DRAWING INDEX

Clark & Soma Controls — controls drawing set

SHEET	DRAWING TITLE	REV
00	Drawing Index / Cover Sheet	—
01	Legend, Symbols & Abbreviations	—
02	Blank Drawing Sheet (reusable frame)	—
03	Points List / I-O Schedule	—
04	Sequence of Operations (SOO)	—
05	BAS Network / Riser Architecture	—
06	Typical Control Schematics	—
07	Panel Layout / Enclosure	—
GN	General Notes	—

Sheet size D (34×22), ANSI zone grid. Set sheet number + rev in the title block per job.

FILE: sheet_00_index.svg PLOT: _____ SHEET SIZE D (34×22)

DRAWING INDEX

REV	ZONE	DESCRIPTION	DATE	BY
—		INITIAL ISSUE		

SEAL - RETAINED PE OF RECORD

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DWG TITLE

PROJECT

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SIZE	DWG NO	REV	SCALE	SHEET
D		—	NTS	SHEET ___ OF ___

BODY STYLE LEGEND (ISA-5.1)

- DISCRETE FIELD INSTRUMENT
- SHARED DISPLAY / BAS FUNCTION
- DDC / PLC FUNCTION
- COMPUTER / CALCULATED FUNCTION
- FIELD MOUNTED
- PANEL / FRONT MOUNTED

WIRING / SIGNAL LEGEND (ISA-5.1)

- ELECTRIC / ELECTRONIC SIGNAL
- PNEUMATIC SIGNAL
- DATA / COMMUNICATION LINK
- CAPILLARY TUBE
- INSTRUMENT / AIR SUPPLY

CONNECTION / POINT LEGEND

- DIGITAL INPUT POINT (BI)
- DIGITAL OUTPUT POINT (BO)
- ANALOG INPUT POINT (AI)
- ANALOG OUTPUT POINT (AO)
- T — TOTALIZER / PULSE INPUT

CONTROLLER & NETWORK LEGEND

- DDC CONTROLLER / JACE SUPERVISOR
- NETWORK SWITCH / ROUTER
- BAS FIELD BUS — BACnet MS/TP
- BAS NETWORK — BACnet/IP
- ZONE SENSOR / WALL MODULE

MECHANICAL LEGEND

- CENTRIFUGAL FAN
- PROPELLER / AXIAL FAN
- VANE AXIAL FAN
- DAMPER - OPPOSED
- DAMPER - PARALLEL
- AIR FILTER
- FM — AIR FLOW STATION
- H — HUMIDIFIER
- WATER HTG/CLG COIL
- HEATING COIL
- COOLING COIL
- ELEC HEATING COIL
- 2-WAY CONTROL VALVE
- 3-WAY CONTROL VALVE
- FM — WATER FLOW METER
- WATER PUMP
- M — MAGNETIC STARTER
- VSD — VARIABLE SPEED DRIVE

SENSOR LEGEND (ISA TAG)

- T — TEMPERATURE
- H — HUMIDITY
- E — ENTHALPY
- DP — DIFF. PRESSURE
- P — ABSOLUTE PRESSURE
- F — FLOW
- V — VELOCITY
- VT — VOLTAGE
- I — CURRENT
- W — ELEC. POWER
- L — LEVEL
- LT — LIGHT
- SP — ROTATION / SPEED
- SE — SMOKE
- TM — TIMER / SCHEDULE
- VB — VIBRATION
- CO — CARBON MONOXIDE
- CO2 — CARBON DIOXIDE
- RG — REFRIGERANT GAS
- ZS — STATUS / DRY CONTACT

ABBREVIATIONS

AHU	AIR HANDLING UNIT
RTU	ROOFTOP UNIT
VAV	VARIABLE AIR VOLUME
VVT	VARIABLE VOLUME & TEMP
FCU	FAN COIL UNIT
DDC	DIRECT DIGITAL CONTROL
BAS/BMS	BLDG AUTOMATION/MGMT SYS
TCC	TEMP CONTROL CONTRACTOR
OA/RA/SA	OUTSIDE/RETURN/SUPPLY AIR
EA/MA	EXHAUST/MIXED AIR
SP	SETPOINT
DP	DIFFERENTIAL PRESSURE
SAT/RAT	SUPPLY/RETURN AIR TEMP
NO/NC	NORMALLY OPEN/CLOSED
AI/AO	ANALOG INPUT/OUTPUT
BI/BO	BINARY INPUT/OUTPUT
VFD	VARIABLE FREQUENCY DRIVE
EOL	END OF LINE
CWS/CWR	CHILLED WATER SUP/RET
HWS/HWR	HOT WATER SUP/RET
RH	RELATIVE HUMIDITY
NTS	NOT TO SCALE

GENERAL NOTES

SEE SHEET GN — GENERAL NOTES (CANONICAL, 16 NOTES).

LEGEND, SYMBOLS & ABBREVIATIONS

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D		—	NTS	SHEET ___ OF ___

GENERAL NOTES

Standard Clark & Soma controls notes — reused verbatim; strike any that do not apply per job.

1. All work shall comply with the contract documents, the approved sequence of operations, and applicable code.
2. Controls work is vendor-neutral / open-protocol (BACnet preferred). Owner receives all passwords and programming on closeout.
3. Verify existing field conditions before fabrication. Report discrepancies via the project RFI before proceeding.
4. Wire and label all points per the points list / I-O schedule (sheet 03). Do not invent point names in the field.
5. Use symbols and abbreviations per the legend (sheet 01, ISA-5.1). Do not redefine a competing legend.
6. Provide 24VAC/VDC control power from a dedicated transformer sized with 25% spare capacity.
7. Mount controllers and devices in accessible locations; maintain manufacturer clearances and service access.
8. Provide surge / transient protection on network trunks and at panel power entry.
9. Point-to-point check every physical I/O before functional testing; log results in the checkout/commissioning log.
10. Calibrate sensors against a traceable reference; record calibration in the checkout log.
11. Configure alarms, trends, and schedules only for points flagged in the points list.
12. Back up all controller programs, BAS database, and graphics on completion; deliver backups + as-builts in the closeout package.
13. Control wiring is Division 25/23; line-voltage power is Division 26. Wiring in plenums shall be plenum-rated.
14. Devices shall fail to their scheduled safe positions on loss of power or signal (valves fail ____, dampers fail ____ per schedule).
15. BACnet MS/TP trunks: 18 AWG shielded twisted pair, daisy-chained, end-of-line terminated.
16. Coordinate network addressing (MAC / device instance) with the owner's existing BAS.

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GENERAL NOTES

REV	ZONE	DESCRIPTION	DATE	BY
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SIZE	DWG NO	REV	SCALE	SHEET
D		—	NTS	SHEET ___ OF ___

8 7 6 5 4 3 2 1

CONTROLLER / PANEL:	LOCATION:	NETWORK ADDRESS:	PAGE ___ OF ___

POINT NAME / OBJECT	DESCRIPTION	TYPE	DEVICE	SIGNAL	RANGE / UNITS	OBJECT / INST	ALM	TRD	NOTES

CONTROLLER POINT TALLY

TYPE	USED	SPARE	TOTAL
AI			
AO			
BI			
BO			

POINTS LIST / I-O SCHEDULE

REV	ZONE	DESCRIPTION	DATE	BY
—		INITIAL ISSUE		

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SIZE	DWG NO	REV	SCALE	SHEET
D		—	NTS	SHEET ___ OF ___

FILE: clark-soma-controls-template.svg PLOT: __________ SHEET SIZE D (34×22)

8 7 6 5 4 3 2 1

SYSTEM: _____ EQUIPMENT TAG: _____

1. GENERAL / SCOPE

2. OCCUPIED MODE (START-UP / MORNING WARM-UP)

3. UNOCCUPIED / SETBACK / NIGHT PURGE

4. ECONOMIZER / OUTSIDE-AIR CONTROL

5. SETPOINTS & RESET SCHEDULES

6. SAFETIES, FREEZE PROTECTION & INTERLOCKS

7. ALARMS & FAILURE / FALLBACK MODES

8. TRENDING

9. DEMAND RESPONSE / LOAD SHED (UTILITY DR EVENTS)

SEQUENCE OF OPERATIONS

REV	ZONE	DESCRIPTION	DATE	BY
—		INITIAL ISSUE		

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SIZE	DWG NO	REV	SCALE	SHEET
D		—	NTS	SHEET ___ OF ___

FILE: clark-soma-controls-template.svg PLOT: _____ SHEET SIZE D (34×22)

BAS NETWORK / RISER ARCHITECTURE

Tag every device per network_integration_schedule.xlsx — do not bury IPs/instances only in this drawing.

MANAGEMENT / FRONT END

BAS server · workstation · IP router

BACnet/IP · Ethernet

‹device›
‹id / addr›

‹device›
‹id / addr›

‹device›
‹id / addr›

AUTOMATION / SUPERVISORY

Supervisory controllers · gateways

BACnet/IP ↔ MS/TP, Modbus

‹device›
‹id / addr›

‹device›
‹id / addr›

‹device›
‹id / addr›

FIELD / MS-TP TRUNK

DDC field controllers (AHU/VAV/plant)

MS/TP · device instances

‹device›
‹id / addr›

‹device›
‹id / addr›

‹device›
‹id / addr›

Riser line = trunk backbone. Symbols per sheet_01 legend (ISA-5.1).

FILE: sheet_05_network.svg

PLOT: _____

SHEET SIZE D (34×22)

BAS NETWORK / RISER ARCHITECTURE

REV	ZONE	DESCRIPTION	DATE	BY
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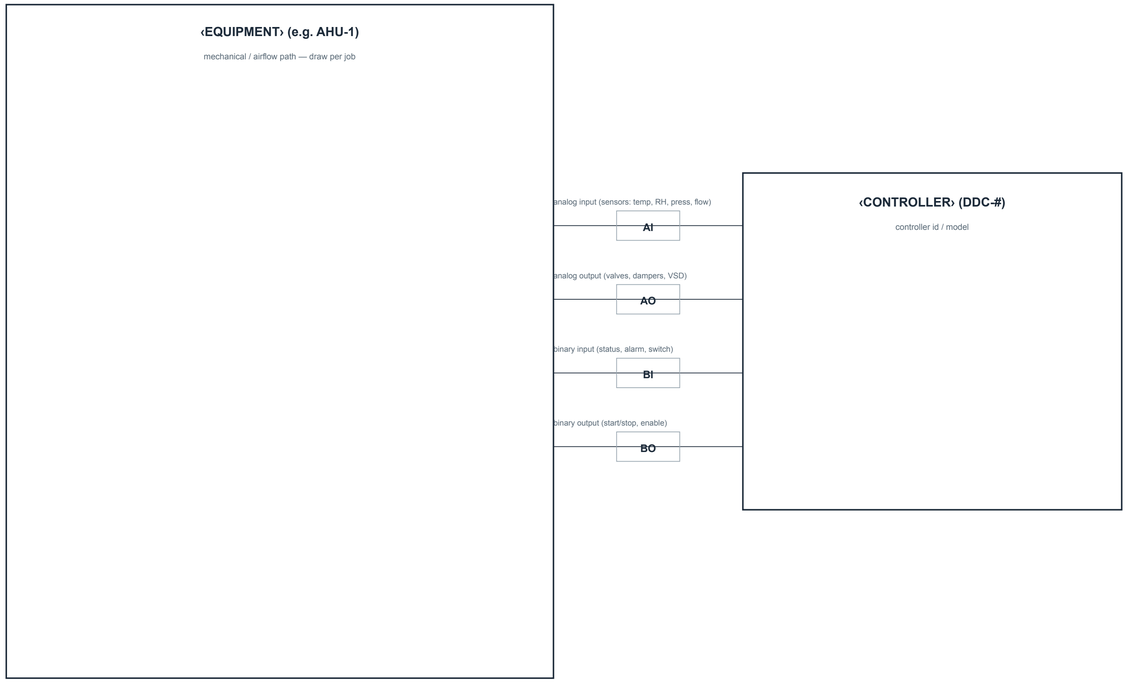
SIZE	DWG NO	REV	SCALE	SHEET
D		—	NTS	SHEET ___ OF ___

TYPICAL CONTROL SCHEMATIC

One equipment shown — repeat per equipment. Symbols per sheet_01 legend; points per master_points_database.xlsx.



Each stub = a row in the points list / I-O schedule. Controller point tally per sheet_03.

NOTE:
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FILE: sheet_06_schematic.svg PLOT: _____ SHEET SIZE D (34×22)

TYPICAL CONTROL SCHEMATIC

REV	ZONE	DESCRIPTION	DATE	BY
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DWG TITLE: TYPICAL CONTROL SCHEMATIC

PROJECT:

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SIZE	DWG NO	REV	SCALE	SHEET
D		—	NTS	SHEET ___ OF ___

PANEL LAYOUT / ENCLOSURE

Lay out per panel_enclosure_package; terminals per terminal_schedule.xlsx; labels per sheet_01 legend.

‹ENCLOSURE› (NEMA type / size)

POWER SUPPLY / XFMR

120VAC in → 24VAC/VDC

CONTROLLER / I-O MODULES

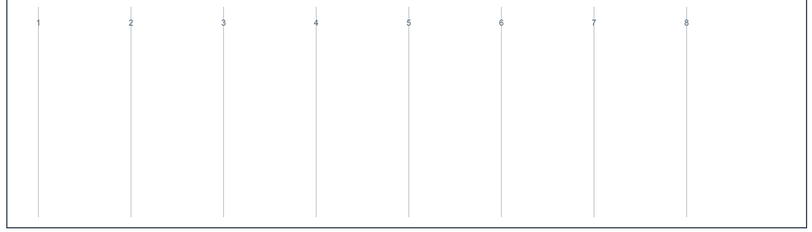
DDC-# · expansion modules

DIN rail 1 — ‹relays / devices›

DIN rail 2 — ‹relays / devices›

DIN rail 3 — ‹relays / devices›

TERMINAL STRIP (TB1)



One terminal column = one row in terminal_schedule.csv (wire label ↔ point_id).

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FILE: sheet_07_panel.svg

PLOT: _____

SHEET SIZE D (34×22)

PANEL LAYOUT / ENCLOSURE

REV	ZONE	DESCRIPTION	DATE	BY
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SIZE	DWG NO	REV	SCALE	SHEET
D		—	NTS	SHEET ___ OF ___

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‹ SHEET TITLE ›

REV	ZONE	DESCRIPTION	DATE	BY
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DATE	DATE	DATE

SIZE	DWG NO	REV	SCALE	SHEET
D		—	NTS	SHEET ___ OF ___

FILE: clark-soma-controls-template.svg PLOT: _____ SHEET SIZE D (34×22)