![Dana TM4 logo]

TM4 Tautronic™ AC-S1-S/C
Low-Voltage Inverters

Controller for AC Induction Motor

Dana TM4 inverters provide advanced control of AC induction & synchronous motors for traction or pump functions of any electrical vehicle working with speed or torque control algorithms.


Mobile Machine Management

Tautronic is an integrated controller which can manage multi-function and fully configurable I/O pins for any I/O functions like digital & analogue inputs and outputs, capable of driving fans, relays' and hydraulic valves' coils, contactors, negative brakes and many others inductive/resistive loads.

Vehicle Application Development

Users develop AC-S1 applications with the TM4 TAU™ System: All features are offered as standard ("one fits all" philosophy). Virtually everything can be changed with one click in an intuitive graphical tuning environment. The clone file technology allows uploads, downloads and modifications of your configuration. With TM4 TAU system, a first run for a wired vehicle can be made in minutes (not days).

## Ideal for Off-Highway Applications.
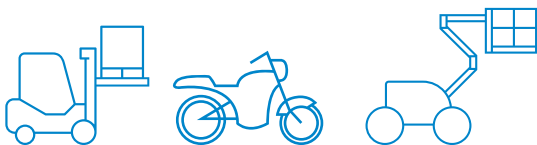
| TM4 Tautronic™ AC-S1-S/C **Low-Voltage Inverter**

AC, PM, SR & SRIPM motor control features:

- Indirect Field Oriented Control (IFOC) with unsurpassed dynamic and performance in full speed range by decoupling and regulating flux and torque vectors of stator current components

- Advanced Space Vector Modulation (SVM) technique for high system efficiency reducing motor harmonics and losses

- Accurate Rotor Flux Model and Fully Developed Field Weakening technique for high motor efficiency and dynamic across full speed range

- Motor model fully compatible with IEEE Standard in order to get the parameters of motor's equivalent circuit from no-load and blocked rotor tests; it can work with all AC motors of all manufactures

- Quick and easy selection between Torque Control and Speed Control

General features

- Fully configurable through supplied GUI TM4 TAU™ called SmartView, which reduces abruptly the time to market start-up of the system

- Flexible configuration of I/O in order to couple them to any provided functions

- Standard and same firmware for all inverter series (easily extendable to future models)

- Robust, safe and self-diagnostic (both for hardware and software fault conditions)

- CAN Open and serial interfaces

- Powerful logging of all sensible working variables

- Fulfils automotive EMC standard ECE R10-05, Annex 7-8-9-10

- Low noise SIN/COS Encoder input for PM/SR/SRPM motors (up to 500Hz)

- One current controlled PWM out for Proportional Valves

1.5 kg
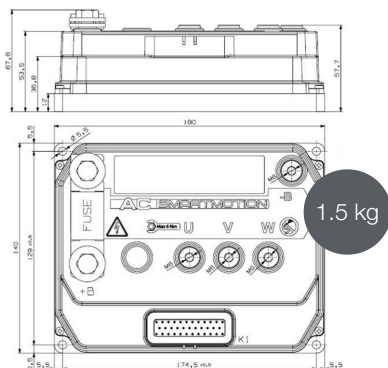
AC-S1-S/C

Nom. voltage (Vdc)	72 - 80
Input voltage range (Vdc)	42 - 108
Cont. current (Arms)	125
Nom. current S2- 2 min (Arms)	250
Output voltage (VAC)	3 x 0…47 (@72 VDC) 3 x 0…53 (@80 VDC)
Power terminals	M6(U/V/W/-B), M8(+B)

Specifications

Switching frequency	9 kHz
Efficiency	>95%
Output frequency	0-300 Hz
Ambient temperature range	-40°C to 55°C
Maximum heat-sin temp @ Full current @ linear de-rated current (down to 50%) @ 50% current	80°C 80°C– 95°C 95°C– 100°C
Signal line connectors	AMPSEAL 35 pins
IP protection	IP65
EMC	EN12895 / ECE R10-05, Annex 7-8-9-10
Safety	EN 1175-1
Vibration IEC 60068-2-6 Shock IEC 60068-2-27 Bump IEC 60068-2-29	5g, 10 – 500 Hz, 3 axes +/-30g +/-10g
UL	Designed to meet UL583

Interface	Number
Digital input	12
Analog input unipolar 0…10V	4
Digital output	2
PWM output	2
Current controlled PWM output 0…2A	1[1]
Motor temperature sensor	1
Incremental encoder (Hi-Speed Quad. Encoder)	1[2]
Hi Speed Sin/Cos Position sensor	1[2]
5V sensor power supply	1
12V sensor power supply	1
CAN interface	1
Serial Interface RS232	1
LIN Bus	1

1) Also configurable as normal PWM out.
2) Alternative configuration, use same interface pins

Product part number	
AC-S1 72/80V 250A SC SWS	ACS1R25000000

*Plate-Type Heat Sink. For other heat sink type please contact us

Related product part number	
AMPSEAL 35 pin Mating Connector Bag	900KC00000013
Fuse 250A	744EFCNL250
Thermal Pad for AC-S1	768VR457A00

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