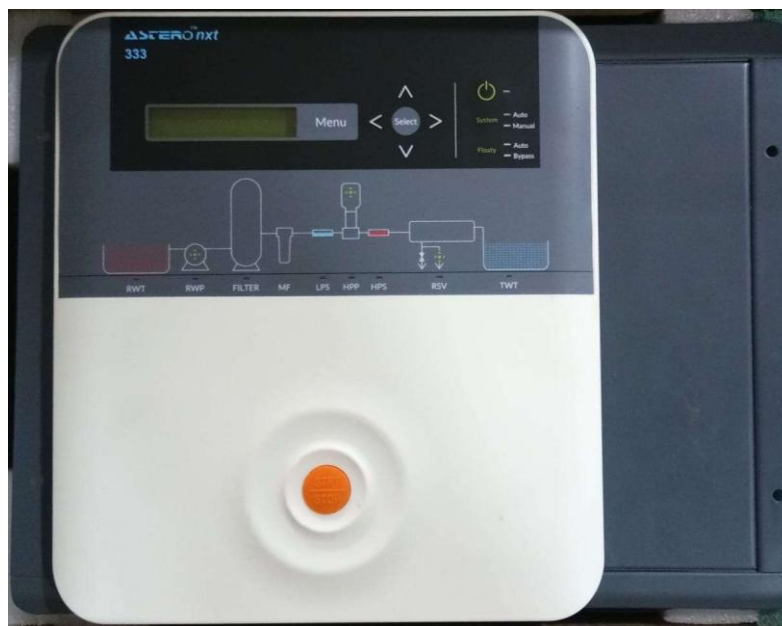


## Next Generation **ASTERO<sup>®</sup>**



## **ASTERO<sup>®</sup> next 333**

**Overall size** : 345mm(Horizontal) X 260mm(Vertical) X 130(Depth)

**Cut Out** : 305mm (Horizontal) X 225mm (Vertical)

|             |                    |  |
|-------------|--------------------|--|
| <b>MOV</b>  | <b>320V, D14mm</b> |  |
| <b>FUSE</b> | <b>1.5 Ampere</b>  |  |

### Abbreviations used:

|                                        |                           |
|----------------------------------------|---------------------------|
| RWP:Raw Water Pump                     | LPS:Low Pressure Switch   |
| M·F :Micron Filter                     | HPS:High Pressure Switch  |
| HPP: High Pressure Pump                | RWT:Raw Water Tank        |
| RSV:Reject Solenoid Valve              | TWT:Treated Water Tank    |
| PFR:Permeat Flow Rate                  | FLUSH VLV:Flushing Valve  |
| IFR:Inlet Flow Rate                    | CNDUCTIVITY:Conductivity  |
| RFR:Reject Flow Rate                   | INL:Inlet                 |
| AUX IP:Auxiliary Input                 | REJ:Reject                |
| AUX OP:Auxiliary output                | UNBL:Unbalance            |
| SET PT:Set Point                       | FLUSH OPRN:Flush Opertion |
| OVL CRT:Overload Current               | MPV:Multiport valve       |
| DRY RUN CRT:Dry run current            | SERV TIM:Service time     |
| IND:Indian (MPV)                       | CHN:Chinease (MPV)        |
| SENSR POSN: Flow Sensor Position       | DOSLV:Dosing Level        |
| TW LEVEL SW;Treated Water level switch | RWLVL:Raw water level     |
| LO PRESS SW:Low Pressure Switch        | UV IP:Ultraviolet Input   |
| HI PRESS. SW;High pressure Switch      | TP : Third pump           |
| HP FLUSHING:High Pressure Flushing     |                           |

### Maximum recommended HP ratings:

| Panel configuration :                          | 133               | 333              |
|------------------------------------------------|-------------------|------------------|
| Raw Water Pump                                 | 2 Hp Single Phase | 5 Hp Three Phase |
| High Water Pump                                | 5 Hp Three Phase  | 5 Hp Three Phase |
| Third Pump                                     | 5 Hp Three Phase  | 5 Hp Three Phase |
| Solenoid Type:Normally closed type (230 v AC): | Client's scope    |                  |

### COLOUR CODING :

| THIRD PUMP | FLUSH SOV | HPP | RWP |
|------------|-----------|-----|-----|
| R Gr       | R V       | G R | Y O |

| THIRD PUMP | FLUSH SOV | HPP | RWP |
|------------|-----------|-----|-----|
| R Gr       | R V       | G R | Y R |

COLOUR CODING:: R:RED V:VIOLET G:GREEN Y:YELLOW O:ORANGE Gr:Grey

Note:Colour coded cables are used for outputs RWP,HPP,FLUSH SOV,THIRD PUMP as mentioned above.

### Terminal Connections:

#### Control terminals:

| Pulse o/p for AMPV (IND/CHN) | COND. SENSOR | FLOW 2 | FLOW 1 | RL 1 | RL 2 | TP FLOTY | RWT FLOTY | TWT FLOTY | LPS  | HPS  |
|------------------------------|--------------|--------|--------|------|------|----------|-----------|-----------|------|------|
|                              | R B          | B G R  | B G R  | C NO | C NO | C NC     | C NC      | C NC      | C NO | C NO |

#### Power terminals:

133

| INPUT |   |   |   | HPP |   |   | RWP |   | FLUSH VALVE |   | DOSER |   | TP |   |   |   |
|-------|---|---|---|-----|---|---|-----|---|-------------|---|-------|---|----|---|---|---|
| R     | Y | B | N | R   | Y | B | P   | N | P           | N | P     | N | R  | Y | B | N |

333

| INPUT |   |   |   | HPP |   |   | RWP |   |   | FLUSH VALVE |   | DOSER |   | TP |   |   |   |
|-------|---|---|---|-----|---|---|-----|---|---|-------------|---|-------|---|----|---|---|---|
| R     | Y | B | N | R   | Y | B | R   | Y | B | P           | N | P     | N | R  | Y | B | N |

#### Automation Philosophy:

ASTERO nxt has lots of new generation features like bluetooth (optionally available) besides conventional level & pressure inputs. An intuitive user interface allows not so technosavy local operator to do critical settings easily. These panels are ideally suited for small and medium sized RO plants and they possess improved, elegant & patented design.

The Astero nxt panel has 7 switch inputs

Low Pressure Switch (LPS),

High Pressure Switch (HPS) ,

Treated Water Tank Floaty (TWT FLT),

Raw Water Tank Floaty (RWT FLT),

Dosing Tank Low Level (DOS LVL),

And AMPV inputs OR can be configured as ORP / UV/TP IP fault.

ASTERO nxt can measure quality & quantity of RO permeate water as it has built in Conductivity sensor and 2 inputs for Flow sensor.

And it controls

Raw water pump (RWP),

High pressure pump (HPP),

Reject solenoid valve (RSV),

Doser

Third pump (can be configured as Flushing/Transfer/Standby RWP/Standby HPP/HPP in series etc.)

PULSE.

The advanced electronics also takes care of the required motor protection such as **over load, dry running, single phasing etc.** ASTERO nxt is so intelligent that it restarts the plant after 15 minutes when it is tripped with overload and will monitor pump currents, if those are normal, plant will run continuously else respective pump will be tripped.

#### Operating Logic:

Upon switching ON power supply of the panel, if the level of the permeate tank is low & raw water tank level is high, the raw water pump will start and the reject solenoid valve will open for a programmed time (flush the membrane). After the flush time is over, the processor will check for low pressure input. If the input is ON (short), the high pressure pump will start after the set de-bounce time. The **de-bounce time** helps in avoiding unnecessary chattering of the high pressure pump due to initial dip in the suction pressure.

This panel is also equipped to suit the applications with AUTO MULTIPOINT VALVE in pretreatment. In that case Auxiliary input 3 & 4 are automatically configured as RL2 & RL1 respectively. ASTERO nxt has built in PULSE output which can initiate filter backwash based on time.

**Stopping Sequence:** Under following conditions processor will stop its operation.

1. If STOP button is pressed.
2. If treated water tank is full(open)
3. If high pressure switch is ON(short)
4. If raw water tank is empty (short)
5. Dry run, Single phasing, Overload.

If any one of the above condition occurs, then HPP stops (If HP Flushing is OFF) Reject solenoid valve will open for the programmed time. RWP stops & STATUS is displayed on MIMIC. Press start button to resume operation.

Third pump will work in following manner

- 1) When configured as TRASNSFER, Switch ON/OFF based on TP IP.
- 2) When configured as flushing, switch ON during stopping sequence.
- 3) When configured as RWP2, will function as standby RWP and will operate based on cycle.
- 4) When configured as HPP2, will function as standby HPP and will operate based on cycle.
- 5) When configured as HPP in series, will switch ON/OFF along with HPP1.

## KEYS SIGNIFICANCE:

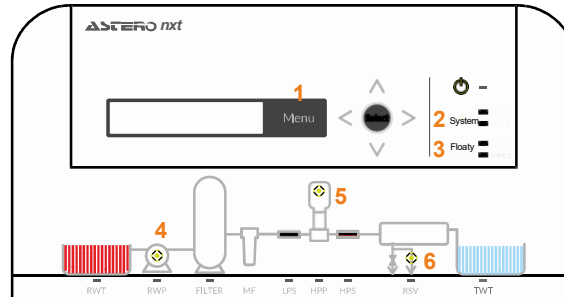


FIG. 1

Use the keys available on mimic as shown in FIG.1 for setting of the panel as per given instructions.

- > : This Left Arrow key is used to move the cursor forward.
- < : This Right Arrow key is used to move the cursor backward.
- ▲ : This Up Arrow key is used to move cursor upward and increase the value.
- ▼ : This Down Arrow key is used to move cursor downward and decrease the value.
- : This Select key is used to select the routine or to save the set value .
- ⏻ : This standby key is used to switch on/off the panel except while setting.
- 1 : This MENU key is used to end the routine or to exit the operation .
- 2 : This system key is used to select system mode (Auto/Manual).
- 3 : This Floaty key is used to enable (Auto) or disable (bypass) TWT Floaty.
- 4 : This RWP Key is multifunction key and is used in following ways :
  - Single press operation : Check Current of RWP in Auto mode.
  - Start/Stop RWP in manual mode
  - Press & hold operation : Set RWP overload current in Auto mode
- 5 : This HPP Key is multifunction key and is used in following ways :
  - Single press operation : Check Current of HPP in Auto mode.
  - Start/Stop HPP in manual mode
  - Press & hold operation : Set HPP overload current in Auto mode
- 6 : This RSV Key is multifunction key and is used in following ways :
  - Single press operation : Start/Stop FSV in manual mode
  - Press & hold operation : Set Flush time in Auto mode

### How to change system mode ( AUTO/MANUAL) ?

Panel has an AUTO/MANUAL facility.To switch the mode user has to press 'SYSTEM' KEY. The LED indication will be on as per selected mode.

Upon power on in manual mode display will show 'MANUAL MODE ON'.In this mode only inputs will get bypassed & pump protection like Overload,Single phasing will be there.Use 'RWP' KEY to switch ON/OFF the Raw water pump & 'HPP' KEY to switch ON/OFF the High pressure pump.

Note:High pressure pump can be started only if Raw water pump is ON.  
SELECT' KEY to switch ON/OFF the Third pump.

| TO VIEW THE FACTORY SETTINGS                                                                                                                                                                                                                                                                                                                                                 |                                         |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------|
| Key Pressed                                                                                                                                                                                                                                                                                                                                                                  | Display                                 |
| MENU                                                                                                                                                                                                                                                                                                                                                                         | VIEW?                                   |
| Display scrolls through all the settings set by factory.                                                                                                                                                                                                                                                                                                                     |                                         |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | TW LEVEL SW : ON                        |
|                                                                                                                                                                                                                                                                                                                                                                              | HI PRESS SW : ON                        |
|                                                                                                                                                                                                                                                                                                                                                                              | LO PRESS SW:ON                          |
|                                                                                                                                                                                                                                                                                                                                                                              | TIME:015                                |
|                                                                                                                                                                                                                                                                                                                                                                              | AUX IP 1:                               |
|                                                                                                                                                                                                                                                                                                                                                                              | AUX IP 2:                               |
|                                                                                                                                                                                                                                                                                                                                                                              | AUX IP 3:                               |
|                                                                                                                                                                                                                                                                                                                                                                              | AUX IP 4:                               |
|                                                                                                                                                                                                                                                                                                                                                                              | RWP CNTRL:OFF                           |
|                                                                                                                                                                                                                                                                                                                                                                              | AUX OP:ALARM                            |
|                                                                                                                                                                                                                                                                                                                                                                              | SETTINGS? **                            |
| SELECT (if SYSTEM is in AUTO mode)                                                                                                                                                                                                                                                                                                                                           | SCROLL?                                 |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | SCROLL?ON                               |
| <b>Why to make scroll ON/OFF ?</b>                                                                                                                                                                                                                                                                                                                                           |                                         |
| This scrolling facility provided to the users who want to see flow rate,volume,operation hour mains voltage along with plant status & conductivity in scrolling.If user want to see only conductivity & plant status on display during plant operation they have to make scroll off.                                                                                         |                                         |
| Display scrolls through all the settings set by factory.                                                                                                                                                                                                                                                                                                                     |                                         |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | COND/TDS?                               |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | DISP: $\mu$ SM                          |
| Use $\wedge$ key to make it PPM if required                                                                                                                                                                                                                                                                                                                                  | DISP: PPM                               |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | SET PT:(IF CNTRL OPRN:ON. SEC 1.4)      |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | SET PT:500(Previously set value)        |
| Use < ,> , $\wedge$ , $\vee$ keys to set desired value                                                                                                                                                                                                                                                                                                                       |                                         |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | DELAY                                   |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | DELAY:010(Previously set value)         |
| <b>What is this delay time and set point ?</b>                                                                                                                                                                                                                                                                                                                               |                                         |
| Set point is the value of conductivity beyond which the system will trip. Delay is the time up to which the increase in conductivity will be ignored during start up.                                                                                                                                                                                                        |                                         |
| Use < ,> , $\wedge$ , $\vee$ key to set desired value                                                                                                                                                                                                                                                                                                                        |                                         |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | EXIT?                                   |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | QUIT?                                   |
| SELECT                                                                                                                                                                                                                                                                                                                                                                       | QUIT?                                   |
| TO SET OVERLOAD CURRENTS(SEC--1.1)                                                                                                                                                                                                                                                                                                                                           |                                         |
| <b>Why to set overload current?</b>                                                                                                                                                                                                                                                                                                                                          |                                         |
| When the motor draws more current than the normal running current then it is said to be an overload current which is an abnormal condition which leads to motor burns or failures. To take care of it we set overload currents, the panel trips when the current drawn by the motor is more than the overload current value set by us (20% more than actual running current) |                                         |
| <b>How to know normal(actual) running motor current?</b>                                                                                                                                                                                                                                                                                                                     |                                         |
| There are two methods (1)With the Clamp Meter check the output currents of individual phases(R/Y/B).(2) Using our control panel Refer section 1.7                                                                                                                                                                                                                            |                                         |
| KEY PRESSED FOR 3 sec                                                                                                                                                                                                                                                                                                                                                        | DISPLAY                                 |
| RWP                                                                                                                                                                                                                                                                                                                                                                          | RWP OVL CRT?<br>04.0(Factory set value) |
| Use < ,> , $\wedge$ , $\vee$ keys to set desired value & press SELECT key                                                                                                                                                                                                                                                                                                    |                                         |

| KEY PRESSED FOR 3 sec                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | DISPLAY                                        |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| HPP                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | HPP OVL CRT?<br>04.0(Factory set value)        |
| Use <,> , ^, v keys to set desired value & press SELECT key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| RSV                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | FLUSHING VLV:<br>TIME:015 S(Factory set value) |
| Use <,> , ^, v keys to set desired value & press SELECT key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TP OVL CRT?<br>10.0(Factory set value)         |
| Use <,> , ^, v keys to set desired value & press SELECT key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| <b>** If SYSTEM is in MANUAL mode.</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RWP OVL CRT?                                   |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RWP OVL CRT?04.0                               |
| Use <,> , ^, v keys to set desired value & press SELECT key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HPP OVL CRT?                                   |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HPP OVL CRT?04.0                               |
| Use <,> , ^, v keys to set desired value & press SELECT key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TP OVL CRT?                                    |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | TP OVL CRT?04.0                                |
| Use <,> , ^, v keys to set desired value & press SELECT key                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | EXIT ?                                         |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | SCROLL ?                                       |
| <b>TO SET DRY RUN CURRENTS(SEC--1.2)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                |
| <b>Why to set Dry Run current?</b><br><b>If the pump is running without any water, is termed as motor dry running and current drawn by the motor is lesser than the normal running current. The controller avoids the dry running of motor by tripping the RWP / HPP. Dry running can lead to pump failures and therefore there is a need to trip pump/motor in such a condition</b><br><b>How to know dry running motor current?</b><br><b>Run the motor without any load and check the phase currents with Clamp meter. The set point must be kept between normal running current and actual dry running current</b> |                                                |
| Press < & > KEYS SIMULTANEOUSLY                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | PASSWORD:000                                   |
| ENTER PASSWORD 123 USING <,> ^ , v KEYS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RWP UNBAL:                                     |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RWP UNBAL: 040(Previously set value)           |
| USE <,> , ^, v KEYS TO SET DESIRED VALUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HPP UNBL:                                      |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HPP UNBL:040(Previously set value)             |
| USE <,> , ^, v KEYS TO SET DESIRED VALUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DRY RUN OPRN:                                  |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DRY RUN OPRN:OFF(Previously set status)        |
| USE ^ KEY TO MAKE IT ON                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | DRY RUN OPRN:ON                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RWP DRY CRT?                                   |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | RWP DRY CRT?<br>01.5(Factory settings)         |
| USE <,> , ^, v KEYS TO SET DESIRED VALUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HPP DRY CRT?                                   |
| SELECT                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | HPP DRY CRT?<br>01.5(Factory setting)          |
| USE <,> , ^, v KEYS TO SET DESIRED VALUE                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |                                                |

|                                                                                                                                                                                                                                                                                                                                          |                                          |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------|
| SELECT                                                                                                                                                                                                                                                                                                                                   | AUTO RESTART?                            |
| SELECT                                                                                                                                                                                                                                                                                                                                   | AUTO RESTART? OFF(Previously set status) |
| <b>What is AUTO RESTART ?</b><br>Once the pump go dry running and if Auto Restart is ON then the motor starts automatically after set time is elapsed else we have to start the motors manually.                                                                                                                                         |                                          |
| USE $\wedge$ KEY TO MAKE IT ON                                                                                                                                                                                                                                                                                                           | AUTO RESTART? ON                         |
| SELECT                                                                                                                                                                                                                                                                                                                                   | TIME : 015 m(Previously set value)       |
| USE <, >, $\wedge$ , V KEYS TO SET DESIRED VALUE                                                                                                                                                                                                                                                                                         |                                          |
| SELECT                                                                                                                                                                                                                                                                                                                                   | QUIT?                                    |
| SELECT                                                                                                                                                                                                                                                                                                                                   | <b>PLANT STATUS</b>                      |
| <b>CONDUCTIVITY CALIBRATION (SEC--1.3)</b>                                                                                                                                                                                                                                                                                               |                                          |
| <b>Why to calibrate?</b><br>If there is mismatch between actual and required value of conductivity then there is need for recalibration. For that 1) Dip the sensor in standard known solution and set the required value.<br>Ex. If actual value is 400 $\mu$ s/cm and required value is 450 $\mu$ s/cm then calibrate as:              |                                          |
| Press < & > KEYS SIMUTANEOUSLY                                                                                                                                                                                                                                                                                                           | PASSWORD:000                             |
| ENTER PASSWORD 234 USING <, >, $\wedge$ , V KEY                                                                                                                                                                                                                                                                                          |                                          |
| SELECT                                                                                                                                                                                                                                                                                                                                   | CND FACTOR?                              |
| SELECT                                                                                                                                                                                                                                                                                                                                   | CND FACTOR?1.00                          |
| USE <, >, $\wedge$ , V TO SET DESIRED VALUE                                                                                                                                                                                                                                                                                              |                                          |
| SELECT                                                                                                                                                                                                                                                                                                                                   | COND. OFFSET?                            |
| SELECT                                                                                                                                                                                                                                                                                                                                   | COND. OFFSET? 000                        |
| USE <, >, $\wedge$ , V KEY TO SET DESIRED VALUE                                                                                                                                                                                                                                                                                          |                                          |
| SELECT                                                                                                                                                                                                                                                                                                                                   | QUIT?                                    |
| SELECT                                                                                                                                                                                                                                                                                                                                   | <b>PLANT STATUS</b>                      |
| <b>TO CONFIGURE INPUTS (SEC--1.4)</b>                                                                                                                                                                                                                                                                                                    |                                          |
| Panel has 7 inputs (switch type) available i.e.LPS,HPS,LEVEL SWITCH(Permeate floaty)<br>AUX I/P 1,2,3,4:-Can be set as RWLV/L/ORP/DOSLV/L/UV IP/REMOT or OFF.<br>Incase of FILTER WITH AUTO MULTIPOINT VALVE pretreatment<br>The AUX I/P 3 and AUX I/P 4 automatically configured as RL2 & RL1.<br>Conductivity and two Flow sensor I/P. |                                          |
| Press < & > KEYS SIMUTANEOUSLY                                                                                                                                                                                                                                                                                                           | PASSWORD:000                             |
| ENTER PASSWORD 678 USING <, >, $\wedge$ , V KEYS                                                                                                                                                                                                                                                                                         |                                          |
| SELECT                                                                                                                                                                                                                                                                                                                                   | HP FLUSHING:                             |
| SELECT                                                                                                                                                                                                                                                                                                                                   | HP FLUHING:OFF (Previously set status)   |
| What is HP FLUSHING?<br>Normally flushing is done by RWP during starting and stopping of system.<br>Incase High pressure flushing is required then make HP FLUSHING ON.                                                                                                                                                                  |                                          |
| USE $\wedge$ KEY TO MAKE IT ON                                                                                                                                                                                                                                                                                                           | HP FLUHING:ON (Previously set status)    |
| SELECT                                                                                                                                                                                                                                                                                                                                   | CNDUCTIVITY:                             |
| SELECT                                                                                                                                                                                                                                                                                                                                   | CNDUCTIVITY:ON                           |
| USE V KEY TO MAKE IT OFF if not required                                                                                                                                                                                                                                                                                                 |                                          |
| SELECT                                                                                                                                                                                                                                                                                                                                   | CONTROL OPRN:OFF(Previously set status)  |
| <b>What is CONTROL OPRN?</b><br>This is an interlock for conductivity, when the conductivity exceeds set maximum value then panel trips showing HI CONDUCTIVITY on display if CONTROL OPRN is On else it neglects value of conductivity.<br>One can set desired set point in factory settings option.                                    |                                          |
| USE $\wedge$ KEY TO MAKE IT ON if required                                                                                                                                                                                                                                                                                               |                                          |
| SELECT                                                                                                                                                                                                                                                                                                                                   | FLOW SENSORS:                            |
| SELECT                                                                                                                                                                                                                                                                                                                                   | NO OF SENSORS:                           |

|                                                                                                                                                                                                                                                      |                                                |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------|
| SELECT                                                                                                                                                                                                                                               | NO OF SENSORS:2 (Previously set value)         |
| USE <b>▲</b> KEY TO MAKE IT 0 or 1(According to number of sensors connected)                                                                                                                                                                         |                                                |
| SELECT                                                                                                                                                                                                                                               | SENSOR CONST :                                 |
| SELECT                                                                                                                                                                                                                                               | SENSR 1 FACTOR                                 |
| SELECT                                                                                                                                                                                                                                               | SENSR 1 FACTOR<br>060.0 (Previously set value) |
| Use <b>&lt;,&gt;▲▼</b> keys to alter this value (put the Factor mentioned on sensor)                                                                                                                                                                 |                                                |
| SELECT                                                                                                                                                                                                                                               | SENSR 2 FACTOR                                 |
| SELECT                                                                                                                                                                                                                                               | SENSR 2 FACTOR<br>060.0 (Previously set value) |
| SELECT                                                                                                                                                                                                                                               | EXIT?                                          |
| SELECT                                                                                                                                                                                                                                               | SENSR2 POSN:                                   |
| SELECT                                                                                                                                                                                                                                               | SENSR 2 POSN:INL(INLET)                        |
| Use <b>▲</b> KEY TO SELECT IT AS REJ i.e. Reject                                                                                                                                                                                                     |                                                |
| SELECT                                                                                                                                                                                                                                               | TW LEVEL SW:                                   |
| SELECT                                                                                                                                                                                                                                               | TW LEVEL SW:ON(Factory set status)             |
| USE <b>▲</b> KEY TO MAKE IT OFF IF NO CONTROL REQUIRED                                                                                                                                                                                               |                                                |
| SELECT                                                                                                                                                                                                                                               | LO PRESS SW:                                   |
| SELECT                                                                                                                                                                                                                                               | LO PRESS SW:ON(Factory set status)             |
| USE <b>▲</b> KEY TO MAKE IT OFF IF LPS needs to be bypassed                                                                                                                                                                                          |                                                |
| SELECT                                                                                                                                                                                                                                               | LO PRESS. DBNCE(IF ONLY LPS IS ON)             |
| SELECT                                                                                                                                                                                                                                               | LO PRESS. DBNCE<br>TIME:015 S                  |
| What is this time?(in seconds)<br>This is the debounce time,which hwlp in avoiding unnecessary chattering of High pressure pump contactor due to initial dipping in the suction pressure. The High pressure pump will start after set debounce time. |                                                |
| USE <b>&lt;,&gt;▲▼</b> KEYS TO SET DESIRED TIME                                                                                                                                                                                                      |                                                |
| SELECT                                                                                                                                                                                                                                               | LPS TRIP:                                      |
| SELECT                                                                                                                                                                                                                                               | LPS TRIP:03(Previously set value)              |
| What is LPS TRIP Time?(In minutes max 60 m & min 03 m)<br>This is the time after which RWP will trip after LOW PRESSURE fault with message 'LO PRESS TRIP' on display.                                                                               |                                                |
| SELECT                                                                                                                                                                                                                                               | HI PRESS SW:                                   |
| SELECT                                                                                                                                                                                                                                               | HI PRESS SW:ON(Factory set status)             |
| USE <b>▲</b> KEY TO MAKE IT OFF IF HPS needs to be bypassed                                                                                                                                                                                          |                                                |
| SELECT                                                                                                                                                                                                                                               | AUX. IP1:                                      |
| SELECT                                                                                                                                                                                                                                               | AUX. IP1:DOSLV(FACTORY Setting)                |
| USE <b>▲,▼</b> KEY TO SET RWLV/GRP/REMOT/UV IP/TP IP/OFF                                                                                                                                                                                             |                                                |
| SELECT                                                                                                                                                                                                                                               | AUX. IP2:                                      |
| SELECT                                                                                                                                                                                                                                               | AUX. IP1:RWLV(FACTORY Setting)                 |
| USE <b>▲,▼</b> KEY TO SET ORP/REMOT/UV IP/TP IP/OFF                                                                                                                                                                                                  |                                                |
| SELECT                                                                                                                                                                                                                                               | AUX. IP3:                                      |
| SELECT                                                                                                                                                                                                                                               | AUX. IP4:                                      |
| AUX I/P 3 & 4 will be automatically configured as RL2 & RL1 if MPV CNTRL is ON in password 084.To configure AUX I/P as ORP/REMOT/UV IP,make MPV CNTRL OFF.                                                                                           |                                                |

|                                                                                                                                                                                                                                                                                                                                       |                                       |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------|
| SELECT                                                                                                                                                                                                                                                                                                                                | QUIT?                                 |
| SELECT                                                                                                                                                                                                                                                                                                                                | PLANT STATUS                          |
| <b>TO CONFIGURE OUTPUT (SEC--1.5)</b>                                                                                                                                                                                                                                                                                                 |                                       |
| Press< & > SIMULTANEOUSLY                                                                                                                                                                                                                                                                                                             | PASSWORD:000                          |
| ENTER PASSWORD 191 USING <,>,Λ,∨ KEY                                                                                                                                                                                                                                                                                                  |                                       |
| SELECT                                                                                                                                                                                                                                                                                                                                | MP TYPE:                              |
| SELECT                                                                                                                                                                                                                                                                                                                                | MP TYPE:1-3                           |
| USE UP <,>,Λ, ∨ KEY TO MAKE IT 1-1 /3-3 as per panel configuration.                                                                                                                                                                                                                                                                   |                                       |
| SELECT                                                                                                                                                                                                                                                                                                                                | PUMP 3:                               |
| SELECT                                                                                                                                                                                                                                                                                                                                | PUMP 3: 3 PHASE                       |
| USE UP Λ ,∨ KEY TO MAKE IT SINGLE as per panel configuration.                                                                                                                                                                                                                                                                         |                                       |
| SELECT                                                                                                                                                                                                                                                                                                                                | RWP CNTRL:                            |
| SELECT                                                                                                                                                                                                                                                                                                                                | RWP CNTRL:OFF(Factory set status)     |
| What is RWP CNTRL(CONTROL) ?<br>If one make RWP CONTROL ON then one can start and stop RWP/RO independently                                                                                                                                                                                                                           |                                       |
| USE Λ KEY TO MAKE IT ON                                                                                                                                                                                                                                                                                                               | RWP CNTRL:ON                          |
| SELECT                                                                                                                                                                                                                                                                                                                                | QUIT?                                 |
| SELECT                                                                                                                                                                                                                                                                                                                                | <b>PLANT STATUS</b>                   |
| <b>TIME BASED AUTOFLUSHING SETTINGS (SEC--1.6)</b>                                                                                                                                                                                                                                                                                    |                                       |
| What is time based autoflushing?<br>Normally Astero panel has facility of flushing during starting and stopping of panel but if somebody wants to flush besides this on timely manner this feature also provided with us.For that you have to make FLUSH OPRN ON and provide span between flush time for which flushing should go on. |                                       |
| Press < & > KEYS SIMULTANEOUSLY                                                                                                                                                                                                                                                                                                       | PASSWORD:000                          |
| ENTER PASSWORD 345 USING <,>,Λ,∨ KEY                                                                                                                                                                                                                                                                                                  |                                       |
| SELECT                                                                                                                                                                                                                                                                                                                                | FLUSH OPRN:                           |
| SELECT                                                                                                                                                                                                                                                                                                                                | FLUSH OPRN:OFF(Previously set status) |
| USE Λ KEY TO MAKE IT ON                                                                                                                                                                                                                                                                                                               | FLUSH OPRN:ON                         |
| SELECT                                                                                                                                                                                                                                                                                                                                | FLUSH DELAY:                          |
| SELECT                                                                                                                                                                                                                                                                                                                                | TIME: 060 m(Previously set value)     |
| USE <,>,Λ , ∨ KEYS TO SET DESIRED VALUE                                                                                                                                                                                                                                                                                               |                                       |
| SELECT                                                                                                                                                                                                                                                                                                                                | FLUSH TIME:                           |
| SELECT                                                                                                                                                                                                                                                                                                                                | TIME: 015 m(Previously set value)     |
| SELECT                                                                                                                                                                                                                                                                                                                                | QUIT?                                 |
| SELECT                                                                                                                                                                                                                                                                                                                                | <b>PLANT STATUS</b>                   |
| <b>CURRENT CHECKING( SEC--1.7)</b>                                                                                                                                                                                                                                                                                                    |                                       |
| <b>What is CURRENT CHECKING feature?</b><br><b>If you want check the normal running currents of motor then use this feature</b>                                                                                                                                                                                                       |                                       |
| PRESS < & > KEYS SIMUTANEOUSLY                                                                                                                                                                                                                                                                                                        | PASSWORD:000                          |
| ENTER PASSWORD 456 USING <,>,Λ ,∨ KEYS                                                                                                                                                                                                                                                                                                |                                       |
| SELECT                                                                                                                                                                                                                                                                                                                                | SELECT PUMP ?                         |
| USE RWP/HPP/RSV KEY TO SELECT PUMP OF WHICH CURRENT HAS TO BE CHECKED                                                                                                                                                                                                                                                                 |                                       |
| RWP/HPP/RSV KEY                                                                                                                                                                                                                                                                                                                       | RWP/HPP/TP<br>R:00.0 B:00.0 **        |
| **Incase of single phase RWP/HPP pump display will show R:00.0 and for three phase pump display shows both R:00.0 & B:00.0 as mentioned above.<br>USE RWP/HPP/RSV key to switch off the respective pump.                                                                                                                              |                                       |
| SELECT                                                                                                                                                                                                                                                                                                                                | MANUAL STOP                           |
| PRESS  KEY TO START THE PLANT.                                                                                                                                                                                                                     |                                       |

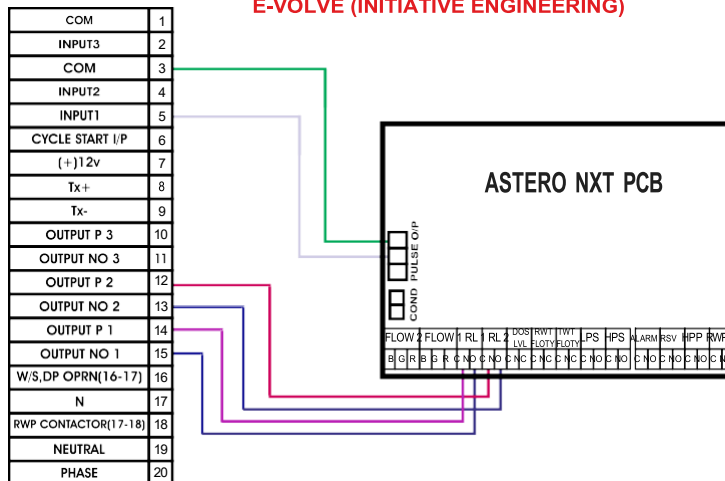
### TO CONFIGURE AUTOMPV( SEC--1.7)

|                                                                                |                                       |
|--------------------------------------------------------------------------------|---------------------------------------|
| PRESS < & > KEYS SIMULTANEUSLY                                                 | PASSWORD:000                          |
| ENTER 084 USING <,>,Λ,V KEYS SIMULTANEUSLY                                     |                                       |
| SELECT                                                                         | MPV CONTRL :                          |
| SELECT                                                                         | MPV CONTRL:ON (Previously set status) |
| USE Λ KEY TO MAKE IT OFF                                                       |                                       |
| IF ON One has to configure AUX OP as PMPON when there is AMPV in pretreatment. |                                       |
| SELECT                                                                         | MPV TYPE:                             |
| SELECT                                                                         | MPV TYPE:IND                          |
| USE Λ KEY TO MAKE IT CHN                                                       | MPV TYPE:CHN                          |
| SELECT                                                                         | SERV TIM: m                           |
| SELECT                                                                         | SERV TIM: 0010 m                      |
| USE <,>,Λ,V KEYS TO SET DESIRED TIME                                           |                                       |
| SELECT                                                                         | QUIT?                                 |
| SELECT                                                                         |                                       |

Note:For all settings procedures.  
In each setting routine,the changes done are finally stored when user pressed Select key once.

### Wiring Diagram for AMPV connections.

#### CONNECTION DIAGRAM BETWEEN ASTERO NXT PANEL AND E-VOLVE (INITIATIVE ENGINEERING)



**Settings in AMPV Password 678:**  
**1.Set "AUX OP1" as "PUMP/SOLV OP"**  
**2.Set "AUX OP2" as "ON DURING CYCLE"**  
**3 Set "AUX I/P1" as "PULSE INPUT"**

**Settings in Panel Password 084:**  
**1.Make MPV CNTRL ON**  
**2.Set MPV TYPE as INDIAN**  
**3.Set service time (in minutes)**

## TROUBLESHOOTING

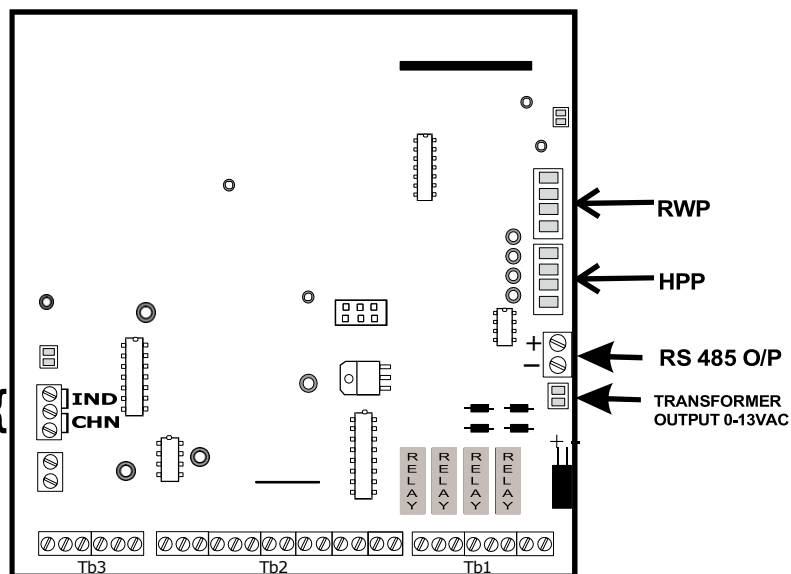
| LED Blinking   | Message ON Display               | Cause & Action                                                                                                                                                                                                                 |
|----------------|----------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| LPS            | LOW PRESSURE!!                   | <ul style="list-style-type: none"> <li>Check, is it C NO contact? If not make it.</li> </ul>                                                                                                                                   |
|                |                                  | <ul style="list-style-type: none"> <li>Pressure Lower than set value. Increase pressure or reduce set point</li> </ul>                                                                                                         |
|                |                                  | <ul style="list-style-type: none"> <li>LPS not connected</li> <li>Pressure higher than the set value. Reduce the pressure or increase the set point.</li> </ul>                                                                |
| HPS            | HIGH PRESSURE!!                  | <ul style="list-style-type: none"> <li>Check, is it C NO contact? If not make it.</li> <li>Actually tank is empty.</li> </ul>                                                                                                  |
| —              | RW TANK EMPTY!!                  | <ul style="list-style-type: none"> <li>Check, is it C NC contact? If not make it.</li> </ul>                                                                                                                                   |
| FLOATY (level) | TW TANK FULL!!                   | <ul style="list-style-type: none"> <li>Actually tank is full.</li> </ul>                                                                                                                                                       |
|                |                                  | <ul style="list-style-type: none"> <li>Floaty is not connected, Short FLOATY terminal by an external wire link.</li> </ul>                                                                                                     |
|                |                                  | <ul style="list-style-type: none"> <li>Check, is it C NC contact? If not make it.</li> <li>More current than the normal ratings. Set Overload current accordingly.</li> </ul>                                                  |
| RWP            | RWP OVERLOAD                     | <ul style="list-style-type: none"> <li>Motor is drawing more current than normal. Check Motor</li> <li>If there is mismatch between the R-Y-B phase currents drawn by the pump. Increase the phase unbalance value.</li> </ul> |
|                | RWP SINGLE PH                    | <ul style="list-style-type: none"> <li>If current drawn by the pump is less than the set value. If tank is empty. SET current as given in instructions section.</li> </ul>                                                     |
|                | RWP DRY RUNNING                  | <p><b>Refer:section1.2</b></p> <p>More current than the normal rating. Set Overload current accordingly.</p> <p><b>Refer:section1.1</b></p>                                                                                    |
| HPP            | HPP OVERLOAD                     | <ul style="list-style-type: none"> <li>Motor is drawing more current than normal. Check Motor</li> <li>If there is mismatch between the R-Y-B phase currents drawn by the pump. Increase the phase unbalance value.</li> </ul> |
|                | HPP SINGLE PH                    | <ul style="list-style-type: none"> <li>If current drawn by the pump is less than the set value. SET current as given in instructions section.</li> </ul> <p><b>Refer:section1.2</b></p>                                        |
|                | HPP DRY RUNNING                  | <ul style="list-style-type: none"> <li>Remove sensor from line &amp; check for any obstacle.Check FR by blowing into sensor.</li> </ul>                                                                                        |
|                | FR : 0000<br>(Flow remains zero) | <ul style="list-style-type: none"> <li>Check connections.</li> </ul>                                                                                                                                                           |
|                |                                  |                                                                                                                                                                                                                                |
|                |                                  |                                                                                                                                                                                                                                |



- 1) **Make MPV CNTRL ON**
- 2) **Set MPV TYPE as CHINESE**
- 3) **Set service time (in minutes)**

Required settings in VALVE :

- 1) Signal Output **Mode b: 01**
- 2) Backwash & Rinse Time

Pulse O/P  
for AMPV {

#### QUICK REFERENCES

| Sr. No | Password | Feature                  | Section | Page No |
|--------|----------|--------------------------|---------|---------|
| 1      | 123      | Dry run current setting  | 1.2     | 7       |
| 2      | 234      | Conductivity Calibration | 1.3     | 8       |
| 3      | 345      | Time base auto flushing  | 1.6     | 10      |
| 4      | —        | Overload Current Setting | 1.1     | 6       |
| 5      | 678      | Input Configuration      | 1.4     | 8       |
| 6      | 191      | Output Configuration     | 1.5     | 10      |
| 7      | 456      | Current Checking         | 1.7     | 10      |
| 8      | 084      | Configure AUTO MPV       | 1.8     | 11      |

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