











of the inverter output. The MIC technique ensures optimum dc-link voltage which results in enhancing the inverter output Total Harmonic Distortion (THD). The system was firstly testing without using MIC technique and then was testing with applying MIC controller. The results indicate that reduced THD from 7.6 % to 6.24 % by applying MIC control technique. Also, The efficiency of the overall system is increased by applying the proposed control techniques. The results have been checked using a designed prototype integrated into a full laboratory setup.

### Appendix A

PV modul parameters.

|                       |           |
|-----------------------|-----------|
| Maximum Power         | 179.928 W |
| Voltage at MPP        | 36.72 V   |
| Current at MPP        | 4.9 A     |
| Short-circuit current | 5.31 A    |
| Open-circuit voltage  | 44.06 V   |

### Appendix B

Simulation Parameters.

| Components          | Values         |
|---------------------|----------------|
| Input Capacitor     | 1000 $\mu$ F   |
| Output Capacitor    | 1000 $\mu$ F   |
| Inductor            | 10 mH          |
| Caocitor of DC-Link | 9000 $\mu$ F   |
| Load                | 5 ohm and 3 mH |
| Switching Frequency | 25 kHz         |

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