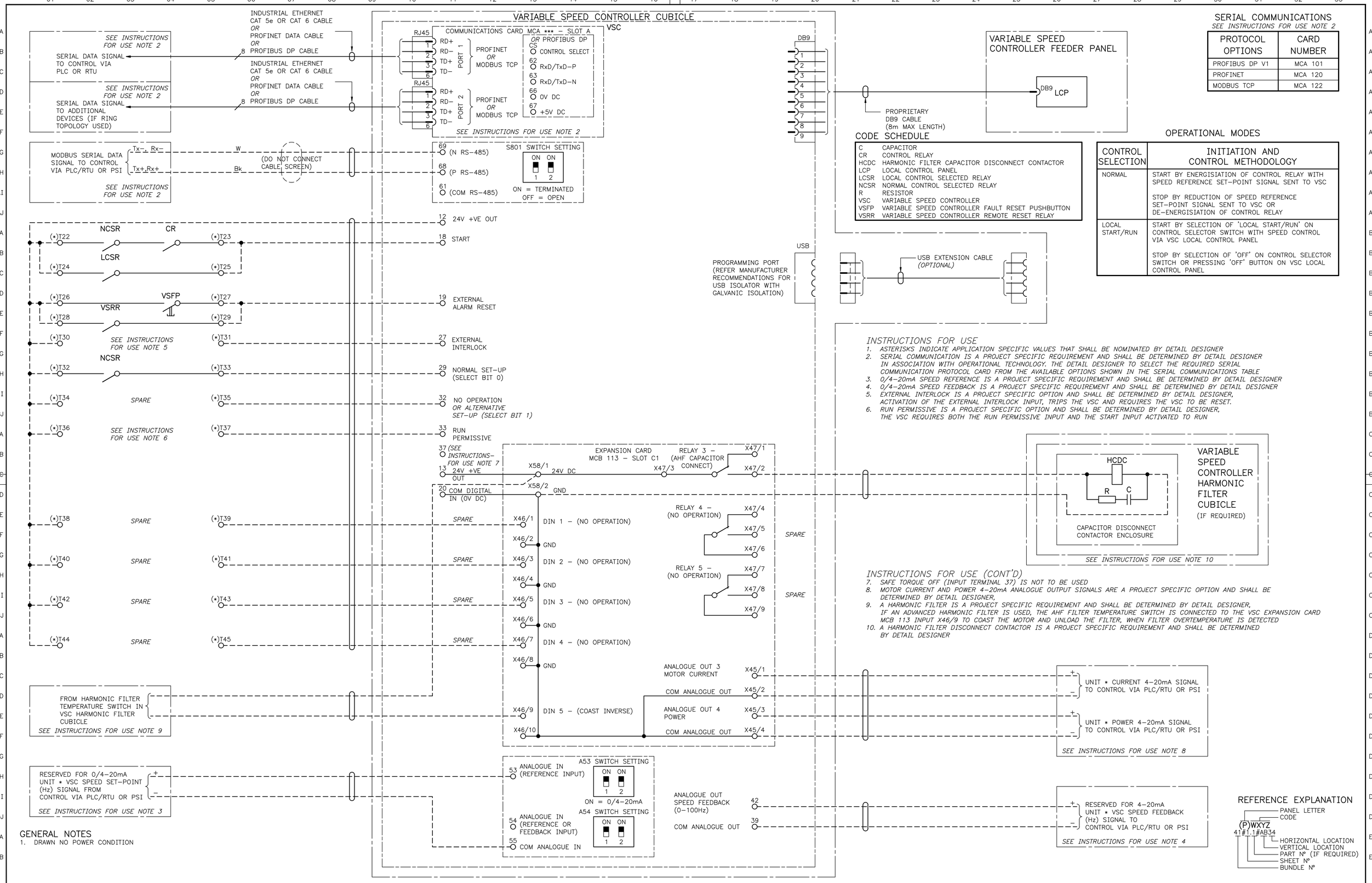
DocuSign Envelope ID: D02654E8-1738-4B59-B551-4B2FDB7E3BF1



SERIAL COMMUNICATIONS

SEE INSTRUCTIONS FOR USE NOTE 2

PROTOCOL OPTIONS	CARD NUMBER
PROFIBUS DP V1	MCA 101
PROFINET	MCA 120
MODBUS TCP	MCA 122

CODE SCHEDULE

C	CAPACITOR
CR	CONTROL RELAY
HCDC	HARMONIC FILTER CAPACITOR DISCONNECT CONTACTOR
LCP	LOCAL CONTROL PANEL
LCSR	LOCAL CONTROL SELECTED RELAY
NCSR	NORMAL CONTROL SELECTED RELAY
R	RESISTOR
VSC	VARIABLE SPEED CONTROLLER
VSFP	VARIABLE SPEED CONTROLLER FAULT RESET PUSHBUTTON
VSRR	VARIABLE SPEED CONTROLLER REMOTE RESET RELAY

OPERATIONAL MODES

CONTROL SELECTION	INITIATION AND CONTROL METHODOLOGY
NORMAL	START BY ENERGISIATION OF CONTROL RELAY WITH SPEED REFERENCE SET–POINT SIGNAL SENT TO VSC STOP BY REDUCTION OF SPEED REFERENCE SET–POINT SIGNAL SENT TO VSC OR DE–ENERGISIATION OF CONTROL RELAY
LOCAL START/RUN	START BY SELECTION OF 'LOCAL START/RUN' ON CONTROL SELECTOR SWITCH WITH SPEED CONTROL VIA VSC LOCAL CONTROL PANEL STOP BY SELECTION OF 'OFF' ON CONTROL SELECTOR SWITCH OR PRESSING 'OFF' BUTTON ON VSC LOCAL CONTROL PANEL

INSTRUCTIONS FOR USE

1. *ASTERISKS INDICATE APPLICATION SPECIFIC VALUES THAT SHALL BE NOMINATED BY DETAIL DESIGNER*
2. *SERIAL COMMUNICATION IS A PROJECT SPECIFIC REQUIREMENT AND SHALL BE DETERMINED BY DETAIL DESIGNER IN ASSOCIATION WITH OPERATIONAL TECHNOLOGY. THE DETAIL DESIGNER TO SELECT THE REQUIRED SERIAL COMMUNICATION PROTOCOL CARD FROM THE AVAILABLE OPTIONS SHOWN IN THE SERIAL COMMUNICATIONS TABLE*
3. *0/4–20mA SPEED REFERENCE IS A PROJECT SPECIFIC REQUIREMENT AND SHALL BE DETERMINED BY DETAIL DESIGNER*
4. *0/4–20mA SPEED FEEDBACK IS A PROJECT SPECIFIC REQUIREMENT AND SHALL BE DETERMINED BY DETAIL DESIGNER*
5. *EXTERNAL INTERLOCK IS A PROJECT SPECIFIC OPTION AND SHALL BE DETERMINED BY DETAIL DESIGNER, ACTIVATION OF THE EXTERNAL INTERLOCK INPUT, TRIPS THE VSC AND REQUIRES THE VSC TO BE RESET.*
6. *RUN PERMISSIVE IS A PROJECT SPECIFIC OPTION AND SHALL BE DETERMINED BY DETAIL DESIGNER, THE VSC REQUIRES BOTH THE RUN PERMISSIVE INPUT AND THE START INPUT ACTIVATED TO RUN*

INSTRUCTIONS FOR USE (CONT'D)

7. *SAFE TORQUE OFF (INPUT TERMINAL 37) IS NOT TO BE USED*
8. *MOTOR CURRENT AND POWER 4–20mA ANALOGUE OUTPUT SIGNALS ARE A PROJECT SPECIFIC OPTION AND SHALL BE DETERMINED BY DETAIL DESIGNER,*
9. *A HARMONIC FILTER IS A PROJECT SPECIFIC REQUIREMENT AND SHALL BE DETERMINED BY DETAIL DESIGNER, IF AN ADVANCED HARMONIC FILTER IS USED, THE AHF FILTER TEMPERATURE SWITCH IS CONNECTED TO THE VSC EXPANSION CARD MCB 113 INPUT X46/9 TO COAST THE MOTOR AND UNLOAD THE FILTER, WHEN FILTER OVERTEMPERATURE IS DETECTED*
10. *A HARMONIC FILTER DISCONNECT CONTACTOR IS A PROJECT SPECIFIC REQUIREMENT AND SHALL BE DETERMINED BY DETAIL DESIGNER*

GENERAL NOTES

1. DRAWN NO POWER CONDITION

ISSUE	DATE	GRID	REVISION	DRN	REC	APPD

DESIGN SURVEY NONE | VERTICAL DATUM NONE | COORDINATE SYS NONE | ASCON SURVEY NONE | DES REF

DES CALC S GILMOUR | DES CHD T LIU | DRN SA MEMORY | Q.C. CHD P HARVEY

NORTH POINT

SUBMITTED 16/06/2023 SA MEMORY (SIGNED) SENIOR TECHNICAL ADVISOR – ELECT

RECOMMENDED 16/06/2023 S GILMOUR (SIGNED) SENIOR ENGINEER – ELECTRICAL

APPROVED 16/06/2023 T LIU (SIGNED) PRINCIPAL ENGINEER – ELECTRICAL

ENGINEERING

WATER CORPORATION

ELECTRICAL STANDARD SWITCHBOARD DESIGNS
SMALL PUMP STATIONS
MOTOR STARTER REFERENCE – BORE
VARIABLE SPEED CONTROLLER – CONTROL DIAGRAM – PART 1

FILE | PROJECT | PLAN MN01–24–6.1 | CAD | ISSUE A | ORIGINAL SHEET SIZE A1 | MF

© THIS DRAWING IS THE PROPERTY OF THE WATER CORPORATION. IT SHALL NOT BE COPIED WITHOUT PERMISSION.

STANDARDS\APPROVED\MN01\MN01–024–006–01A 10:42 16/06/2023 MEMORYSQ/NB46194