

## Databank - Product Bulletin

### S500 Product Range – New Generation of Microclass Inverters from Mitsubishi Electric



Mitsubishi Electric is again proud to announce a new concept in drives technology, which will set a new benchmark for the "Microclass Inverter".

Mitsubishi's new inverter has established a clear lead in Microclass Inverters with features and benefits that surpass our nearest competitors. The S500 is compact, easy to use and incorporates excellent specifications that will keep it at the very top end of the market.

#### Summary of the features and Benefits

- Digital control dial for ease of configuring
- PU/EXT button and also display LED's for mode selection
- Inrush current protection
- DCL choke connection possible
- Current input terminal (4 to 20mA)
- Sink/Source selectable
- High torque ability
- Hardware tripless function
- Intelligent torque boost mode
- Serial comms optional
- Regenerative braking
- Supported by Mx500
- Parameter settings simplified
- RS485 connection for software programming
- Initial parameters established for ease of running
- PU-04 connection
- DU-04 connection
- HMI Terminal connection

The S500 is produced with RS485 optional configuration depending on the model either being Hi-spec that incorporates RS485 communication ports or a standard version that is compatible with a source tool for its communication. The RS485 terminal permits Mitsubishi Mx500 software to set parameters via PC input, thus providing the user with different tools for ease of set-up.

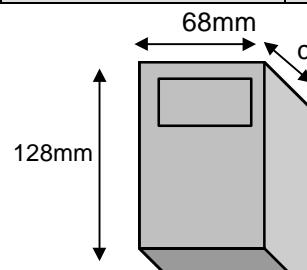
The S500 is the first Mitsubishi Inverter that can be configured through a digital dial, therefore, access to all parameters within the unit is greatly simplified compared to traditional "3-button keypad".

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### Specification and Dimensions (mm)

| Power Supply | Power Range   | Logic                  | RS-485                        |
|--------------|---------------|------------------------|-------------------------------|
| 1-ph. 200V   | 0.2 to 0.75kW | Sink/Source selectable | Available in Hi-spec/standard |

| Unit (kW) | c(mm) |
|-----------|-------|
| 0.2K      | 76    |
| 0.4K      | 108   |
| 0.75K     | 128   |



### Detailed Specifications

| Item                           |                                    | Single-phase 200V   |            |      |
|--------------------------------|------------------------------------|---|------------|------|
| Type FR-S520S-@K-EC(R)         |                                    | 0.2   | 0.4        | 0.75 |
| Applicable motor capacity (kW) |                                    | 0.2   | 0.4        | 0.75 |
| Output                         | Rated Capacity (kVA)               | 0.5   | 1.0        | 1.6  |
|                                | Rated current (A)                  | 1.4   | 2.5        | 4.1  |
|                                | Overload capacity                  | 150% 60seconds 200% 0.5seconds (inverse time characteristics) |            |      |
|                                | Voltage                            | 3-phase 200 to 230V   |            |      |
| Power Supply                   | Rated input voltage, frequency     | Single-phase 200 to 230V 50/60Hz                              |            |      |
|                                | Permissible voltage fluctuation    | 180 to 253V 50/60Hz   |            |      |
|                                | Permission freq. Fluctuation       | 5%  |            |      |
|                                | Power supply system capacity (kVA) | 0.9   | 1.5        | 2.5  |
| Protective structure           | Enclosed type (IP20)               |   |            |      |
| Cooling system                 | Self cooling                       |   | Forced air |      |
| Approximate weight (kg)        | 0.6                                | 1.0   | 1.7        |      |

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### Detailed Specification

|                               |   |   |  |
|-------------------------------|---|---|--|
| <b>Control specifications</b> | <b>Output frequency range</b>                   |   | 0.5 to 120Hz<br>(starting frequency variable between 0 to 60Hz)  |
|                               | <b>Starting torque</b>                          |   | 150% or more (6Hz)   |
|                               | <b>Torque boost</b>                             |   | Intelligent torque boost, manual torque boost may be set between 0 to 15%  |
|                               | <b>Accel./decel. time</b>                       |   | 0, 0.1 to 999 seconds may be set (accel and decel. Can be set individually),<br>Liner or S-pattern accel./decel.<br>Mode can be selected |
|                               | <b>Braking torque</b>                           | <b>Regenerative</b>   | 0.2K...150% or more, 0.4K, 0.75K...100% or more  |
|                               |   | <b>DC dynamic</b>   | Operation frequency (3Hz), operation time (0 to 10s),<br>operation voltage (0 to 10%) variable   |
|                               | <b>Current stall prevention operation level</b> |   | Operation current level can be set (0 to 200% variable),<br>presence or absence can be selected  |
|                               | <b>Voltage stall prevention operation level</b> |   | Operation level is fixed, presence or absence can be selected  |
|                               | <b>Input signals</b>                            | <b>Control panel</b>  | Digital dial and 5 buttons<br>(RUN, STOP, MODE, SET, PU/EXT)   |
|                               |   | <b>Analogue inputs</b>  | 2(0-5V, 0-10V, terminals 2 and 4) 4-20mA<br>(inc. PID control)   |
|                               |   | <b>Digital inputs</b>   | 5 Inputs Drive operation, 7 pre-set speeds, 2 <sup>nd</sup> functions,<br>reset, MRS, PU/EXT mode switching<br>(Sink/Source selectable)  |
|                               |   | <b>Serial comms. (R version)</b>  | RS-485 (PU-04), DU-04 connector)   |
| <b>Display</b>                | <b>Open collector</b>                           | 1 programmable  |  |
|                               | <b>FM terminal</b>                              | 1 (output frequency, motor current) 1440 pulses $\mu$ A/sec   |  |
|                               | <b>Relay</b>                                    | 1 changeable  |  |
| <b>Control panel display</b>  | <b>7-segment display</b>                        | 3 segment (output frequency, output current, output speed, alarms, parameters)  |  |
|                               | <b>LED-</b>                                     | RUN, PU, EXT  |  |
| <b>Protective functions</b>   |   | Overcurrent protection (during acceleration, deceleration and constant speed), power failure, overvoltage protection, undervoltage, electronic thermal overload protection, output short circuit, stall prevention, fan overheat, fan operation, parameter error, ground fault detection (on start up), PU leave out detection. |  |