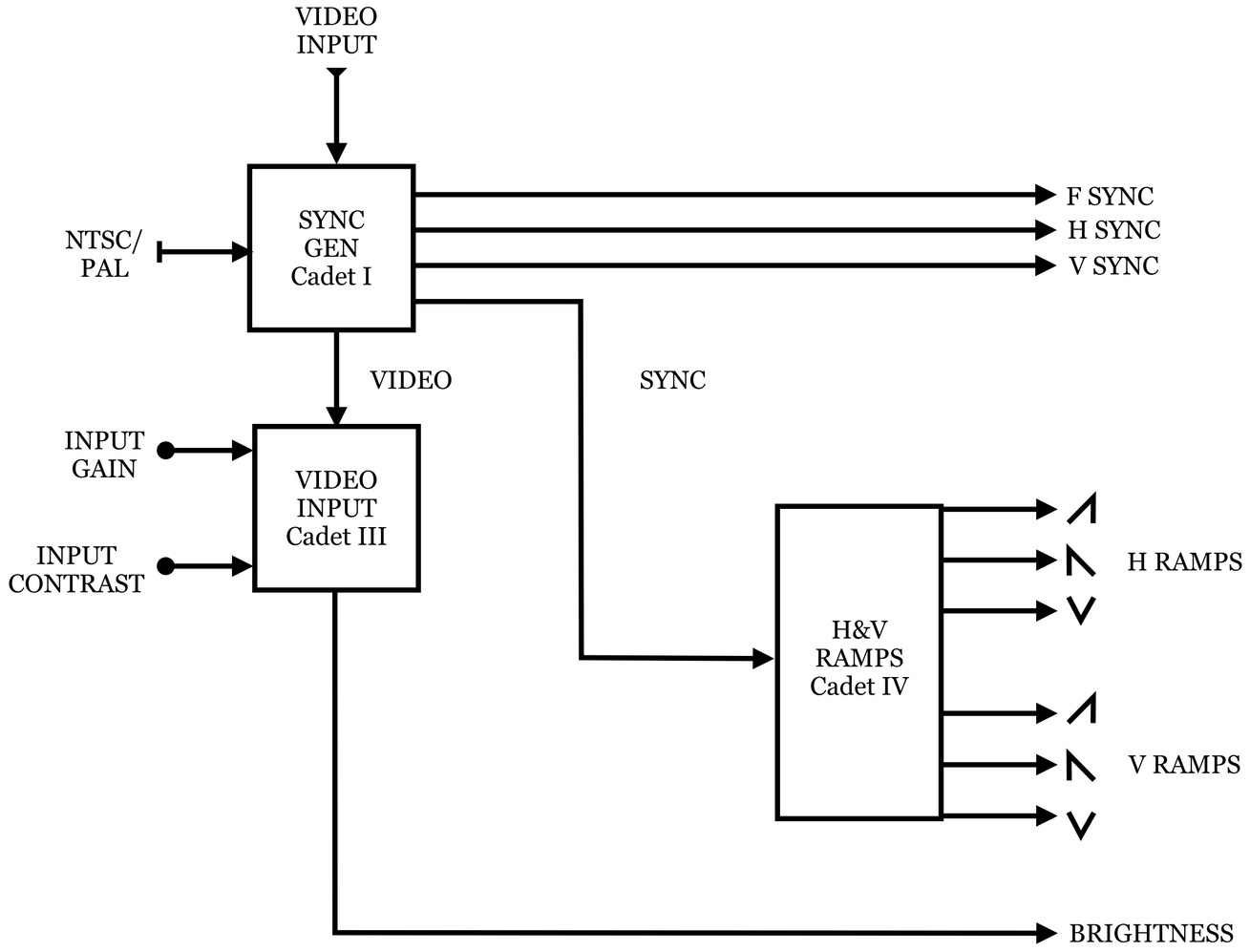

PLEASE REFER TO DOCUMENTATION OF THE ORIGINAL MODULES FOR DETAILS

SECTION I : INPUT

SCAN PROCESSOR BLOCK DIAGRAM

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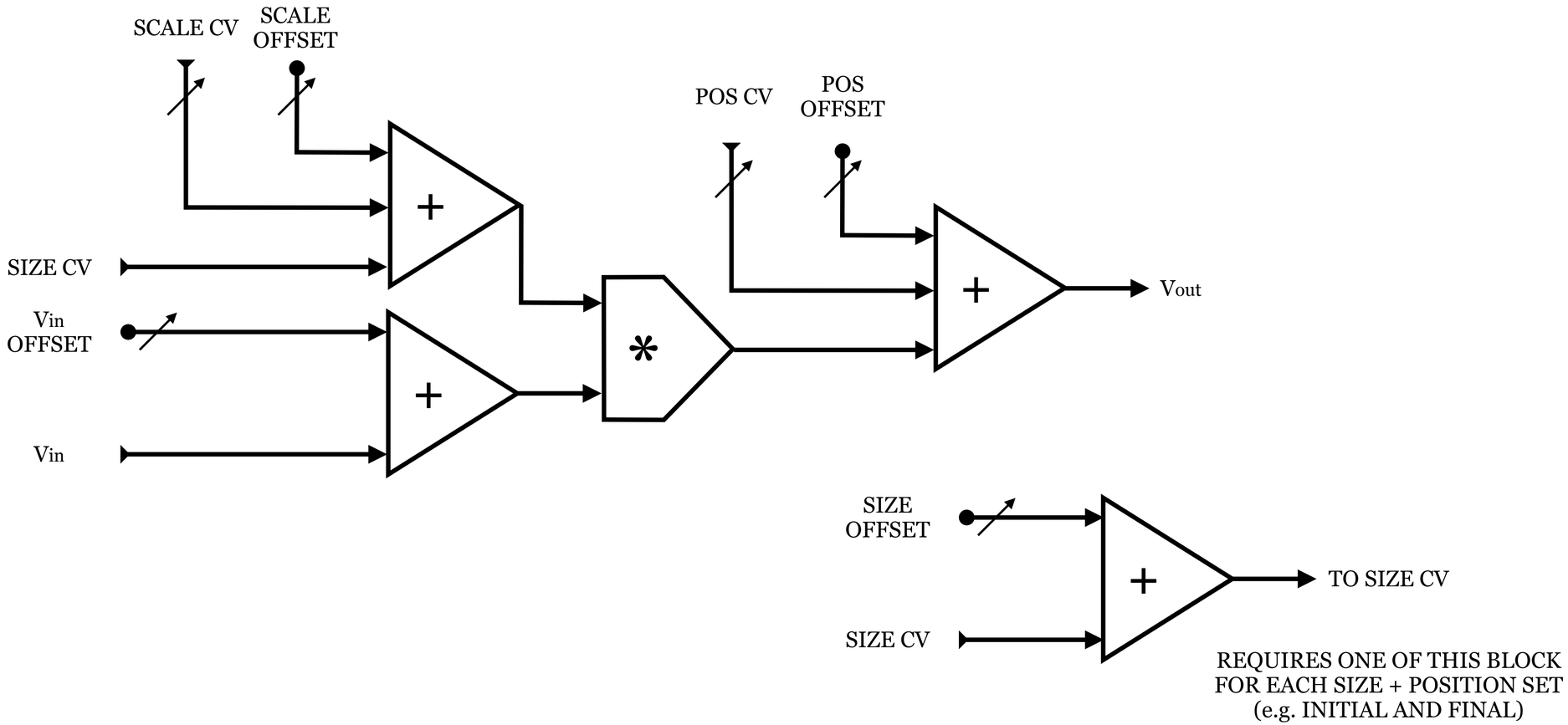
USE FOR:

HORIZONTAL
VERTICAL
DEPTH
(BIPOLAR)

BRIGHTNESS
(UNIPOLAR,
NO SIZE CV)



REQUIRES ONE OF THIS BLOCK
FOR EACH SIZE + POSITION SET
(e.g. INITIAL AND FINAL)

SECTION TOTAL

1 * multiplier
3 * summers

MULTIPLIER = 4 QUAD (BIPOLAR)
1 QUAD (UNIPOLAR)

SECTION II : SIZE & POSITION

SCAN PROCESSOR
BLOCK DIAGRAM

Combining elements of the Rutt/Etra, Scanimate,
and Optical Electronics Inc devices

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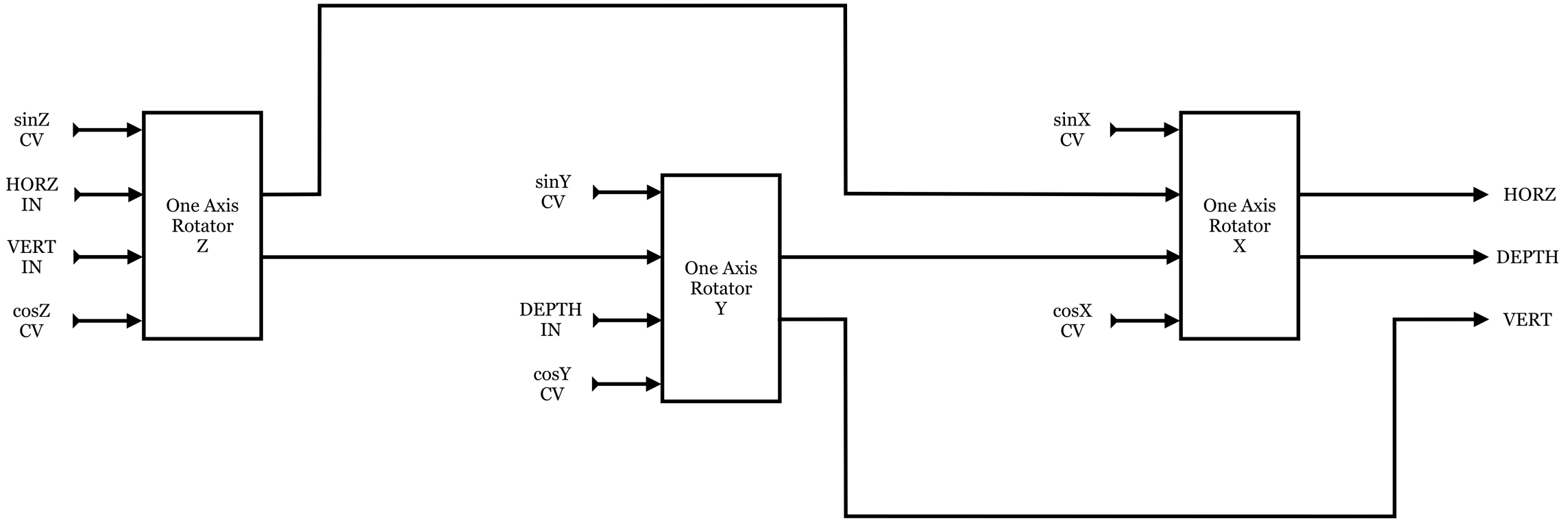

SECTION TOTAL

12 * multipliers
21 * summers

CV sin/cos input for quadrature oscillator or manual rotation (digital source might be easiest).
Offsets on axes shift center of rotation. Offsets on CV inputs convert 0-1V unipolar to +/- 0.5V bipolar.
Order of rotations can be re-patched

SECTION IIIa : ROTATION

SCAN PROCESSOR
BLOCK DIAGRAM

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and Optical Electronics Inc devices

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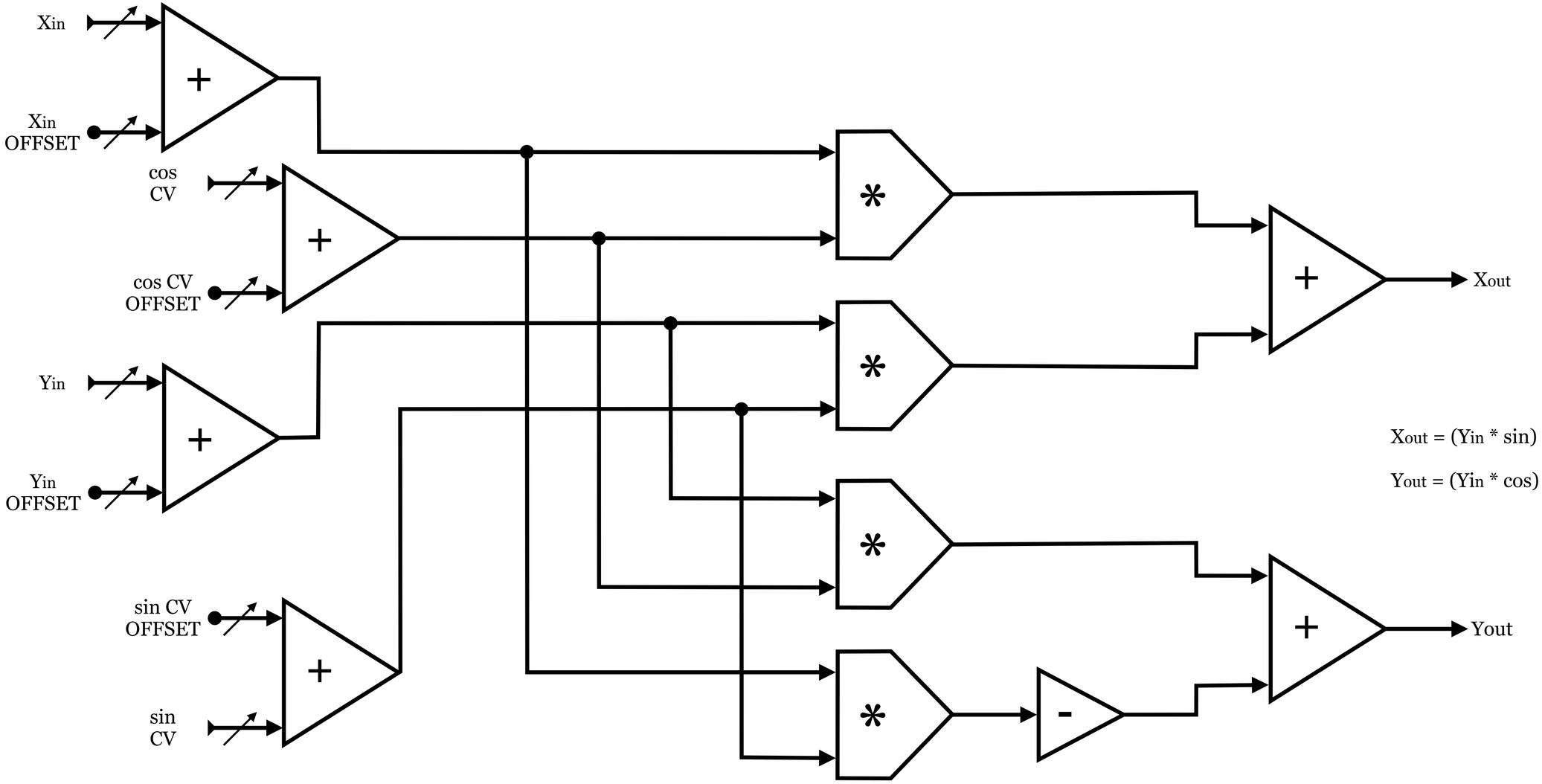

Xout = (Yin * sin) + (Xin *cos)

Yout = (Yin * cos) - (Xin * sin)

PER AXIS TOTAL

4 * multipliers
7 * summers

ALL MULTIPLIERS = 4 QUAD
CV inputs must be offset to +/- 0.5V

SECTION IIIb : ONE AXIS ROTATOR

SCAN PROCESSOR BLOCK DIAGRAM

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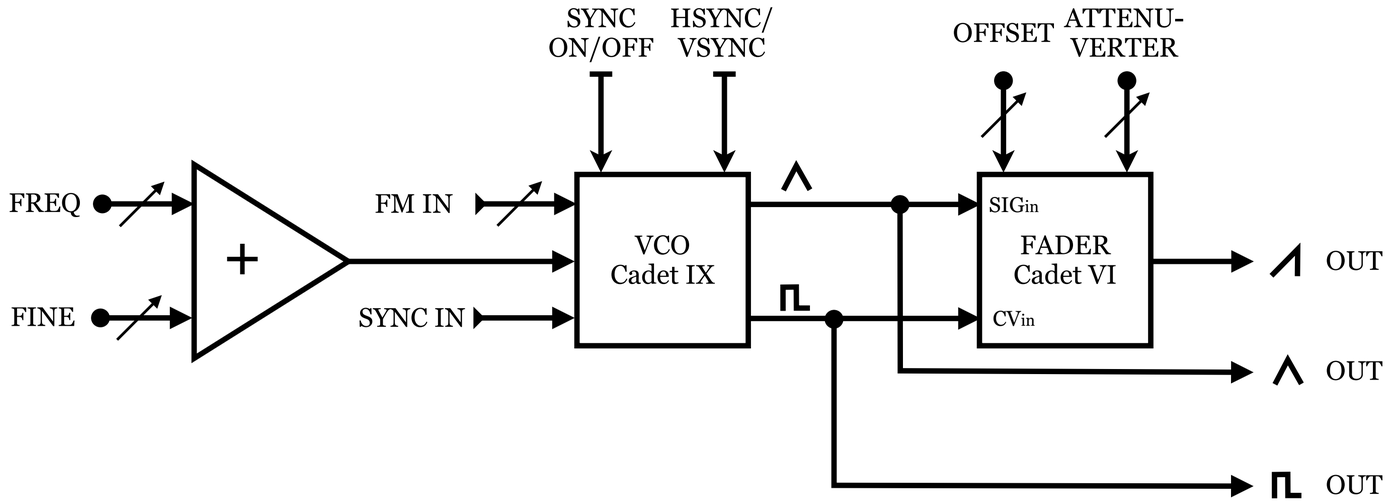
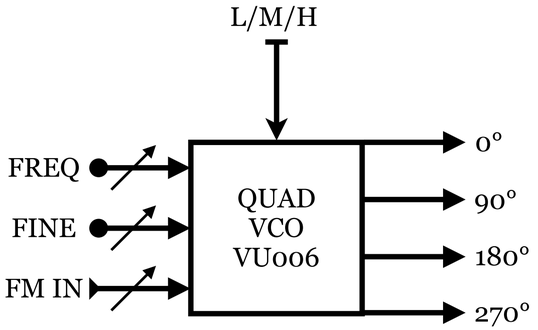
ONE FOR EACH MODULATION PARAMETER (MINIMUM THREE)



ONE FOR EACH AXIS OF ROTATION



PLEASE REFER TO DOCUMENTATION OF THE ORIGINAL MODULES FOR DETAILS

SCAN PROCESSOR BLOCK DIAGRAM

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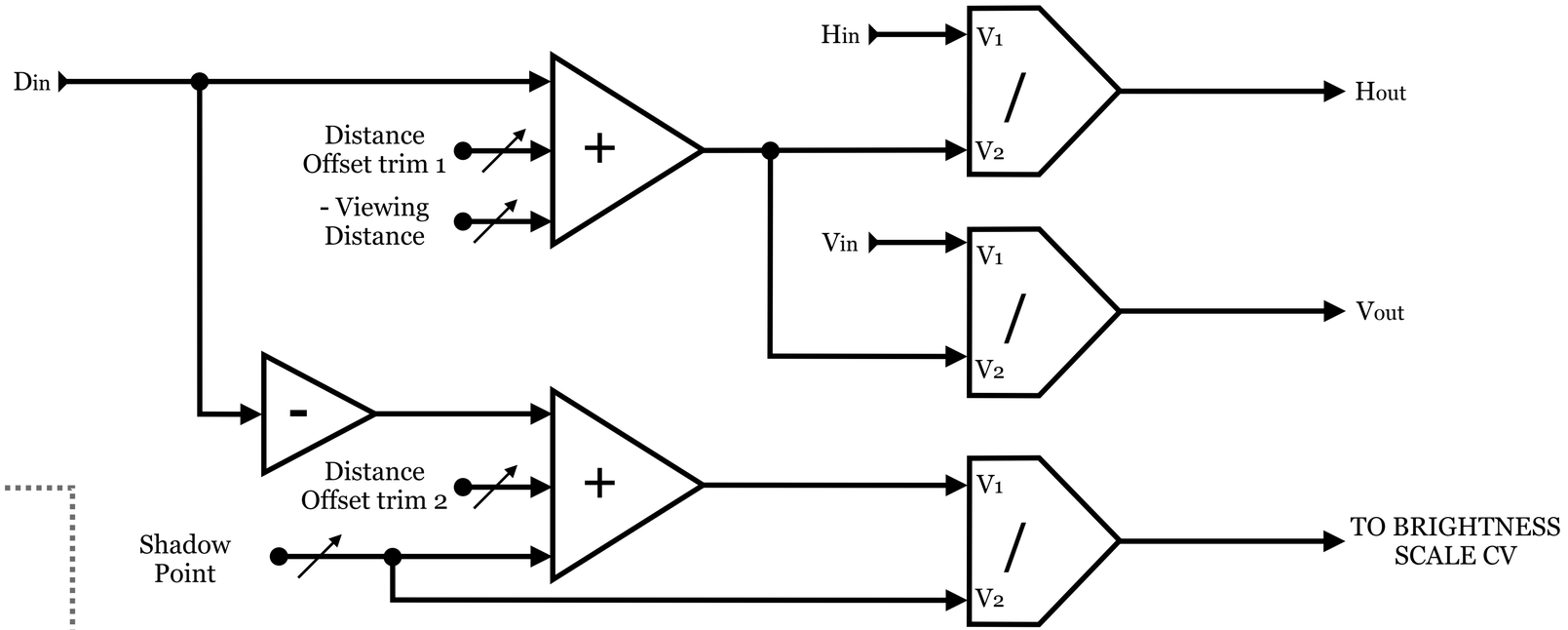

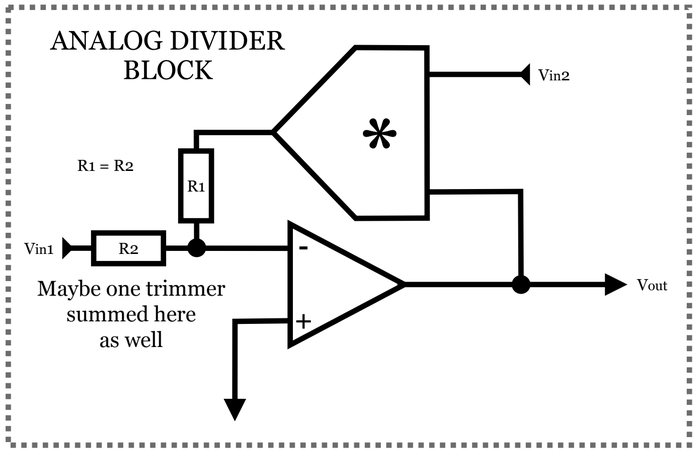

SECTION TOTAL

3 * multipliers
7 * summers

PERPSECTIVE

Hout = Hin / D - ViewingDistance
Vout = Vin / D - ViewingDistance
(Viewing angle not factored in)

INTENSITY

Bout = Bin * (ShadowPoint - D / ShadowPoint)

SECTION V : PERSPECTIVE

SCAN PROCESSOR
BLOCK DIAGRAM

Combining elements of the Rutt/Etra, Scanimate,
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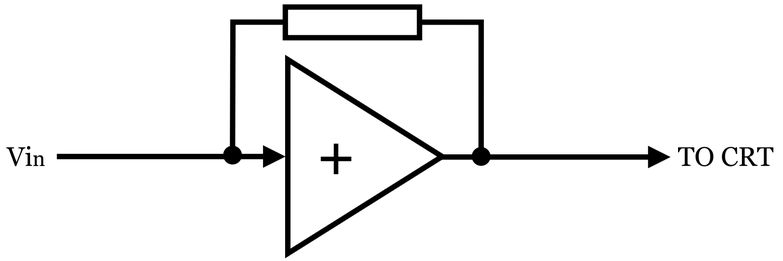
SCALE Vin TO
TARGET Vout



SECTION TOTAL

1 * summers

SIMPLE SCALING OP-AMP
SEE LZX CADET V SCALER FOR DETAILS

SECTION VI: LEVEL SHIFT

SCAN PROCESSOR
BLOCK DIAGRAM

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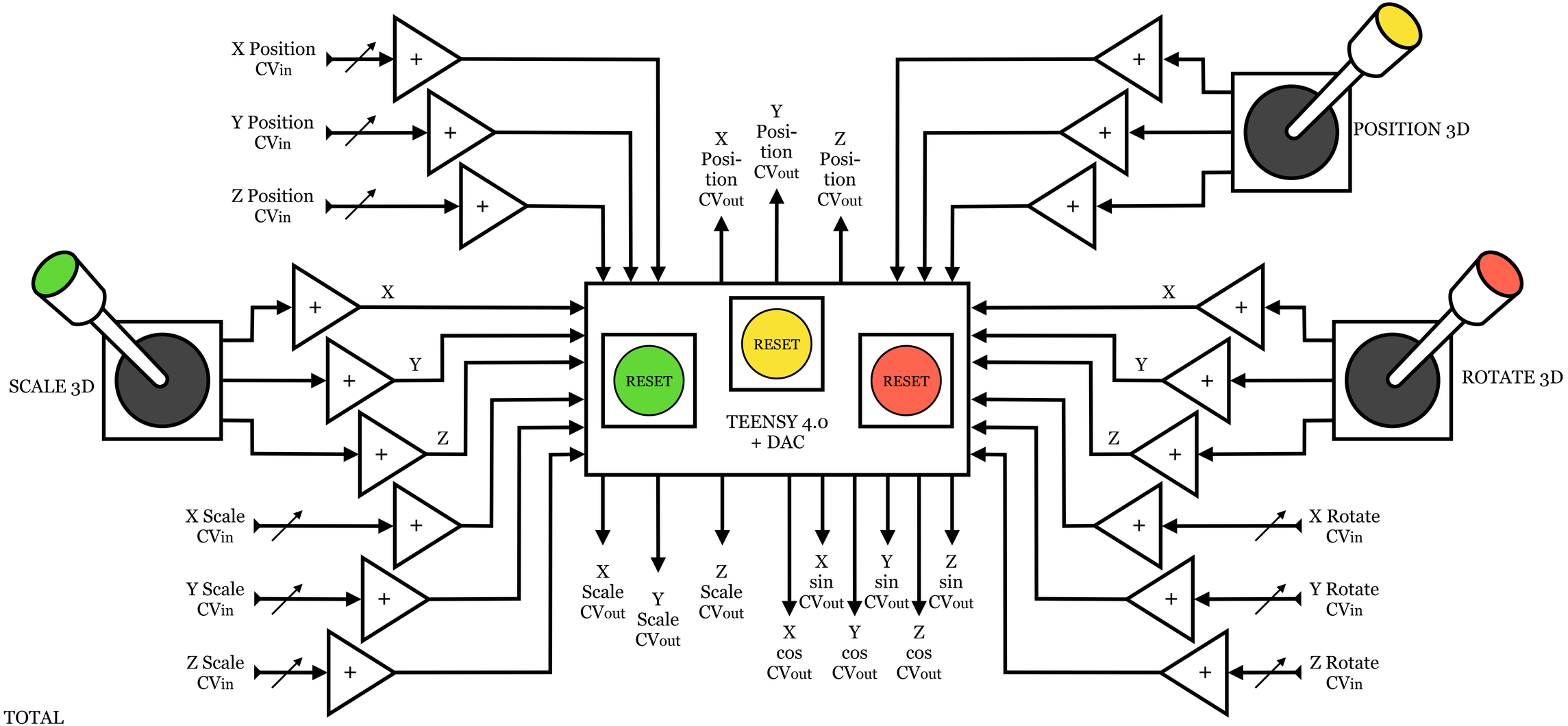

SECTION TOTAL

18 * summers =
scaling op-amp buffers

ALL INPUTS SCALED +/-5V to 0 - 1V. ALL OUTPUTS 0 - 1V.
AUDIO RATE I/O DEPENDING ON TEENSY ADC + DAC
JOYSTICK INCREMENTAL RATHER THAN CONTINUOUS
JOYSTICK CV SUMMED WITH CVin AFTER DIGITIZATION
RESET BUTTON FOR JOYSTICK INCREMENTS

SECTION VII: 3D JOYSTICK CONTROL