



# Delta-Q Technologies ICL Series

900W-1500W Battery Charger for Lithium Battery Chemistries

The ICL Series is Delta-Q Technologies' lithium-specific line of battery chargers for industrial and motive applications. Designed to optimally charge lithium battery systems with any chemistry (e.g. LCO, NCA, NMC, LMO, LFP, LTO). CAN bus communication, with the battery management system (BMS), ensures seamless machine integration to grant original equipment manufacturers (OEMs) wide flexibility in their design and deployment.



ICL1500

## Available Models

|                | 57V | 58V | 85V | 120V |
|----------------|-----|-----|-----|------|
| ICL900 Models  | ✓   |     |     |      |
| ICL1200 Models | ✓   |     | ✓   | ✓    |
| ICL1500 Models |     | ✓   | ✓   | ✓    |



ICL1200

## Charger Features



### High Reliability

IP66-rated, rugged, sealed aluminum die-cast enclosure protects against vibration, shock, dirt, chemicals, and fluids. Automotive reliability and tested to an 8-year service life.



### Charge Quality

Charge algorithms to precisely charge lithium batteries while balancing charge time, battery life and application requirements.



### Lithium Safety

Custom lithium algorithms providing the first line of safety for lithium battery charging; state-of-the-art battery labs and experts for testing and validating of battery packs and BMS.



### Global + Efficient

Wide AC input voltage range capable of operating on any single-phase grid worldwide. 93% efficient and meets energy efficiency standards, such as CEC.



### OEM System Integration

CAN bus enables OEMs to update the software of the charger, algorithms, and extract charger status, charger history, fault and error logs.



### Global Standard Compliance

Compliance with North American, UNECE R10 and European touch-safe voltage regulations allows for easy integration into electric vehicles.







## OEM Features

- CAN bus communication for machine BMS/telematic integration with CANopen and J1939 protocols
- Charge cycle data logging for insight into usage and troubleshooting
- OEM customizable, field replaceable cable design
- Optional multi-colored remote or charger mounted LED indicator for battery charging status, error and fault indication
- Interlock prevents vehicle from moving while charging

## Application Examples



## ICL1500 Specifications

| DC Output  | ICL1500 58V  | ICL1500 85V                   | ICL1500 120V                  |
|--|--|-------------------------------|-------------------------------|
| Lithium final charging voltage   | 36-58 VDC  | 55-85 VDC                     | 80-120 VDC                    |
| Lithium cells in series  | 9 to 16  | 14 to 24                      | 21 to 34                      |
| Max DC output voltage  | 58.1 VDC   | 85 VDC                        | 120 VDC                       |
| Max DC output current. $V_{in} > 200$  | 33.3 A   | 25.0 A                        | 18.7 A                        |
| Max DC output power. $V_{in} > 200$  | 1500 W<br>( $V_{out} > 36V$ )  | 1500 W<br>( $V_{out} > 60V$ ) | 1500 W<br>( $V_{out} > 80V$ ) |
| Max DC output current. $V_{in} < 200$  | 33.3 A   | 20.8 A                        | 15.6 A                        |
| Max DC output power. $V_{in} < 200$  | 1200 W<br>( $V_{out} > 36V$ )  | 1200 W<br>( $V_{out} > 60V$ ) | 1200 W<br>( $V_{out} > 80V$ ) |
| Dry contact interlock current rating   | 0.3 A  | 0.3 A                         | 0.3 A                         |
| Reverse polarity   | Poka-Yoke DC terminals and electronic protection with auto-reset   |                               |                               |
| Short circuit  | Electronic current limit   |                               |                               |
| AC Input   | ICL1500 58V  | ICL1500 85V                   | ICL1500 120V                  |
| AC input voltage range   | 85-270 VAC   |                               |                               |
| Nominal AC input voltage range   | 100-240 VAC  |                               |                               |
| Nominal AC input frequency   | 50/60 Hz   |                               |                               |
| Max AC input current   | 14.0 A   | 13.0 A                        | 13.0 A                        |
| Nominal AC input current   | 11.1 A @ 120 VAC   | 11.1 A @ 120 VAC              | 11.1 A @ 120 VAC              |
|  | 7.2 A @ 230 VAC  | 7.2 A @ 230 VAC               | 7.2 A @ 230 VAC               |
| Nominal AC power factor  | >0.99 @ 120 VAC, >0.98 @ 230 VAC   |                               |                               |
| Mechanical   | ICL1500 58V  | ICL1500 85V                   | ICL1500 120V                  |
| Dimensions   | 300 x 179 x 80 mm (11.8 x 7.0 x 3.2")  |                               |                               |
| Weight   | 3.55 kg (7.8 lbs)  |                               |                               |
| AC input connector   | IEC320/C14 with Delta-Q country-specific AC cord   |                               |                               |
| DC output connector  | Poka-Yoke threaded fasteners for ring terminals. Negative: M6; Positive: M8  |                               |                               |
| Mounting holes   | M6 diameter slots  |                               |                               |
| Cooling  | Forced convection with variable speed fan  |                               |                               |
| Regulatory   | All Models   |                               |                               |
| Efficiency   | 93% peak efficiency; Natural Resources of Canada (NRCAN), California Energy Commission (CEC), and Department of Energy (DoE) compliant |                               |                               |
| Safety   | <b>All Models:</b> UL1564, EN 60335-2-29, AZ/NZS60335 (RCM)<br><b>ICL1500 58V:</b> Voltage Class A (less than 60 VDC)                  |                               |                               |
| Emissions  | FCC Part 15 / ICES 003 Class B, EN 61000-3-2, EN 61000-3-3, EN 61000-6-3, CISPR 14.1, UNECE R10  |                               |                               |
| Immunity   | CISPR 14.2, EN 61000-6-2, UNECE R10  |                               |                               |
| Environmental  | All Models   |                               |                               |
| Enclosure  | IP66 (NEMA4)   |                               |                               |
| Thermal fatigue/Shock/Vibration  | GMW 3172   |                               |                               |
| Operating temperature  | -40°C to +65°C (-40°F to 149°F)<br>Full nominal output power -35°C to +40°C (-31°F to 104°F)   |                               |                               |
| Storage temperature  | -40°C to +85°C (-40°F to 185°F)  |                               |                               |
| Regulatory   | All Models   |                               |                               |
|       |  |                               |                               |

Please note the above specifications are subject to change.