Product Datasheet
Characteristic

ATV930U40S6X

variable speed drive - ATV930 - 5 HP - 600V - IP21

Green Premium™
Product

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Main

range of product	Altivar Process ATV900
product or component type	Variable speed drive
device application	Industrial application
device short name	ATV930
variant	Standard version With braking chopper
product destination	Asynchronous motors Synchronous motors
mounting mode	Wall mount
EMC filter	Without EMC filter
IP degree of protection	IP21 conforming to IEC 61800-5-1 IP21 conforming to IEC 60529
degree of protection	UL type 1 conforming to UL 508C
type of cooling	Forced convection
supply frequency	50...60 Hz (+/- 5 %)
network number of phases	3 phases
[Us] rated supply voltage	600 V (- 15...10 %)
motor power hp	3 hp 5 hp
line current	3.3 A at 600 V (heavy duty) 5.3 A at 600 V (normal duty)
prospective line Isc	70 kA
apparent power	5.5 kVA at 600 V (normal duty) 3.4 kVA at 600 V (heavy duty)
continuous output current	7.2 A at 4 kHz (normal duty) 4.2 A at 4 kHz (heavy duty)
maximum transient current	6.3 A during 60 s (heavy duty) 8.64 A during 60 s (normal duty)
asynchronous motor control profile	Constant torque standard Variable torque standard Optimized torque mode
synchronous motor control profile	Permanent magnet motor Synchronous reluctance motor
speed drive output frequency	0.1...599 Hz
nominal switching frequency	4 kHz

switching frequency	2...16 kHz adjustable 4...16 kHz with derating factor
safety function	STO (safe torque off) SIL 3
discrete input logic	16 preset speeds
communication port protocol	Ethernet/IP Modbus serial Modbus TCP
option card	Slot A: communication module Profibus DP V1 Slot A: communication module Profinet Slot A: communication module DeviceNet Slot A: communication module CANopen daisy chain RJ45 Slot A: communication module CANopen SUB-D 9 Slot A: communication module CANopen screw terminals Slot A: communication module EtherCAT Slot A/slot B/slot C: digital and analog I/O extension module Slot A/slot B/slot C: output relay extension module Slot B: 5/12 V digital encoder interface module Slot B: analog encoder interface module Slot B: resolver encoder interface module

Complementary

output voltage	<= power supply voltage
motor slip compensation	Adjustable Automatic whatever the load Can be suppressed Not available in permanent magnet motor law
acceleration and deceleration ramps	S, U or customized Linear adjustable separately from 0.01...9999 s
braking to standstill	By DC injection
protection type	Motor: thermal protection Motor: safe torque off Motor: motor phase break Drive: thermal protection Drive: safe torque off Drive: overheating Drive: overcurrent between output phases and earth Drive: overload of output voltage Drive: short-circuit protection Drive: motor phase break Drive: overvoltages on the DC bus Drive: line supply overvoltage Drive: line supply undervoltage Drive: line supply phase loss Drive: overspeed Drive: break on the control circuit
frequency resolution	Display unit: 0.1 Hz Analog input: 0.012/50 Hz
electrical connection	Control, screw terminal: 0.5...1.5 mm² (AWG 20...AWG 16) DC bus, screw terminal: 6 mm² (AWG 10) Line side, screw terminal: 6 mm² (AWG 10) Motor, screw terminal: 6...10 mm² (AWG 10...AWG 8)
connector type	2 RJ45 (on the control block) Ethernet IP/Modbus TCP 1 RJ45 (on the control block) Modbus serial
physical interface	2-wire RS 485 Modbus serial
transmission frame	RTU Modbus serial
transmission rate	10/100 Mbit/s Ethernet IP/Modbus TCP 4.8, 9.6, 19.2, 38.4 kbit/s for Modbus serial
exchange mode	Half duplex, full duplex, autonegotiation Ethernet IP/Modbus TCP
data format	8 bits, configurable odd, even or no parity Modbus serial
type of polarization	No impedance Modbus serial
number of addresses	1...247 Modbus serial
method of access	Slave Modbus TCP
supply	External supply for digital inputs: 24 V DC (19...30 V) current <= 1.25 mA (overload and short-circuit protection) Internal supply for reference potentiometer (1 to 10 kOhm): 10.5 V DC +/- 5 % current <= 10 mA (overload and short-circuit protection)

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	Internal supply for digital inputs and STO: 24 V DC (21...27 V) current <= 200 mA (overload and short-circuit protection)
local signalling	
width	6.73 in (171 mm)
height	16.1 in (409 mm)
depth	9.29 in (236 mm)
product weight	12.13 lb(US) (5.5 kg)
analogue input number	3
analogue input type	Software-configurable voltage AI1, AI2, AI3: 0...10 V DC impedance 30 kOhm, resolution 12 bits 250 Ohm
discrete input number	10
discrete input type	Programmable DI1...DI8: 24 V DC (<= 30 V) impedance 3.5 kOhm Programmable as pulse input DI7, DI8 0...30 kHz: 24 V DC (<= 30 V) Safe torque off STOA, STOB: 24 V DC (<= 30 V) impedance > 2.2 kOhm
input compatibility	Discrete input STOA, STOB: level 1 PLC conforming to EN/IEC 61131-2 Discrete input DI1...DI8: level 1 PLC conforming to EN/IEC 61131-2 Pulse input DI7, DI8: level 1 PLC conforming to IEC 65A-68
analogue output number	2
discrete output number	2
discrete output type	100 mA 20 mA 100 mA
sampling duration	Discrete input DI1...DI8: 2 ms (+/- 0.5 ms) Pulse input DI7, DI8: 5 ms (+/- 1 ms) Analog input AI1, AI2, AI3: 1 ms (+/- 1 ms) Analog output AQ1, AQ2: 5 ms (+/- 1 ms)
accuracy	Analog input AI1, AI2, AI3: +/- 0.6 % for a temperature variation 60 °C Analog output AQ1, AQ2: +/- 1 % for a temperature variation 60 °C
linearity error	Analog input AI1, AI2, AI3: +/- 0.15 % of maximum value Analog output AQ1, AQ2: +/- 0.2 %
maximum switching current	Relay output R1 on inductive load (cos phi = 0.4 and L/R = 7 ms) : 2 A at 250 V AC Relay output R1 on inductive load (cos phi = 0.4 and L/R = 7 ms) : 2 A at 30 V DC Relay output R2, R3 on inductive load (cos phi = 0.4 and L/R = 7 ms) : 2 A at 250 V AC Relay output R2, R3 on inductive load (cos phi = 0.4 and L/R = 7 ms) : 2 A at 30 V DC Relay output R1 on resistive load (cos phi = 1) : 3 A at 250 V AC Relay output R1 on resistive load (cos phi = 1) : 3 A at 30 V DC Relay output R2, R3 on resistive load (cos phi = 1) : 5 A at 250 V AC Relay output R2, R3 on resistive load (cos phi = 1) : 5 A at 30 V DC
relay output number	3
relay output type	Configurable relay logic R1: fault relay NO/NC electrical durability 100000 cycles Configurable relay logic R2: sequence relay NO electrical durability 1000000 cycles Configurable relay logic R3: sequence relay NO electrical durability 1000000 cycles
refresh time	Relay output R1, R2, R3: 5 ms (+/- 0.5 ms)
minimum switching current	Relay output R1, R2, R3: 5 mA at 24 V DC
isolation	Between power and control terminals
IP degree of protection	IP21

Environment

insulation resistance	> 1 mOhm at 500 V DC for 1 minute to earth
noise level	56 dB conforming to 86/188/EEC
power dissipation in W	84 W (natural convection) at 600 V switching frequency 4 kHz 55 W
vibration resistance	1.5 mm peak to peak (f = 2...13 Hz) conforming to IEC 60068-2-6

	1 gn (f = 13...200 Hz) conforming to IEC 60068-2-6
shock resistance	15 gn during 11 ms conforming to IEC 60068-2-27
volume of cooling air	27210.21 Gal/hr(US) (103 m3/h)
operating position	Vertical +/- 10 degree
electromagnetic compatibility	1.2/50 µs - 8/20 µs surge immunity test level 3 conforming to IEC 61000-4-5 Electrical fast transient/burst immunity test level 4 conforming to IEC 61000-4-4 Electrostatic discharge immunity test level 3 conforming to IEC 61000-4-2 Radiated radio-frequency electromagnetic field immunity test level 3 conforming to IEC 61000-4-3 Conducted radio-frequency immunity test level 3 conforming to IEC 61000-4-6
pollution degree	2 EN/IEC 61800-5-1
environmental characteristic	Chemical pollution resistance class 3C3 conforming to EN/IEC 60721-3-3 Dust pollution resistance class 3S3 conforming to EN/IEC 60721-3-3
relative humidity	5...95 % without condensation conforming to IEC 60068-2-3
ambient air temperature for operation	5...122 °F (-15...50 °C) without derating 122...140 °F (50...60 °C) with derating factor
ambient air temperature for storage	-40...158 °F (-40...70 °C)
operating altitude	1000...4800 m with current derating 1 % per 100 m <= 3280.84 ft (1000 m) without derating
standards	EN/IEC 61800-3 UL 508C EN/IEC 61800-5-1 IEC 61000-3-12 IEC 60721-3 IEC 61508 IEC 13849-1 EN/IEC 61800-3 (environment 2 category C3)
product certifications	CSA TÜV UL REACH
marking	CE

Offer Sustainability

Sustainable offer status	Green Premium product
RoHS (date code: YYWW)	Compliant - since 1728 - Schneider Electric declaration of conformity
REACh	Reference not containing SVHC above the threshold
Product environmental profile	Available
Product end of life instructions	Available