**OPINION**

**1. QUERIST:**

M/s. Maxon Precision Motor India Pvt. Ltd.,

Niran Arcade, No.3, 2nd Floor,

New BEL Road, RMV 2nd Stage,

Bangalore – 560 094.

**2. FACTS:**

Querist is a manufacturer of various types of Servo Controllers. They also supply these with cables and connectors to various customers/clients. Currently, the querist is adopting the following classifications for these goods.

* Servo Controllers – 9032 8910
* Cables – 8544 4930
* Connectors – 8536 6990

**3. QUERY:**

 Querist seeks to know whether the classifications adopted as above by them are in order as per the classification provisions. The querist has made available photographs of the goods and also specification/datasheets for the various models of the controllers.

**4. OPINION:**

4.1 As per the datasheet made available by the querist ‘ESCON Model Servo Controllers’ are described as follows:

*The ESCON servo controllers are small-sized, powerful 4-quadrant PWM servo controller for the highly efficient control of permanent magnet-activated DC motors.*

*The featured operating modes – speed control (closed loop), speed control (open loop), and current control – meet the highest requirements. The ESCON servo controllers are designed being commanded by an analog set value and features extensive analog and digital I/O functionality and are being configured via USB interface using the graphical user interface “ESCON Studio”.*

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*Depending on the ESCON variant, the following* ***motor types*** *can be operated*

*− DC motor: Permanent-magnet DC motor*

*− EC motor: Brushless, electronically commutated permanent-magnet DC motor (BLDC) with and without Hall sensors.*

*Various* ***operating modes*** *allow an adaptable use in a wide range of drive systems*

*− Current controller: The current controller compares the actual motor current (torque) with the applied set value. In case of deviation, the motor current is dynamically readjusted.*

*− Speed controller (closed loop): The closed loop speed controller compares the actual speed signal with the applied set value. In case of deviation, the speed is dynamically readjusted.*

*− Speed controller (open loop): The open loop speed controller feeds the motor with a voltage proportional to the applied speed set value. Changes in load are compensated using the IxR methodology.*

***Set value*** *(speed or current),* ***current limitation****, as well as* ***offset*** *can be assigned as follows.*

*− Analog value: The value is defined by an analog voltage set via external or internal potentiometer.*

*− PWM value: The value is defined by fixed frequency and amplitude. The desired change is achieved by variation of the duty cycle of 10…90%.*

*− RC Servo Value: The value is set with a signal pulse with a duration of 1.0…2.0 ms.*

*− Fixed value: The value is defined by a fixed preset value.*

*− 2 fixed values: Value 1 is defined by a fixed preset value 1. Value 2 is defined by a fixed preset value 2. A digital input is used to switch between the two preset values.*

4.2 As per the above data, it is seen that basically these are programmable controllers to control through digital or analog input/output signals, various motors.

4.3 It may be noted that heading 9032 covers, among other things, “Automatic regulators of electrical quantities and instruments or apparatus for automatically controlling non-electrical quantities the operation of which depends on an electrical phenomenon”. Basically, such regulators will have a measuring device, an electrical control device and a starting, stopping or operating device. **In the HS Explanatory Notes for the Tariff Schedule, “Programmable controllers” falling under heading 85.37 are specifically excluded from the scope of heading 9032.**

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4.4 In the Explanatory Notes under heading 85.37 which covers electric control or distribution apparatus, programmable controllers are specifically mentioned. The Explanatory Notes refer to “Programmable controllers” as follows:

“Programmable controllers” which are digital apparatus using a programmable memory for the storage of instructions for implementing specific functions such as logic, sequencing, timing, counting and arithmetic, to control, through digital or analog input/output modules, various types of machines.”

4.5 By taking into account the function of these controllers, in our view, these should fall under heading “**8537**” and not under 9032. At eight-digit level the classification will be “**8537 1000**”.

4.6 As far as Cables are concerned, it is noticed from the photographs that these are fitted with end connectors. Heading 8544 4930 currently being adopted by the querist will cover “Rubber Insulated Cables without connectors**”. If these are rubber insulated cables but with connectors then the appropriate classification will be under Heading 8544 4230.**

4.7 Connector sets will be appropriately classifiable under heading “**8536 6990**” and it is noticed that the current classification followed by the querist is the same and no change or revision will be called for.

**S. MURUGAPPAN**

sm/ss

**Disclaimer:-** The above opinion is provided based on the information and documents made available to us by the querist and further based on the laws and rules prevalent as on date and the understanding of such provisions by the author and is meant for the private use of the person to whom it is provided without assuming any liability for any consequential action taken based on the views expressed here.

**BY E-MAIL / COURIER**

**File No.203/2023-Opinion**

24.10.2023

M/s. Maxon Precision Motor India Pvt. Ltd.,

Niran Arcade, No.3, 2nd Floor,

New BEL Road, RMV 2nd Stage,

Bangalore – 560 094.

Attn.: Ms. Deepa .A, Business Development Executive

**Mobile: 9686097585**

E-mail: <deepa.arumugam@maxongroup.com>

Madam,

**Sub.: Classification of Servo Controllers, Cables and Connectors.**

1. In connection with the above, find attached the following.

(a) Opinion.

(b) Our Bill towards professional charges.

2. Should you need any further clarification in this regard, please feel free to contact me. Kindly arrange for payment of the attached bill.

Yours faithfully,

**S. MURUGAPPAN**

Attached: as above.

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