



Main

Range of product	Harmony SCU
Product or component type	Small touch HMI controller
Display size	3.5 inch
Display type	With backlit LED colour TFT LCD
Touch panel	Analogue
Device presentation	Complete product

Complementary

Display resolution	320 x 240 pixels QVGA
Backlight lifespan	50000 hours with 65000 colours
Brightness	16 levels via touch panel
View angle horiz x vert	60° left 60° right 40° top 60° bottom
Character font	Japanese (ANK, Kanji) ASCII Taiwanese (traditional Chinese) Korean Chinese (simplified Chinese)
Supply	External source
[Us] rated supply voltage	24 V (20.4...28.8 V)DC
Immunity to microbreaks	10 ms
Inrush current	30 A
Power consumption in W	15 W
Local signalling	No indicator
Number of pages	Limited by internal memory capacity
Software designation	SoMachine
Operating system	Harmony
Processor name	CPU RISC
Processor frequency	333 MHz
Memory description	Flash NAND, 128 MB Internal data storage FRAM, 128 kB Application run DRAM, 128 MB
Integrated connection type	1 serial link - RJ45 - RS232/RS485 (rate: <= 115.2 kbits/s) 1 Ethernet TCP/IP - RJ45 1 USB 2.0 type mini B 1 USB 2.0 type A CANopen master bus - SUB-D 9
Realtime clock	Built-in
Downloadable protocols	CANopen Modbus TCP/IP Modbus
Fixing mode	By 1 nut - diameter: Ø 22 mm, mounting on: 1...6 mm thick panel
Enclosure material	PC/PBT
Shock resistance	147 m/s ² for 11 ms (on DIN rail) conforming to IEC 60068-2-27 294 m/s ² for 6 ms (on panel mounting) conforming to IEC 60068-2-27

Vibration resistance	+/- 3.5 mm (f = 5...9 Hz) conforming to IEC 60068-2-6 1 gn (f = 9...150 Hz) conforming to IEC 60068-2-6
Electromagnetic compatibility	Electrostatic discharge immunity test - test level: 8 kV (air discharge) conforming to IEC 61000-4-2 Electrostatic discharge immunity test - test level: 6 kV (contact discharge) conforming to IEC 61000-4-2 Susceptibility to electromagnetic fields - test level: 10 V/m (80 MHz...3 GHz) conforming to IEC 61000-4-3 Electrical fast transient/burst immunity test - test level: 2 kV (power lines) conforming to IEC 61000-4-4 Electrical fast transient/burst immunity test - test level: 1 kV (between analogue I/O and operating voltage) conforming to IEC 61000-4-4 Electrical fast transient/burst immunity test - test level: 2 kV (relay wires) conforming to IEC 61000-4-4 Electrical fast transient/burst immunity test - test level: 1 kV (Ethernet line) conforming to IEC 61000-4-4 Electrical fast transient/burst immunity test - test level: 1 kV (COM line) conforming to IEC 61000-4-4 Electrical fast transient/burst immunity test - test level: 1 kV (CAN line) conforming to IEC 61000-4-4 Surge immunity test - test level: 2 kV (power supply (common mode)) conforming to IEC 61000-4-5 Surge immunity test - test level: 1 kV (power supply (differential mode)) conforming to IEC 61000-4-5 Surge immunity test - test level: 1 kV common mode (digital I/O) conforming to IEC 61000-4-5 Surge immunity test - test level: 0.5 kV differential mode (digital I/O) conforming to IEC 61000-4-5 Conducted RF disturbances - test level: 10 V (0.15...80 MHz) conforming to IEC 61000-4-6 Conducted emission - test level: 150 kHz...30 MHz conforming to EN 55011 Radiated emission - test level: 30 MHz...1 GHz conforming to EN 55011
Discrete input number	2 for fast input (normal mode) conforming to IEC 61131-2 Type 1 14 for digital input conforming to IEC 61131-2 Type 1
Discrete input voltage	24 V DC, discrete input logic: sink or source (positive/negative)
Number of common point	1 for fast input (HSC mode) 2 for digital input
Discrete input current	7.83 mA for fast input 5 mA for digital
Input impedance	2.81 kOhm 4.7 kOhm
Sensor power supply	15...28.8 V DC >= 15 V, current (state 1): >= 5 mA <= 5 V, current (state 0): <= 1.5 mA 15...28.8 V DC >= 15 V, current (state 1): >= 2.5 mA <= 5 V, current (state 0): <= 1 mA
Configurable filtering time	0 ms no filter (none) 0.004...0.04 ms bounce filter (latch/event and cumulative filter by step Nx0.5ms (64>=N>=2)) 3...12 ms integrator (none/run/stop)
Maximum input frequency	100 KHz for fast input (encoder mode) - control type A/B 100 KHz for fast input - control type single phase 100 kHz for fast input - control type pulse/direction
Maximum cable distance between devices	Shielded cable: <10 m for fast input Shielded cable: <100 m for digital input Unshielded cable: <50 m for digital input
Connection pitch	3.5 mm
Overvoltage protection	With overvoltage protection
Isolation between channels and internal logic	500 V DC
Isolation between channels	None
Discrete output number	2 fast output (normal mode), output logic: source 8 digital output, output logic: source
Discrete output voltage	24 V DC (voltage limit: 19.2...28.8 V) with transistor discrete output(s) 24 V DC (voltage limit: 5...30 V) with relay discrete output(s) 220 V AC (voltage limit: 100...250 V) with relay discrete output(s)
Input/output number	2 for fast input, terminal(s): FI0...FI1 14 for digital input, terminal(s): DI0...DI13 2 for fast output, terminal(s): FQ0...FQ1 8 for digital output, terminal(s): DQ0...DQ7
Discrete output current	2 A 4 A), response time 5 ms with opening contact for digital output 2 A 4 A), response time 2 ms with closing contact for digital output 300 mA, response time 2 ms for fast output (normal mode) 50 mA, response time 2 ms for fast output (PWM or PTO mode)

Insulation resistance	> 10 MOhm between the I/O and internal logic > 10 MOhm between power supply and earth
Maximum output frequency	100 KHz for fast output (PTO mode) 1 kHz for fast output (PWM mode)
Absolute accuracy error	+/- 0.1 % of full scale cyclic ratio 1...99% for fast output (PWM or PTO mode) 1 % of full scale cyclic ratio 1...99% for fast output (PWM or PTO mode) +/- 5 % of full scale cyclic ratio 10...90% for fast output (PWM or PTO mode) +/- 10 % of full scale cyclic ratio 20...80% for fast output (PWM or PTO mode) +/- 15 % of full scale cyclic ratio 30...70% for fast output (PWM or PTO mode)
Height	74.95 mm
Width	128 mm
Depth	102 mm
Net weight	0.512 kg

Environment

Standards	IEC 61000-6-2 FCC Class A UL 508 EN 61131-2 CSA C22.2 No 213 Class I Division 2 ANSI/ISA 12-12-01
Product certifications	CULus 508 CUL 1604 Class 1 Division 2 KCC C-Tick CULus CSA 22-2 No 142 GOST
Marking	CE
Ambient air temperature for operation	0...50 °C
Ambient air temperature for storage	-20...60 °C
Relative humidity	5...85 % without condensation
Operating altitude	<= 2000 m
Storage altitude	0...10000 m
Maximum pressure	800...1114 hPa
IP degree of protection	IP20 (rear panel) conforming to IEC 60529 IP65 (front panel) conforming to IEC 60529
NEMA degree of protection	NEMA 4X front panel
Pollution degree	2 conforming to IEC 60664
Environmental characteristic	Corrosive gas free

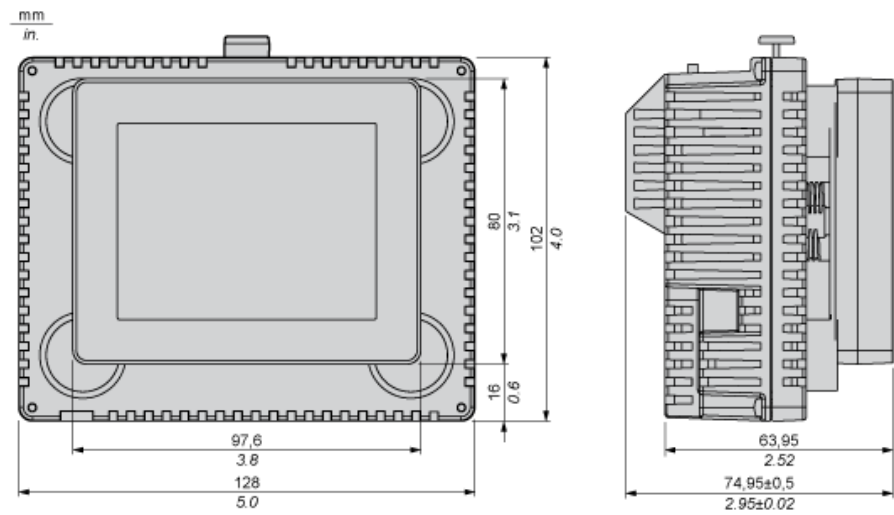
Packing Units

Package 1 Weight	1.072 kg
Package 1 Height	10.200 cm
Package 1 width	19.000 cm
Package 1 Length	26.700 cm

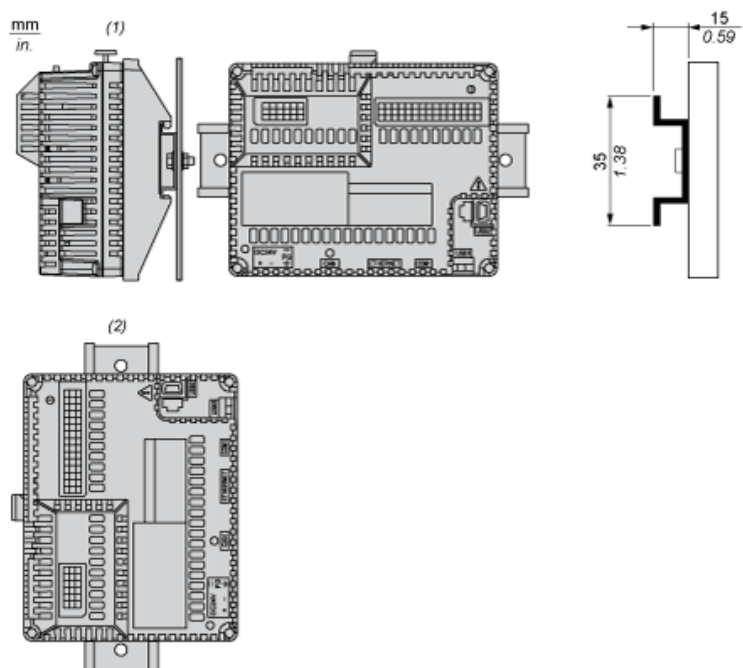
Offer Sustainability

Sustainable offer status	Green Premium product
REACH Regulation	 REACH Declaration
EU RoHS Directive	Pro-active compliance (Product out of EU RoHS legal scope)  EU RoHS Declaration
Mercury free	Yes
RoHS exemption information	 Yes
China RoHS Regulation	 China RoHS Declaration
Environmental Disclosure	 Product Environmental Profile
Circularity Profile	 End Of Life Information
WEEE	The product must be disposed on European Union markets following specific waste collection and never end up in rubbish bins
Upgradeability	 Upgradeable Through Digital Modules And Upgraded Components

Dimensions

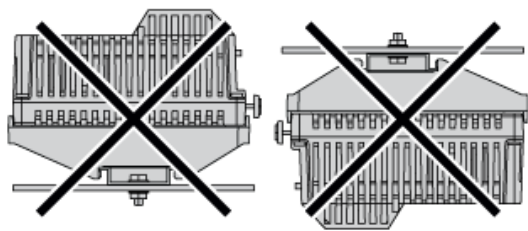


Recommended Mounting position

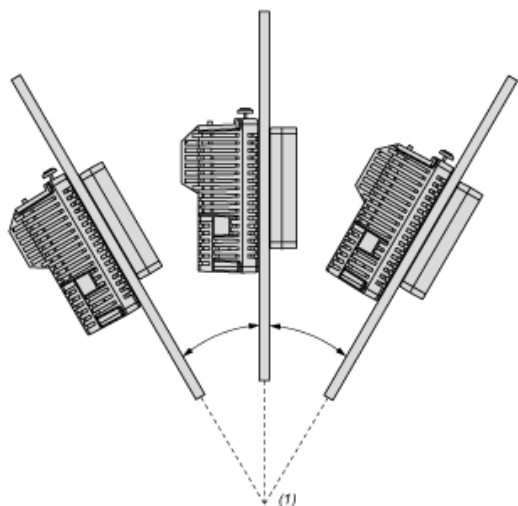


- (1) Horizontal mounting
- (2) Vertical mounting

No Recommended Mounting Position

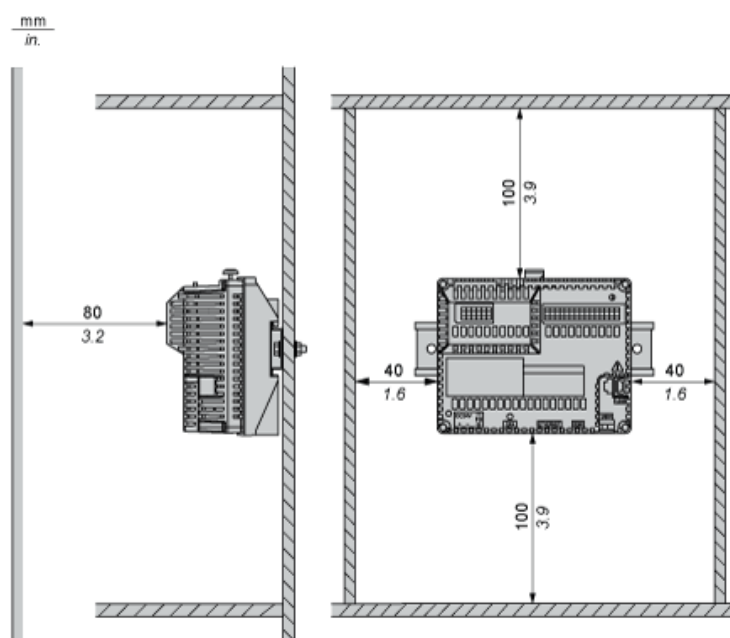


Mounting on a Slanted Panel



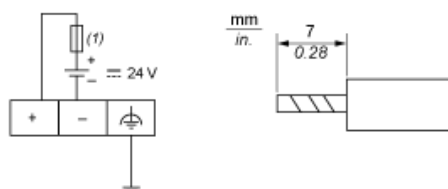
(1) 30° or less

Clearance



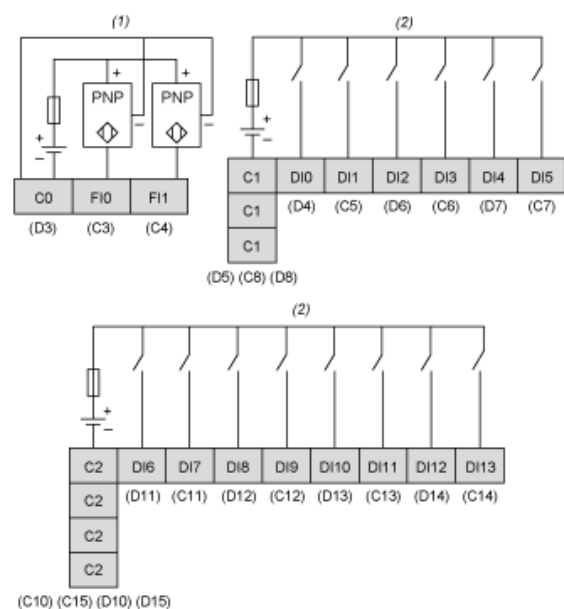
Keep adequate spacing for proper ventilation to maintain an ambient temperature between 0...50 °C (32...122 °F) for horizontal installation and 0...40 °C (32...104 °F) for vertical installation.

Wiring Diagram



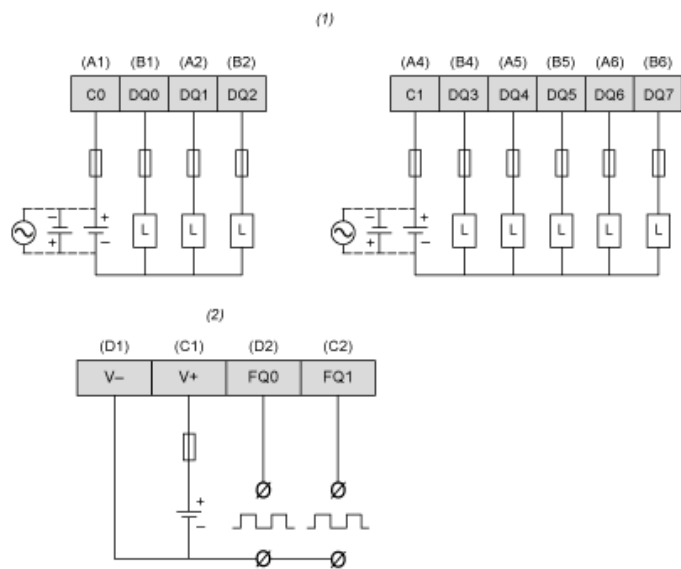
- (1) Slow-blow 2A type T fuse

Wiring Diagram of Digital Inputs



- (1) HSC inputs with pin assignment of terminal blocks C,D.
(2) Digital inputs with pin assignment of terminal blocks C,D.

Wiring Diagram of Digital Outputs



- (1) Digital outputs with pin assignment of terminal blocks A,B.
 (2) PWM outputs with pin assignment of terminal blocks C,D.
 (L) Load