

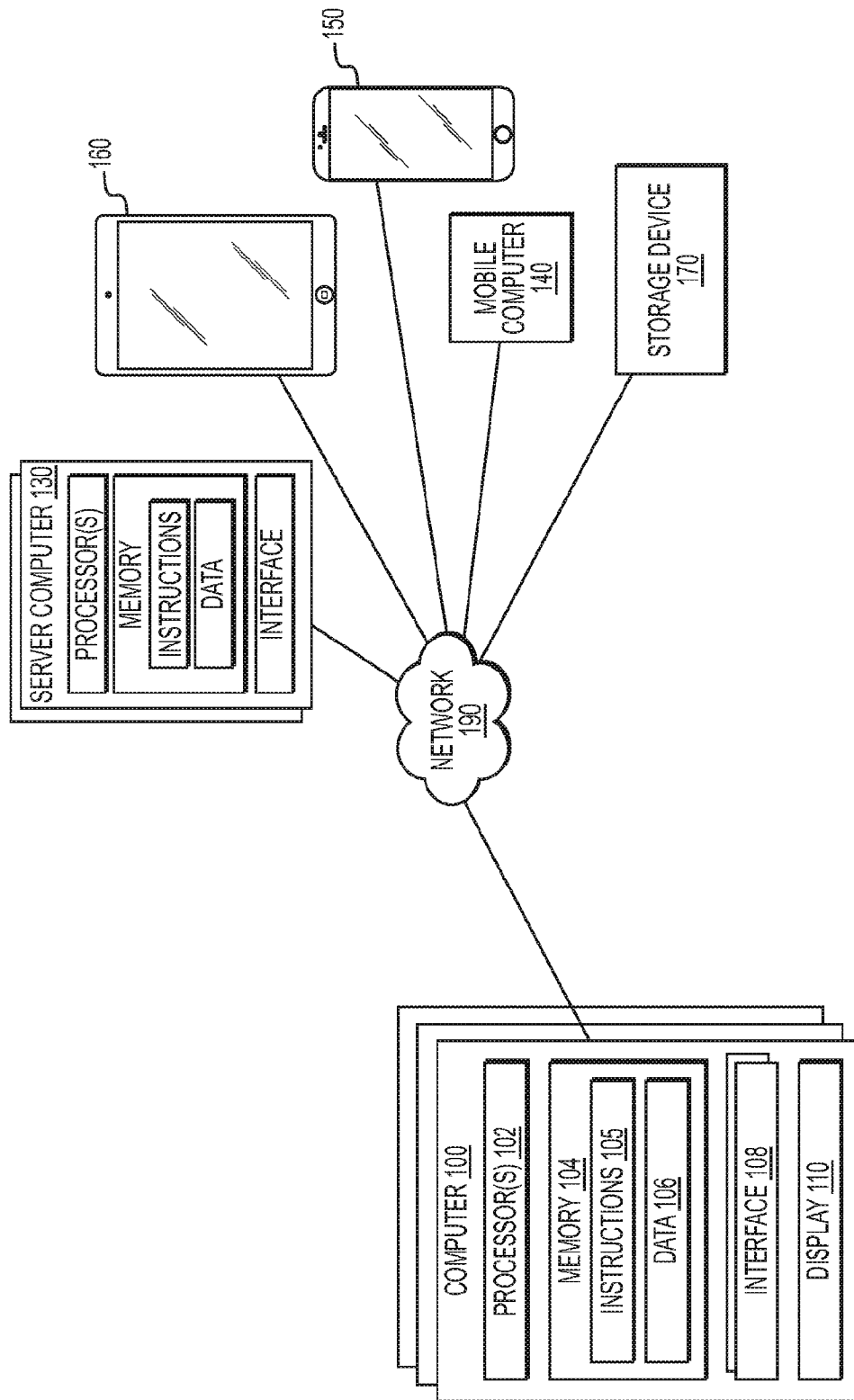


FIG. 1

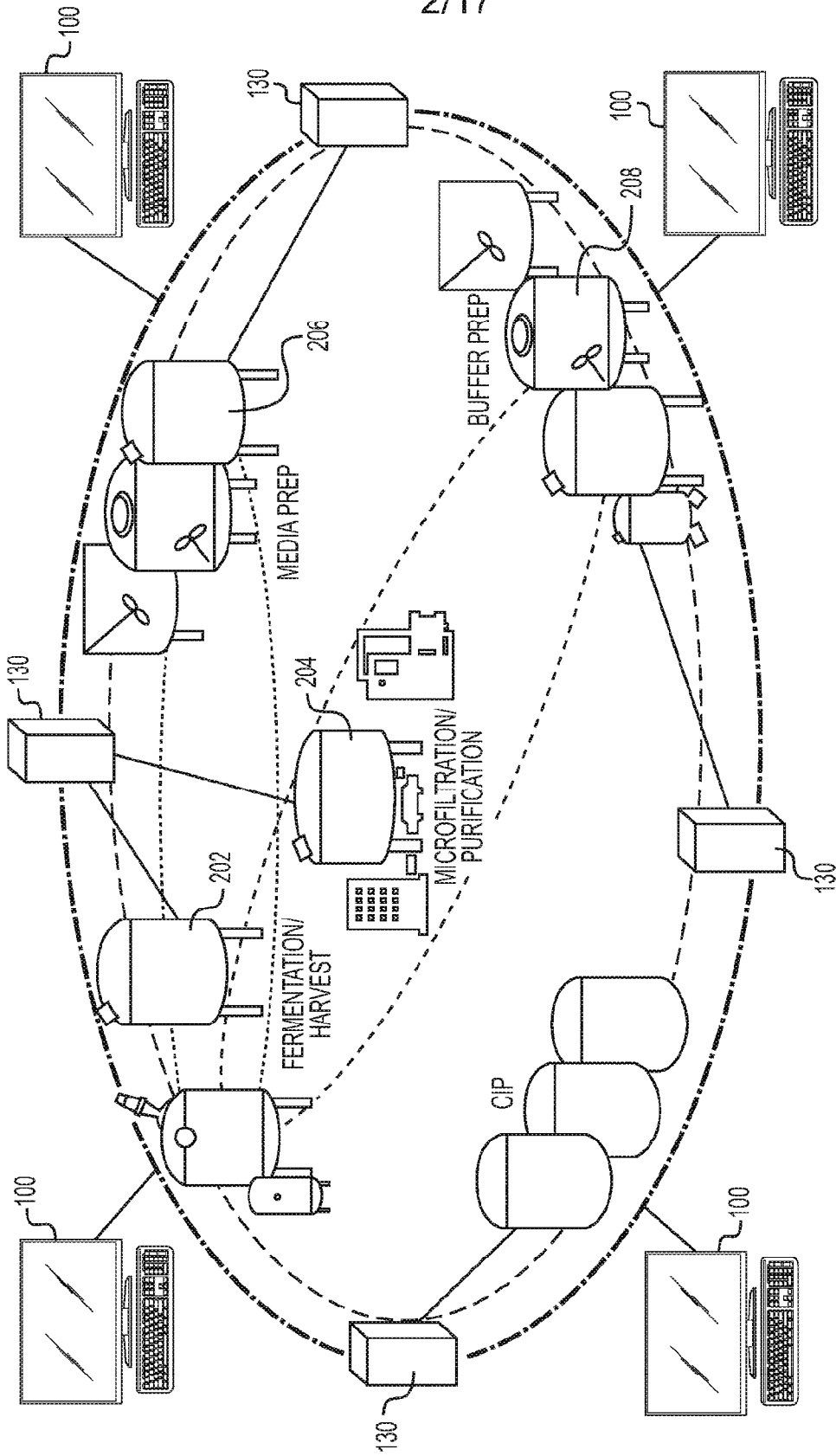


FIG. 2

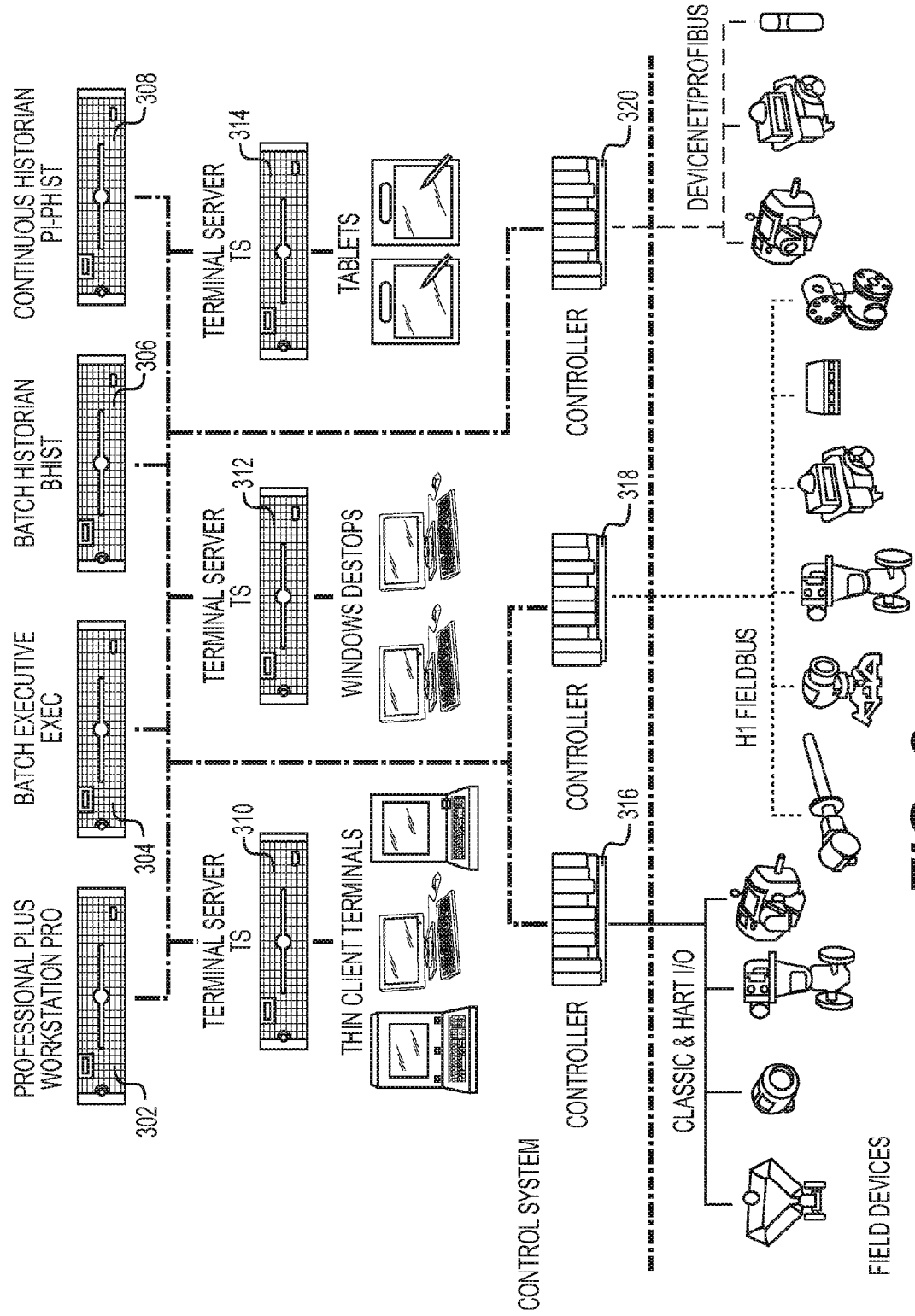


FIG. 3

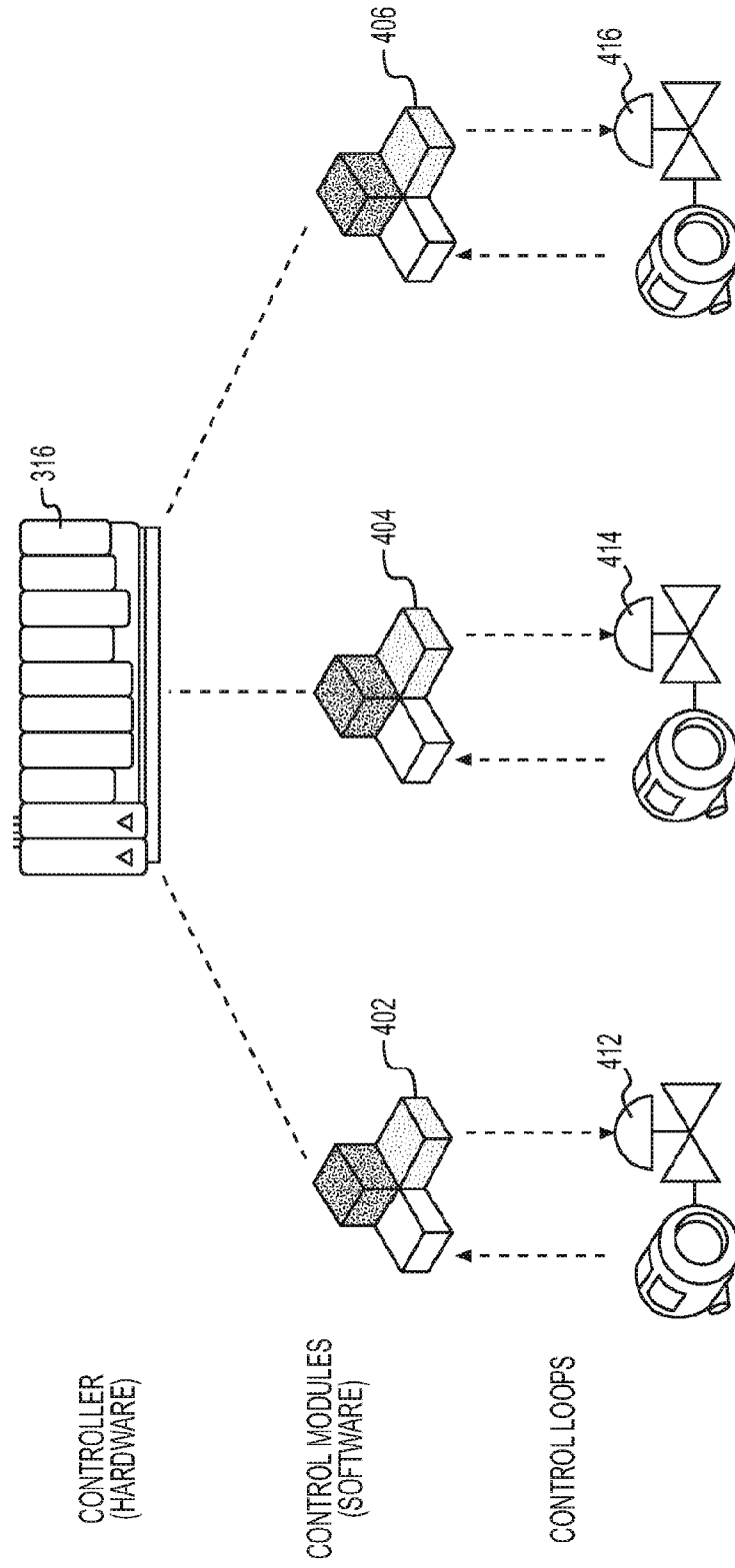


FIG. 4

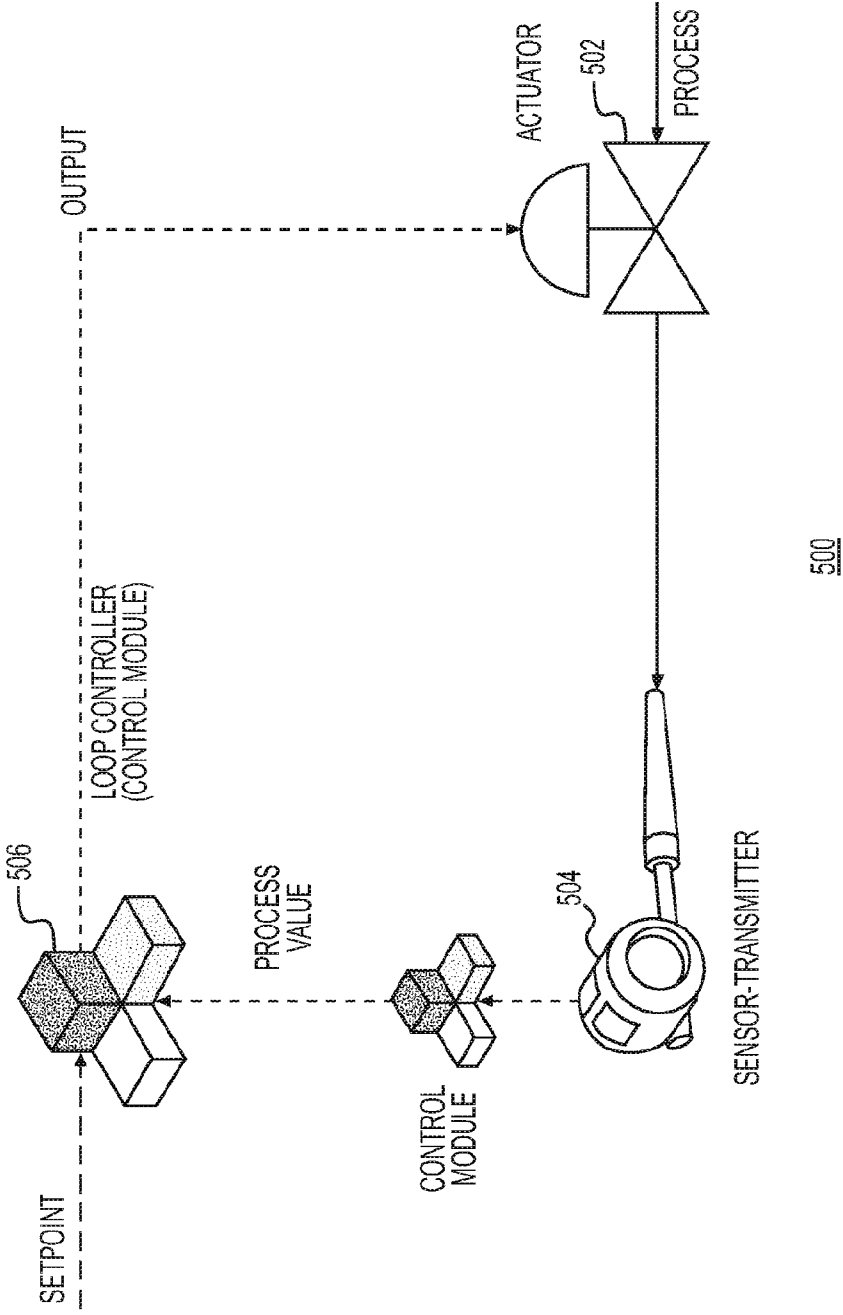
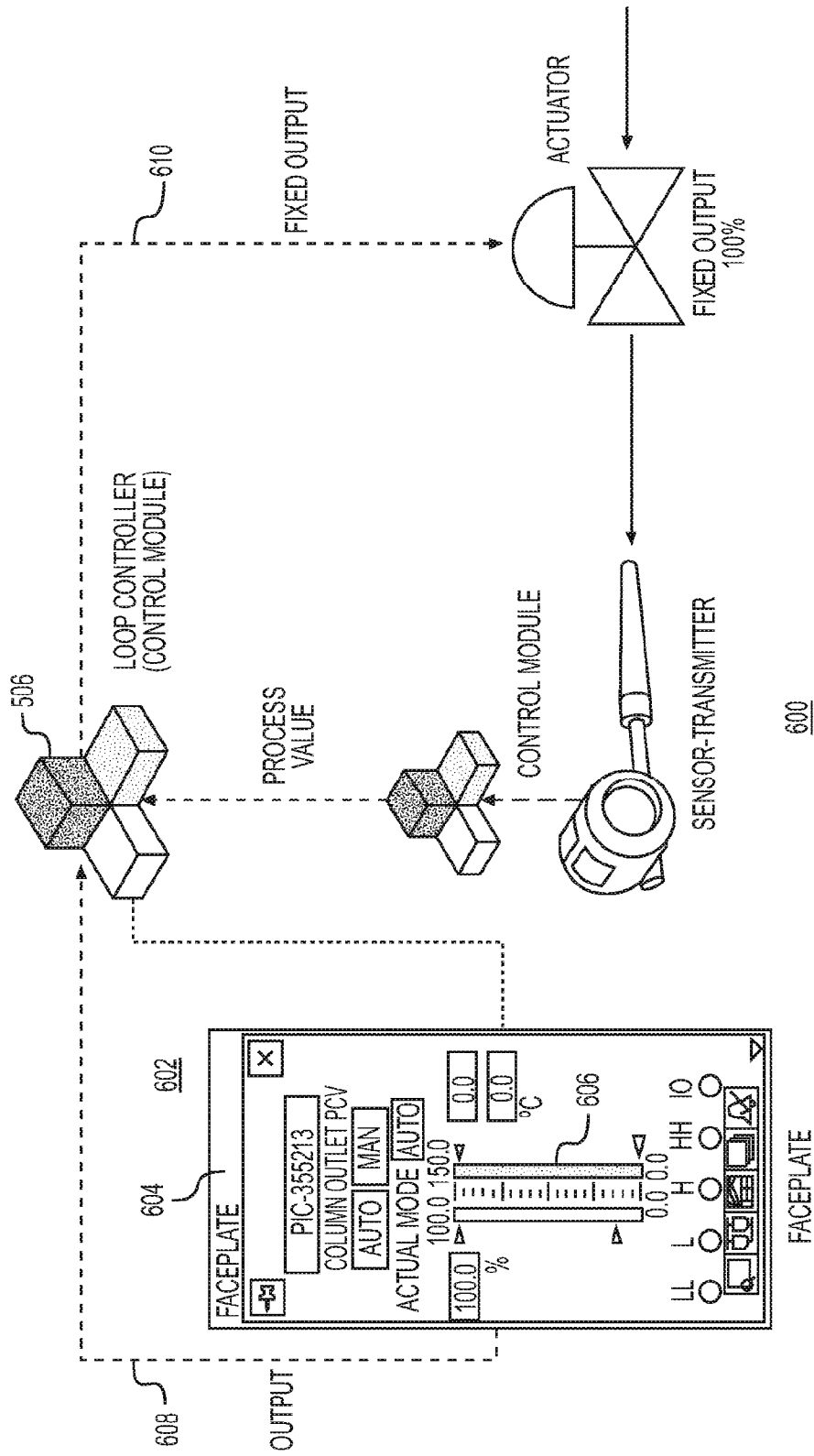
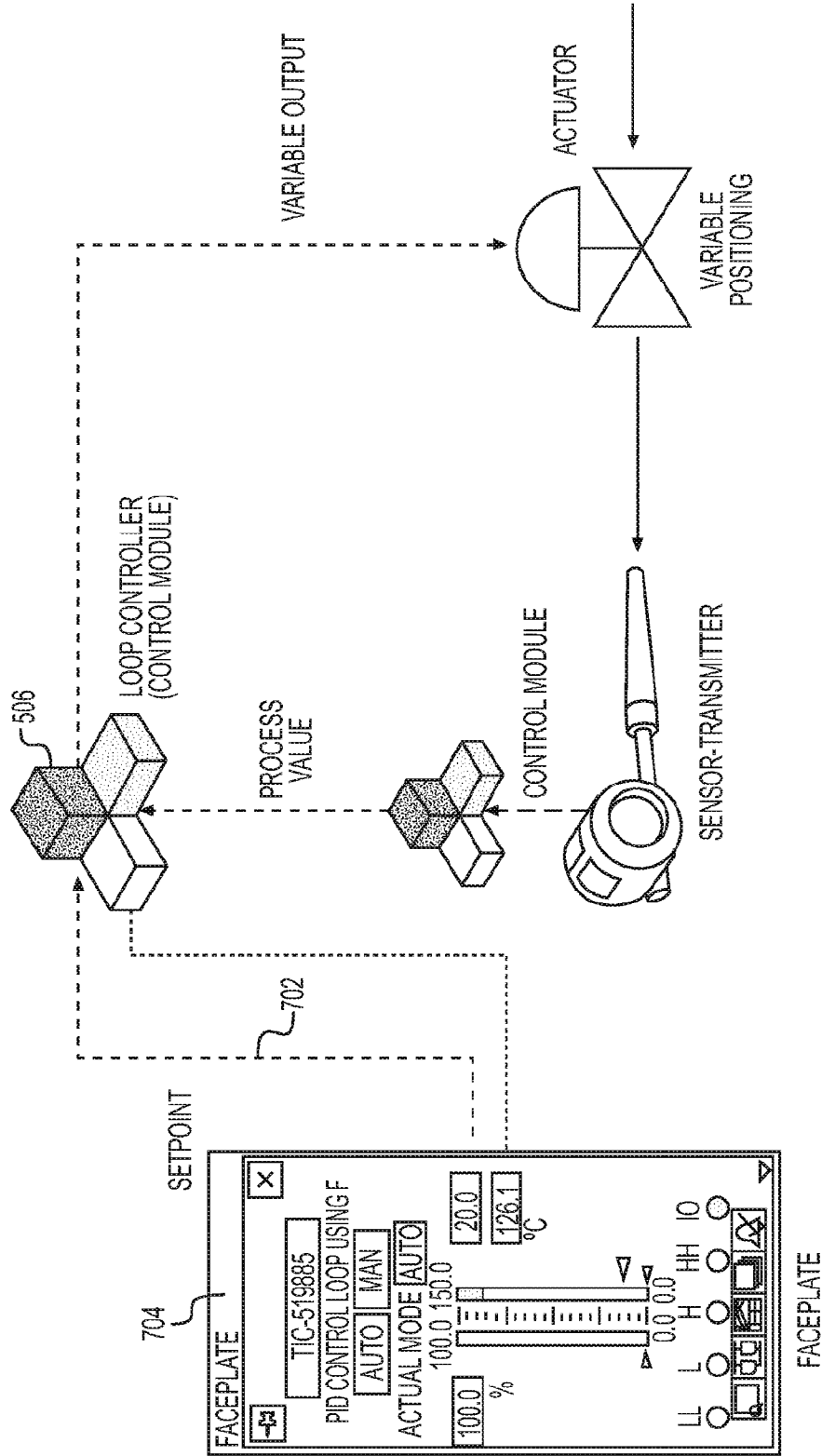


FIG. 5

**FIG. 6**



700

FIG. 7

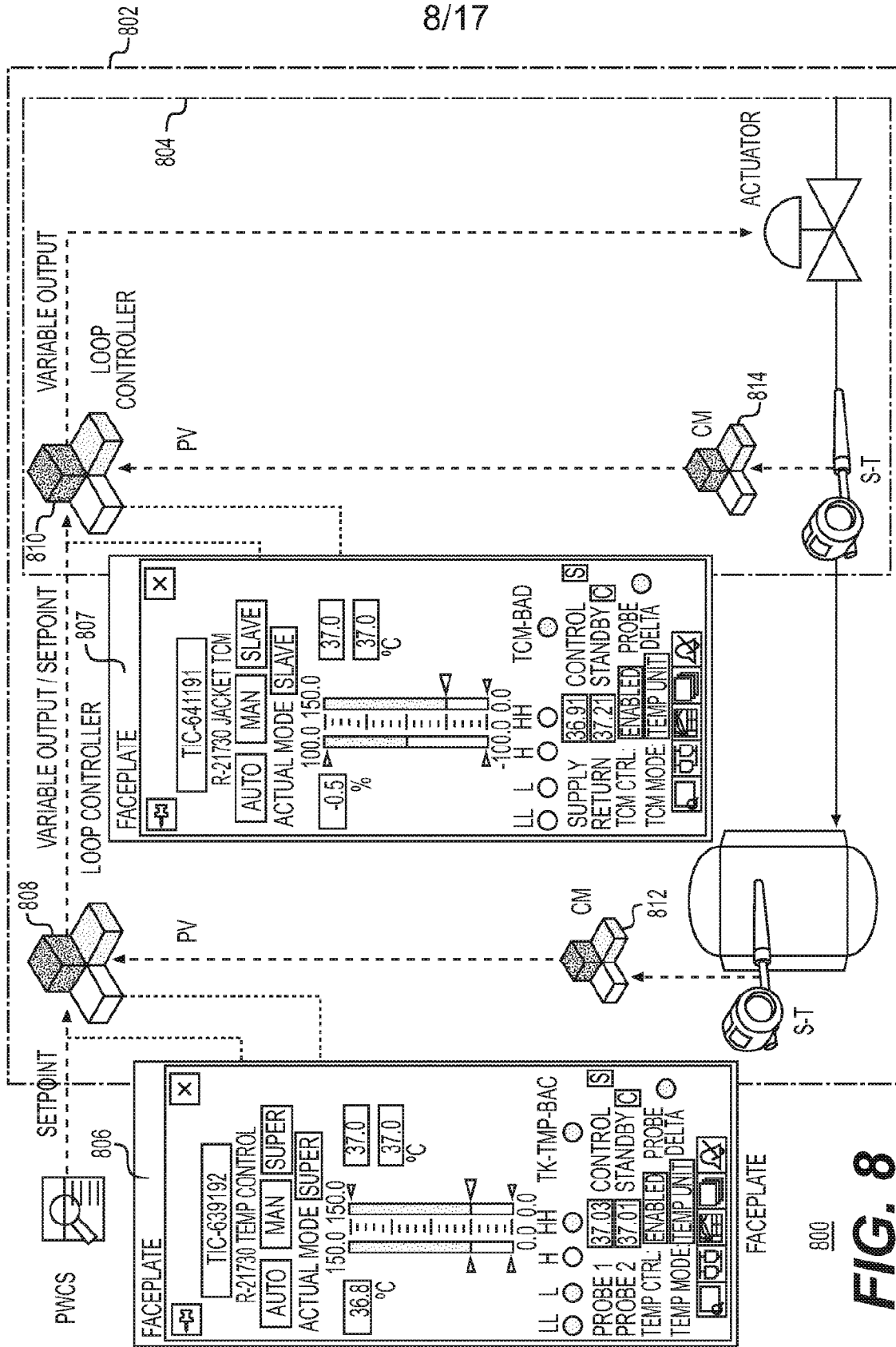


FIG. 8

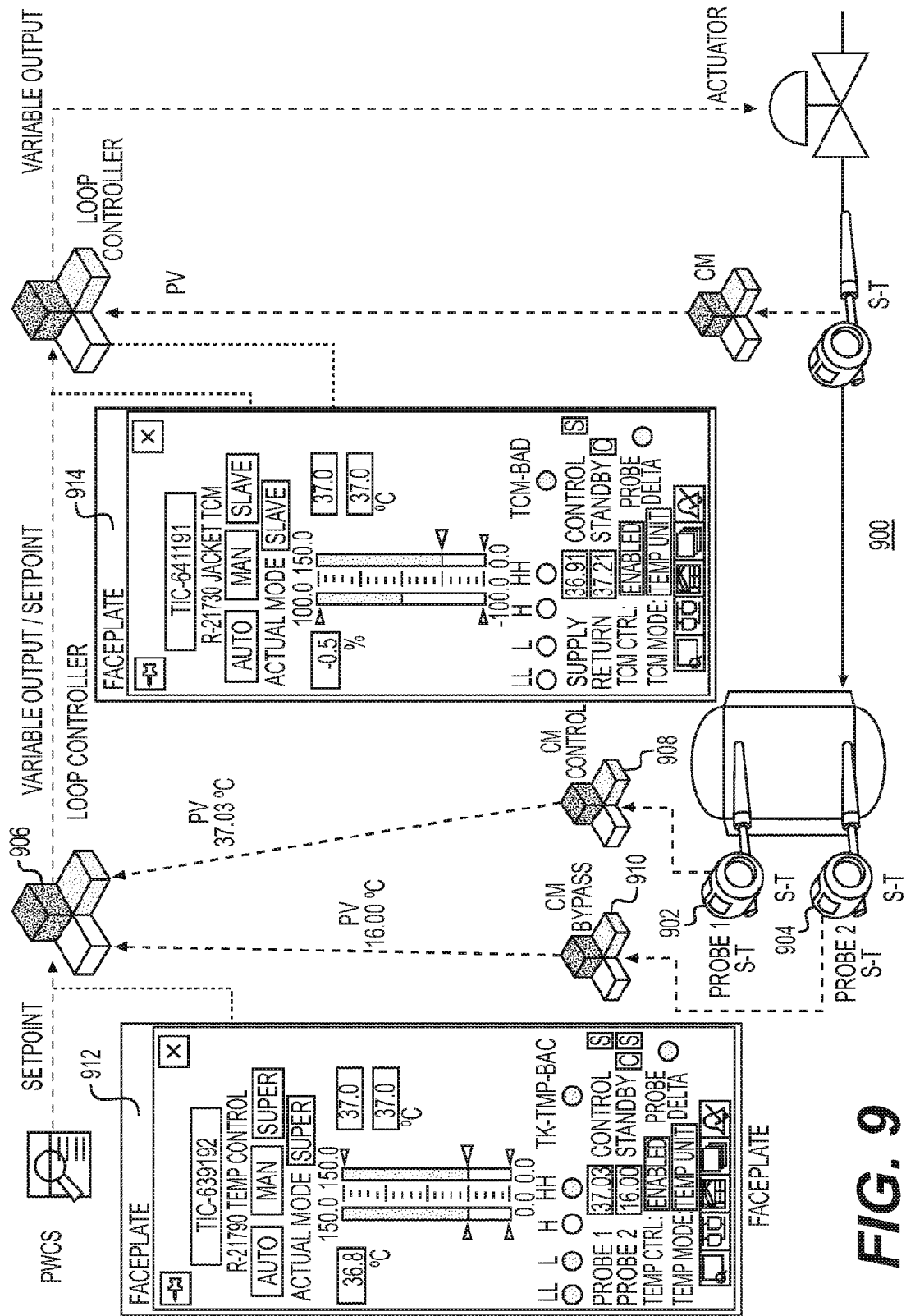


FIG. 9

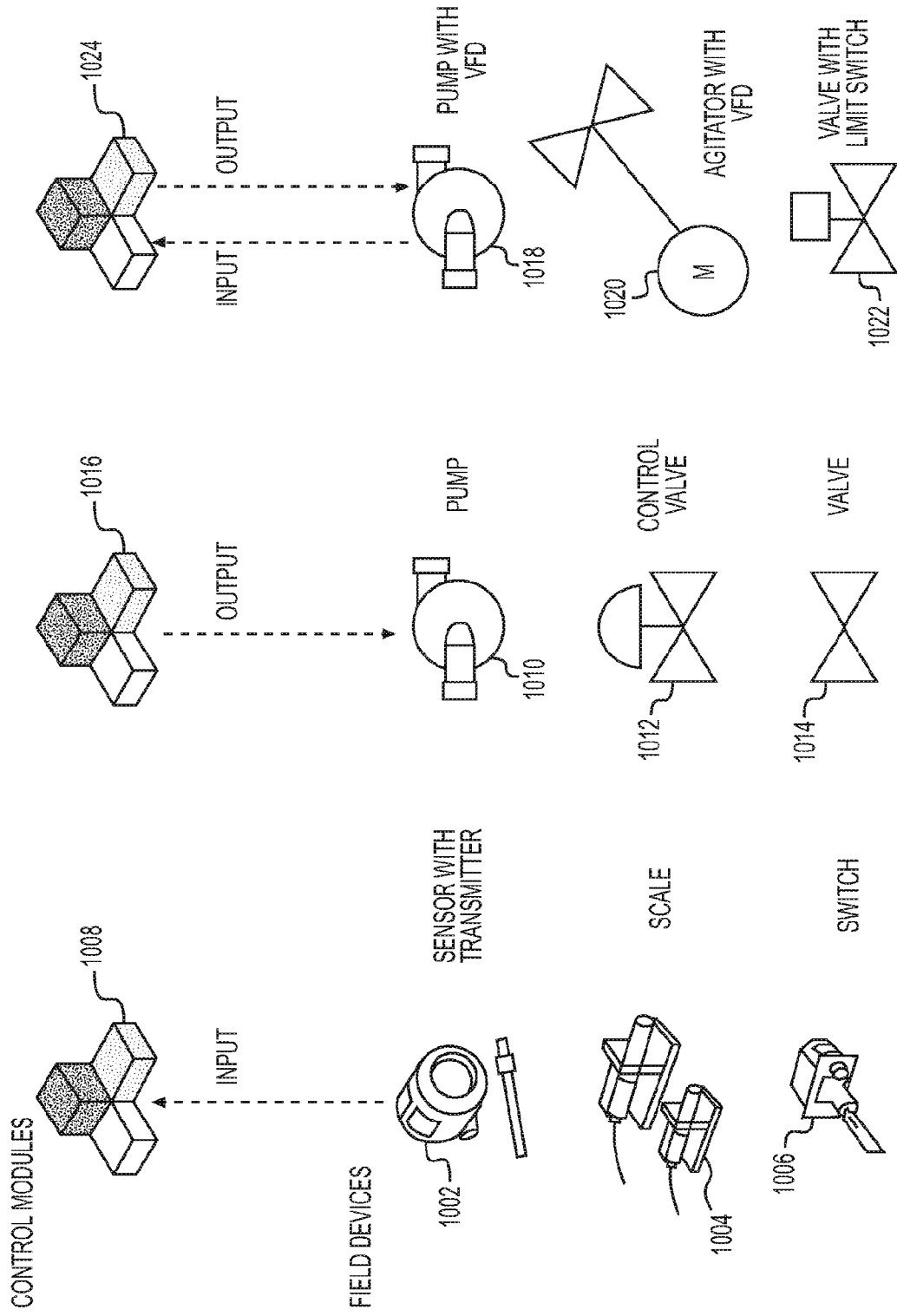


FIG. 10

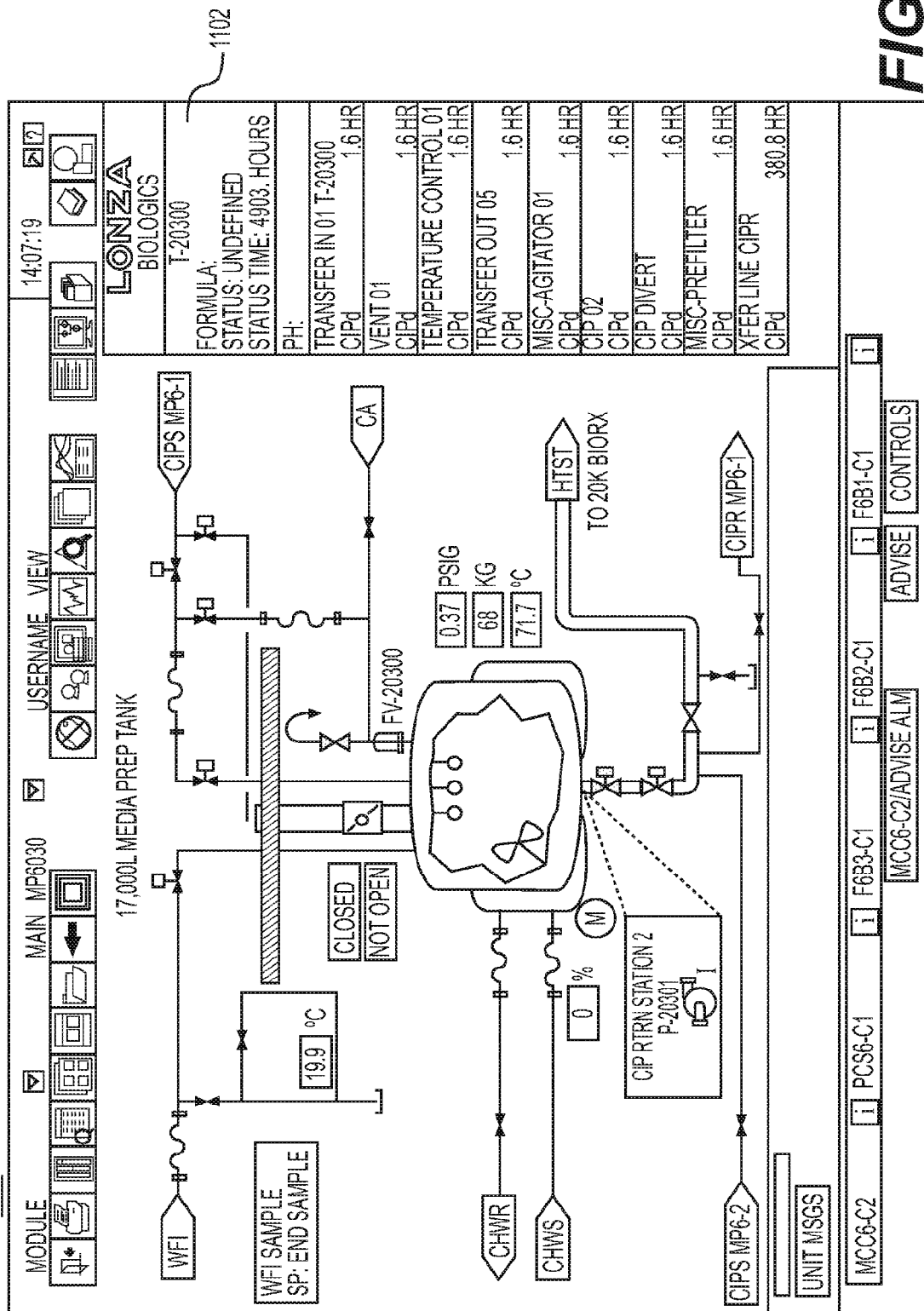


FIG. 11A

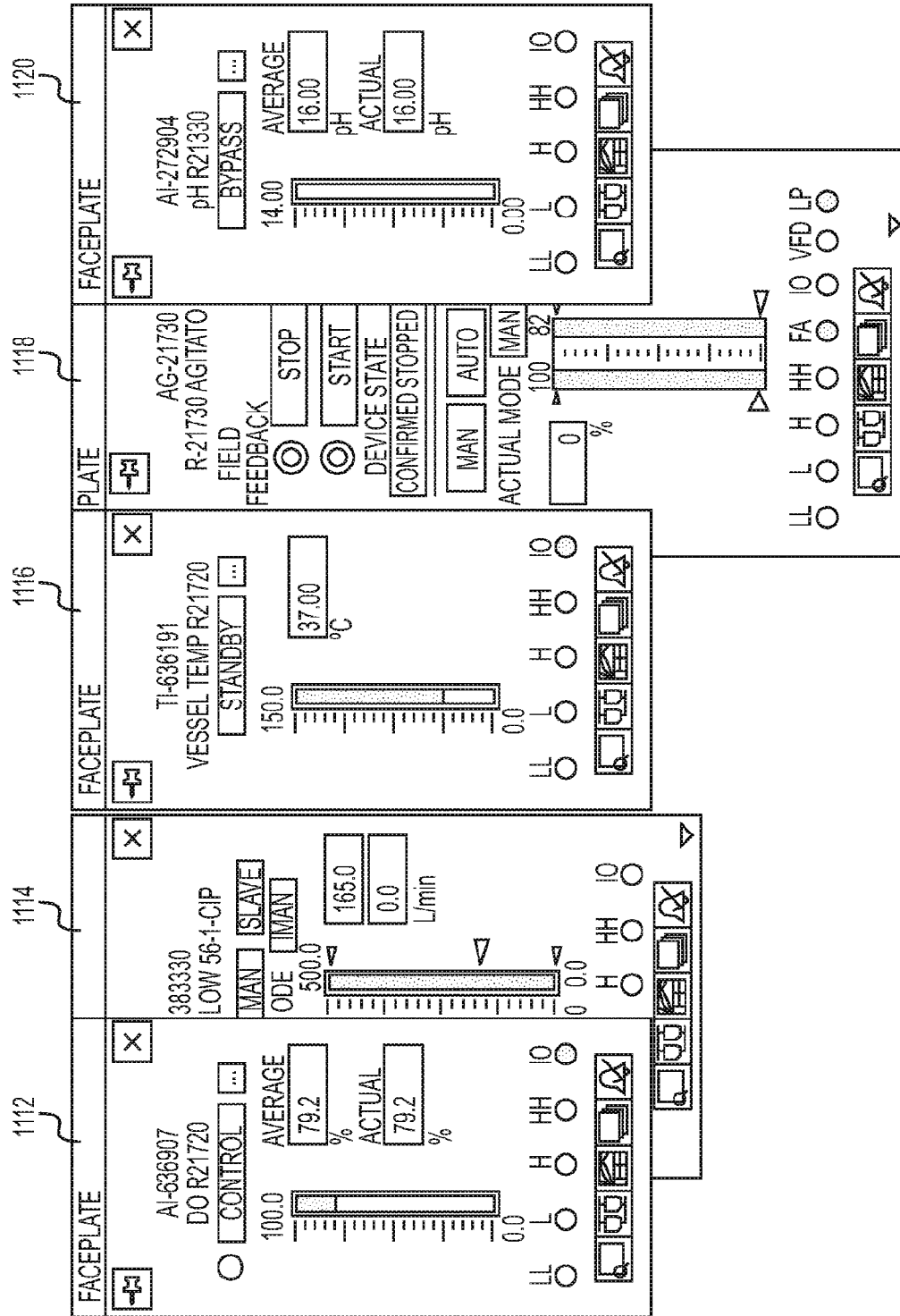
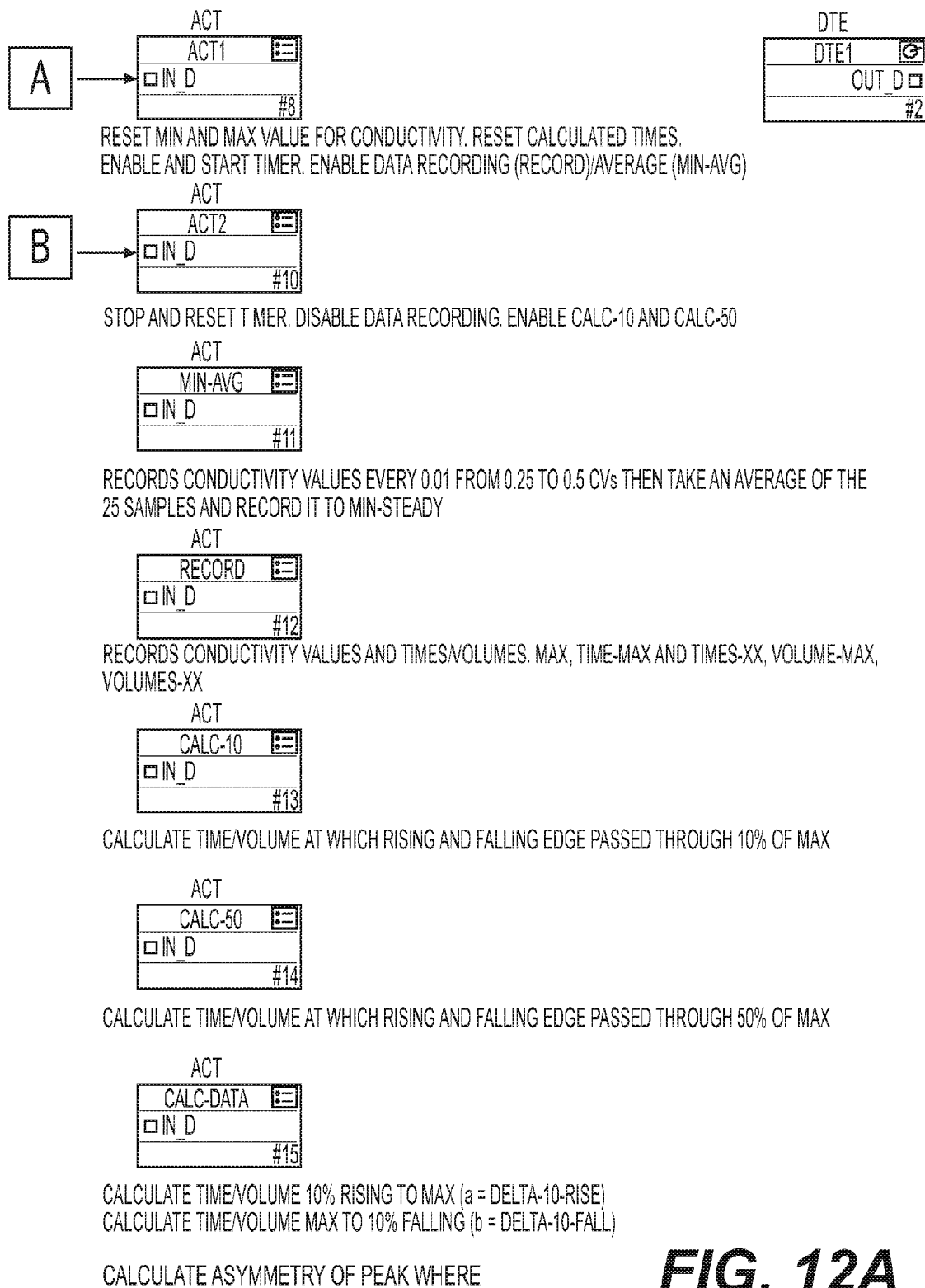
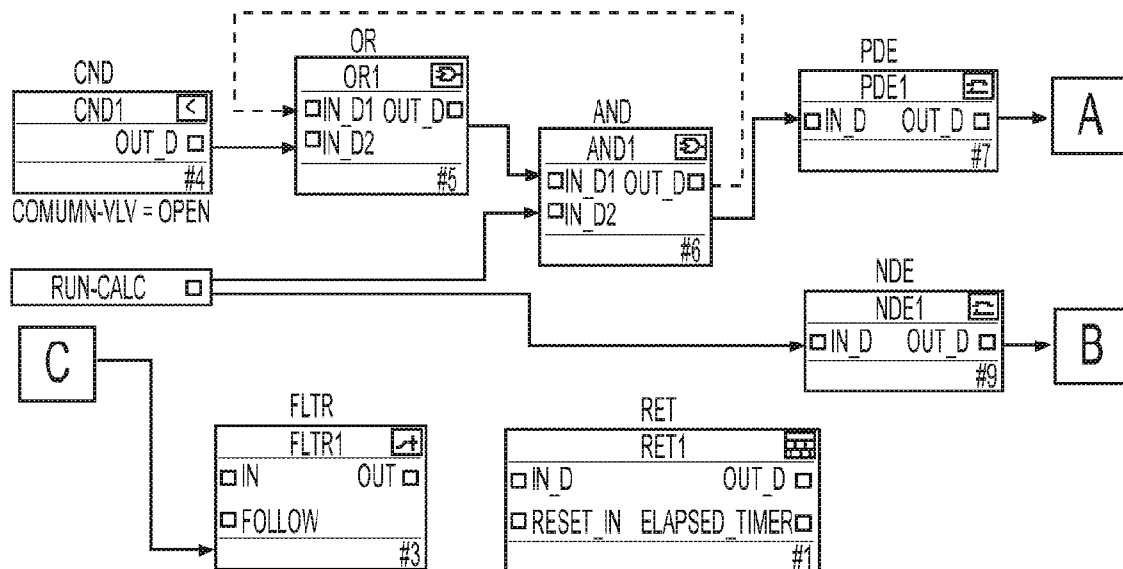


FIG. 11B

**FIG. 12A**



INTERNAL PARAMETERS CALCULATED	TIME-BASED	VOLUME-BASED
THIS PARAMETER IS THE CALCULATED TIME/VOLUME FROM START TO 10% OF RISING PEAK (PARAMETER TYPE = FLOATING POINT)	☐ TIME-10-RISE	☐ VOLUME-10-RISE
THIS PARAMETER IS THE CALCULATED TIME/VOLUME FROM START TO 10% OF FALLING PEAK (PARAMETER TYPE = FLOATING POINT)	☐ TIME-10-FALL	☐ VOLUME-10-FALL
THIS PARAMETER IS THE CALCULATED TIME/VOLUME FROM START TO 50% OF RISING PEAK (PARAMETER TYPE = FLOATING POINT)	☐ TIME-50-RISE	☐ VOLUME-50-RISE
THIS PARAMETER IS THE CALCULATED TIME/VOLUME FROM START TO 50% OF FALLING PEAK (PARAMETER TYPE = FLOATING POINT)	☐ TIME-50-FALL	☐ VOLUME-50-FALL
THIS PARAMETER IS THE CALCULATED TIME/VOLUME FROM 10% OF RISING PEAK TO MAX (PARAMETER TYPE = FLOATING POINT)	☐ DELTA-10-RISE-T	☐ DELTA-10-RISE-V
THIS PARAMETER IS THE CALCULATED TIME/VOLUME FROM MAX TO 10% OF FALLING PEAK (PARAMETER TYPE = FLOATING POINT)	☐ DELTA-10-FALL-T	☐ DELTA-10-FALL-V
THIS PARAMETER IS THE CALCULATED ASYMMETRY OF THE SPIKE DEPENDING ON THE DELTA-10 RISE AND FALL (PARAMETER TYPE = FLOATING POINT)	☐ ASYMM-TIME	☐ ASYMM-VOL
THIS PARAMETER IS THE CALCULATED WIDTH OF THE SPIKE AT 50% OF MAX (PARAMETER TYPE = FLOATING POINT)	☐ WH-TIME	☐ WH-VOL
THIS PARAMETER IS THE CALCULATED EFFICIENCY (N) OF THE COLUMN BASED ON THE SPIKE (PARAMETER TYPE = FLOATING POINT)	☐ EFF-TIME	☐ EFF-VOL
THIS PARAMETER IS THE CALCULATED HETP VALUE OF THE COLUMN BASED ON THE SPIKE (PARAMETER TYPE = FLOATING POINT)	☐ HEPT-TIME	☐ HEPT-VOL

FIG. 12B

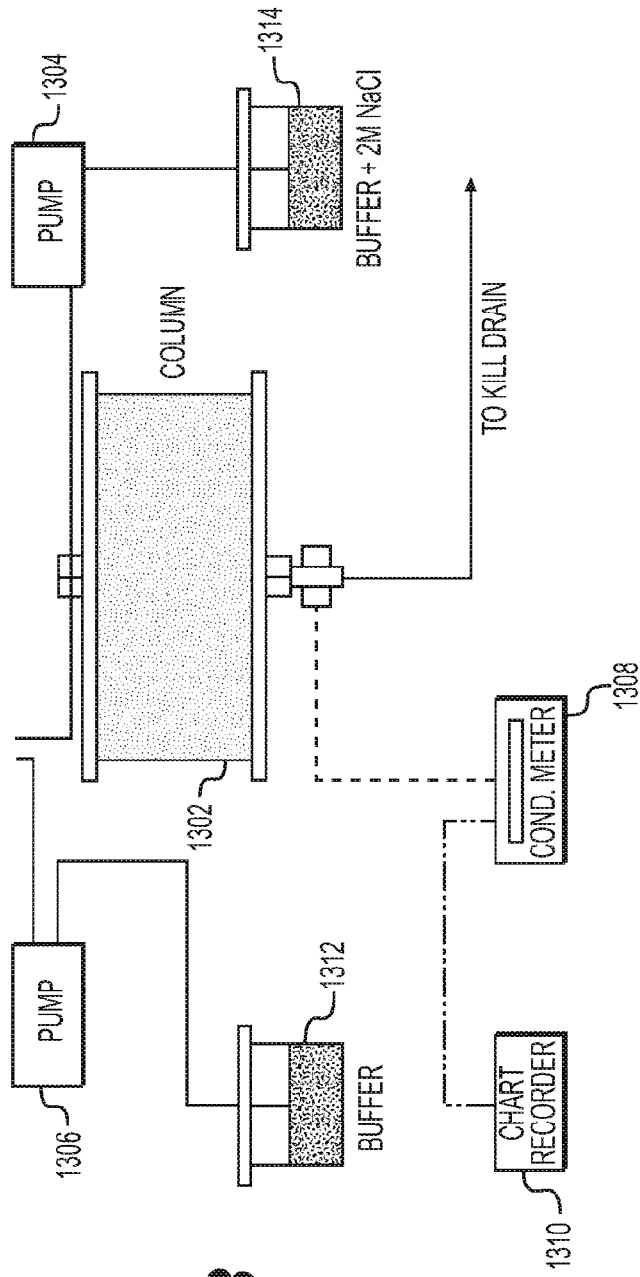


FIG. 13

1300

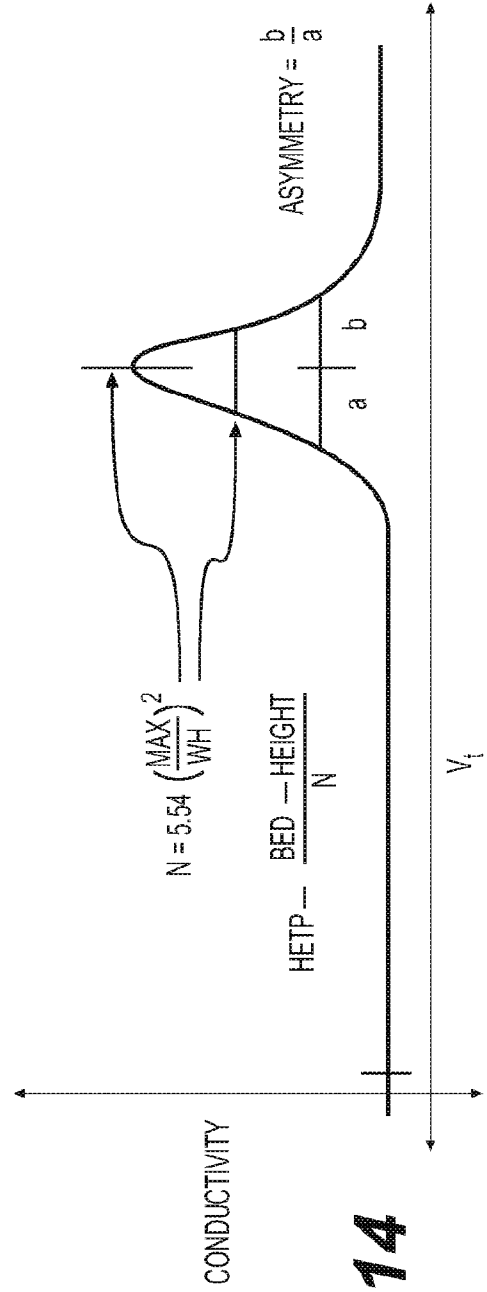


FIG. 14

1400

FIG. 15

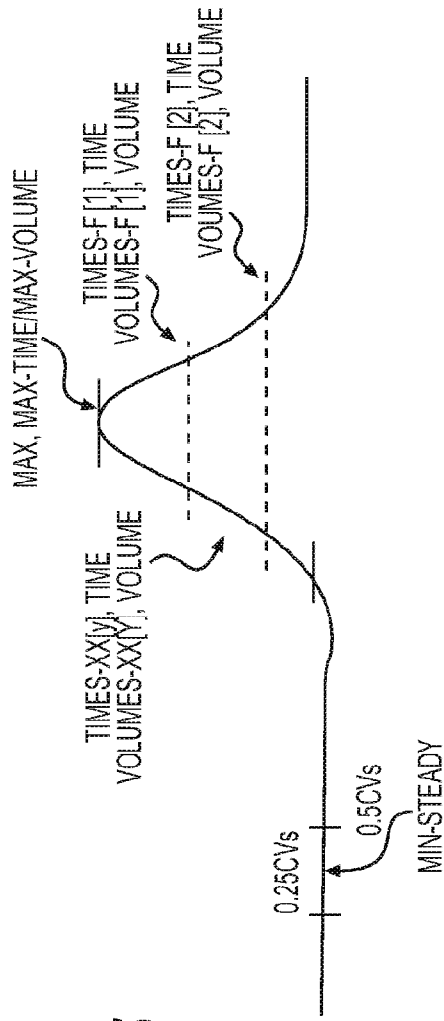
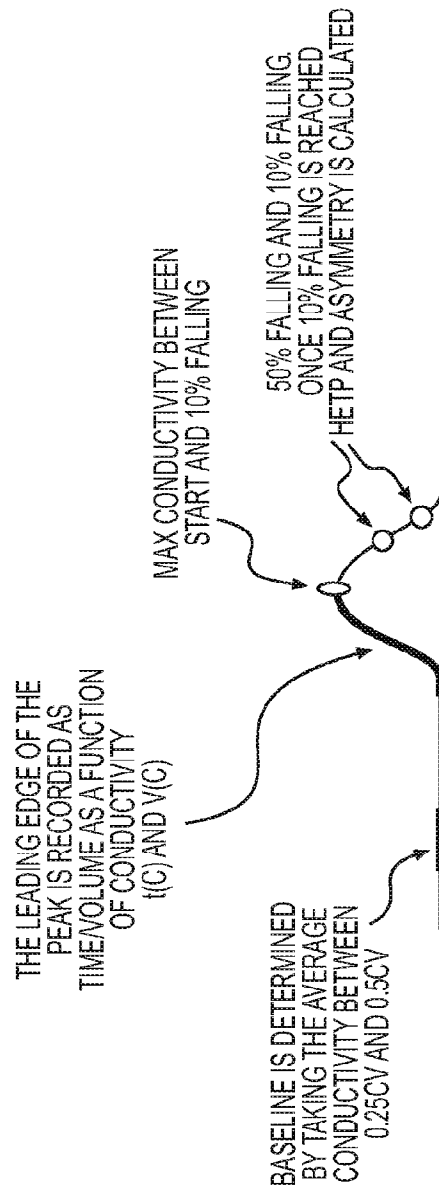
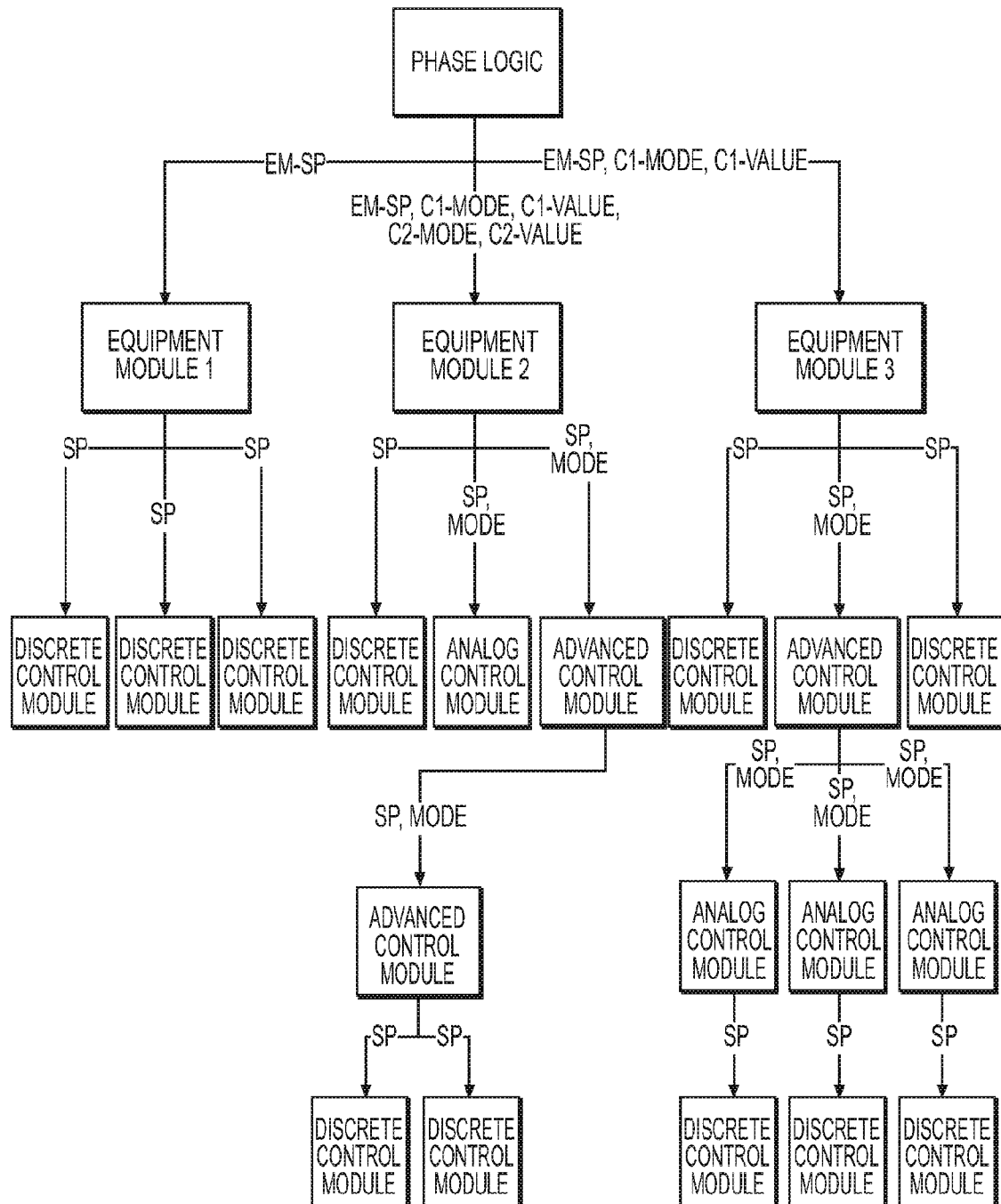


FIG. 16



PHASE, EQUIPMENT MODULE, AND CONTROL MODULE RELATIONSHIPS.



BATCH CONTROL MODELS

FIG. 17