

TCW-09-PC TORQUE CONTROLLER



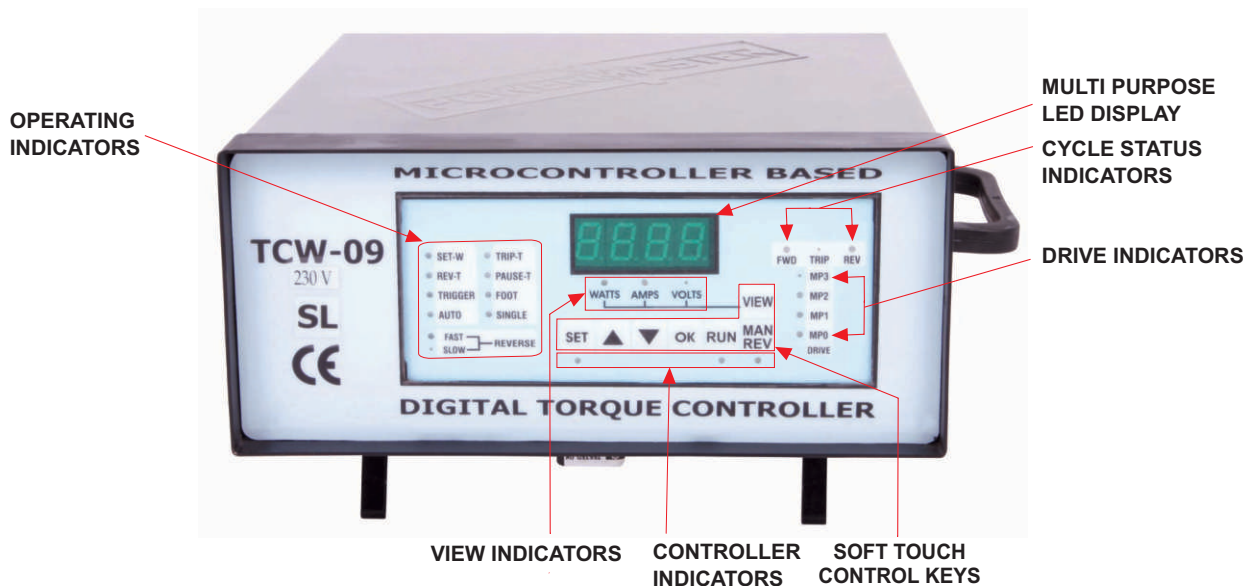
Features :

- 1) Fully Solid State Design - no moving parts - no wear and tear of parts - no noise - consequently long life.
- 2) Uses one main circuit board for easy maintenance.
- 3) Accurately calibrated digital torque settings with a resolution of 1 watt makes torque settings accurate and can be easily reproduced for identical results.
- 4) Soft start has been provided for all drives. This feature reduces starting currents in the drive. As a result, life of carbon brushes and drive increases.
- 5) Connected drive is automatically recognised and indicated by means of LED on the torque controller.
- 6) Trip time adjustable from (0 sec to 10 secs.)
- 7) Adjustable reverse time from (0 sec to 90 secs.)
- 8) Drive Toque adjustable in reverse rotation with surface to set torque.
- 9) Hand (trigger) mode or foot switch mode, both are available.
- 10) Expansions can be carried out either in single cycle mode or auto repeat mode.
- 11) Automatic indication on the display for controllers tripping due to voltage or Current fault.
- 12) Electronic Over Current protections incorporated for all four drives.
- 13) Over Voltage protection at 275 volts and Under Voltage protection at 180 volts.
- 14) Supply voltage value displayed during pause time of every auto cycle.
- 15) Drive current indication given during manual reverse operation.
- 16) The No. of expansions are stored in the memory and displayed on the panel display at power ON and also whenever the panel is idle.
- 17) Trip valves are stored in memory after expansion and can be reviewed any time.
- 18) The trip values can be transferred to PC (Computer) using a single key HANDSET.
- 19) Using specially developed software, the DATA can be analyzed in statistical terms.
- 20) It also plots a histogram of No. of tubes verses percentage over-expansions.
- 21) The Minimum and Maximum supply voltage values observed in the period after last memory RESET, are also displayed.
- 22) Power consumption of control circuit reduced to 50% which leads to enhanced panel life.
- 23) Single key HANDSET makes it very easy for the operator to transfer DATA to the computer.

Micro Controller used	:	89S52 (8 bit)
Clock Frequency	:	12 Mhz
Programme Memory	:	8 K (built in)
Real Power Measurement upto	:	2 KW
Voltage, Current sampling rate	:	50 times/sec.

Model No.	Voltage Single Phase 50/60 Hz	Weight (kg)
TCW-09-PC-110	110 V	7.5
TCW-09-PC-230	230 V	7.5

TCW-09 TORQUE CONTROLLER



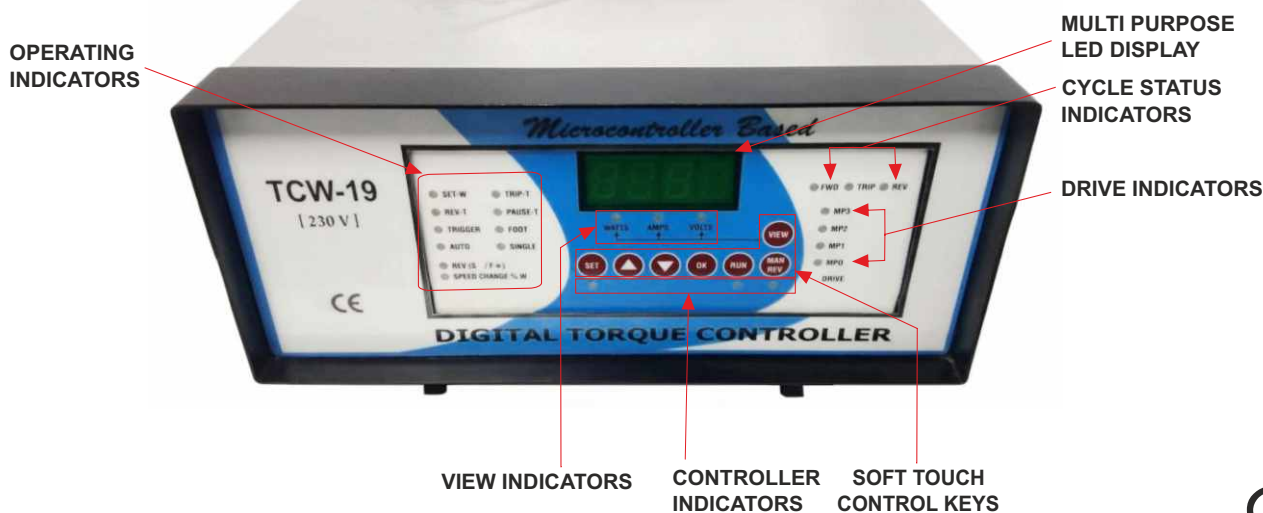
Features :

- 1) Fully Solid State Design - no moving parts - no wear and tear of parts - no noise - consequently long life.
- 2) Uses one main circuit board for easy maintenance.
- 3) Uses the latest micro-controller chip for control functions.
- 4) Accurately calibrated digital torque settings with a resolution of 1 watt makes torque settings accurate and can be easily reproduced for identical results.
- 5) Soft start has been provided for all drives. This feature reduces starting currents in the drive. As a result, life of carbon brushes and drive increases.
- 6) Connected drive is automatically recognised and indicated by means of LED on the torque controller.
- 7) Torque setting arranged in four different ranges to suit four different drives. Appropriate wattage range is automatically selected for the connected drive, hence drives can not be abused or overused.
- 8) Actual drive wattage (torque) is displayed. Set wattage (torque), drive current and line voltage can be seen by press of a button.
- 9) Trip time adjustable from (0 sec to 10 secs.)
- 10) Adjustable reverse time from (0 sec to 90 secs.)
- 11) Pause time (time interval between cycles) adjustable from (0 sec to 90 secs.)
- 12) Manual reverse by push button, in case of emergency.
- 13) Drive Torque adjustable in reverse rotation with surface to set torque.
- 14) Hand (trigger) mode or foot switch mode, both are available.
- 15) Expansions can be carried out either in single cycle mode or auto repeat mode.
- 16) LED indicators provided for forward, reverse and trip conditions of drive.
- 17) MCB and internal short circuit protection in the controller safeguard the drive and controller against short circuits.
- 18) Plug in type of PCBs reduces down time to minimum during trouble shooting.
- 19) Over voltage protection at 275 voltage and under voltage protection at 180 volts
- 20) Protection against over load current drawn by the Expanding Drive.
- 21) Automatic indication on the display for controllers tripping due to voltage or Current fault.
- 22) All the spares inside the controller viz : PCBs, Transformers, CT, Relays DPM etc. can be replaced by use of only a screw driver.
- 23) Powermaster has over 2100 TCW Torque Controllers in active use worldwide since its inception in year 2000.

Micro Controller used	:	89S52 (8 bit)
Clock Frequency	:	12 Mhz
Programme Memory	:	8 K (built in)
Real Power Measurement upto	:	2 KW
Voltage, Current sampling rate	:	50 times/sec.

Model No.	Voltage Single Phase 50/60 Hz	Weight (kg)
TCW-09-110	110 V	7.5
TCW-09-230	230 V	7.5

TCW-19 TORQUE CONTROLLER



Features :

- 1) Fully Solid State Design - no moving parts - no wear and tear of parts - no noise - consequently long life.
- 2) Uses one main circuit board for easy maintenance.
- 3) Uses the latest micro-controller chip for control functions.
- 4) Accurately calibrated digital torque settings with a resolution of 1 watt makes torque settings accurate and can be easily reproduced for identical results.
- 5) Soft start has been provided for all drives. This feature reduces starting currents in the drive. As a result, life of carbon brushes and drive increases.
- 6) Connected drive is automatically recognised & indicated by means of LED on the torque controller.
- 7) Torque setting arranged in four different ranges to suit four different drives. Appropriate wattage range is automatically selected for the connected drive, hence drives can not be abused or overused.
- 8) Actual drive wattage (torque) is displayed. Set wattage (torque), drive current and line voltage can be seen by press of a button.
- 9) Trip time adjustable from (0.1 sec to 10 secs.)
- 10) Adjustable reverse time from (1 sec to 90 secs.)
- 11) TRIP time cannot be set if the SET value is below 'no load wattage'. In this case the TRIP time will be automatically set to 7 secs.
- 12) The panel enables the operator to select "Speed change % wattage" between 50 % and 100% of the SET wattage.
- 13) This effectively reduces the variation between TRIP value & SET value.
- 14) Pause time (time interval between cycles) adjustable from (1 sec to 90 secs.)
- 15) Manual reverse by push button, in case of emergency.
- 16) Drive Speed adjustable in reverse rotation.
- 17) Hand (trigger) mode or foot switch mode, both are available.
- 18) Expansions can be carried out either in single cycle mode or auto repeat mode.
- 19) LED indicators provided for forward, reverse & trip conditions of drive.
- 20) MCB has been provided to protect the controller and drives against over current by short circuits.
- 21) Plug in type of PCBs reduce down time to minimum during trouble shooting.
- 22) All the spares inside the panel viz : PCBs, Transformers, CT, Relays DPM etc. can be replaced by use of only a screw driver.
- 23) Superior SCR technology has been incorporated rather than triacs. SCRS have much better voltage, current & dv/dt ratings than triacs. This leads to greater reliability & the power circuit becomes almost failsafe.

Microprocessor used	:	89C55WD (8 bit)
Clock Frequency	:	12 Mhz
Programme Memory	:	built in
Real Power Measurement upto	:	2 KW
Voltage, Current sampling rate	:	50 times/sec.

Model No.	Voltage Single Phase 50/60 Hz	Weight (kg)
TCW-19-110	110 V	7.5
TCW-19-230	230 V	7.5

Note : All TCW torque controllers are supplied with operation manuals.