Installation Guide for the IN780SAM0XSO000 Cascade Controller for Samsung Eco Heating Systems (EHS)

Version 1.0.0

Owner's record

Find the serial number on the silver label on the right side of the Intesis Cascade Controller. For sales or technical assistance, we recommend writing it in the space below:

SN:

Safety Instructions

Follow these safety and installation instructions carefully. Improper work may lead to serious harm to your health and may seriously damage the Intesis Cascade Controller and/or any other installation equipment.

Only accredited technical personnel, following all these safety instructions and in accordance with the country's legislation for the installation of electric equipment, are authorized to install the Intesis Cascade Controller.

Install the Intesis Cascade Controller indoors, in a restricted access location, and sheltered from direct solar radiation, water, high relative humidity, or dust.

Mount the Intesis Cascade Controller on a DIN rail inside a grounded metallic cabinet following the instructions below.

Disconnect any wires from its power source before manipulating and connecting them to the Intesis Cascade Controller.

Use a dedicated SELV-rated NEC Class 2 or Limited Power Source (LPS) power supply.

Use a circuit breaker before the power supply. Rating: 250 V, 6 A.

Respect the expected polarity of power and communication cables when wiring the Intesis Cascade Controller.

Supply the correct voltage to power the Intesis Cascade Controller. The admitted range voltage is detailed in the technical specifications table.

Connect this Intesis Cascade Controller only to networks without routing to the outside plant. All communication ports are considered indoor only.

This Intesis Cascade Controller is designed for installation in an enclosure. When the device is mounted outside an enclosure, precautions should be taken to avoid electrostatic discharges to the unit in environments with static levels above 4 kV. When working in an enclosure (e.g., making adjustments, setting switches, etc.), typical anti-static precautions should be observed before touching the unit.

These safety instructions can be found in other languages here.

Configuration

Connect the Intesis Cascade Controller to a computer using a USB Type-C cable (not included).

Configure the Intesis Cascade Controller using Intesis MAPS. To download the latest version of the configuration tool, click here.

For further information on the configuration, refer to the Intesis MAPS guide.

Mounting

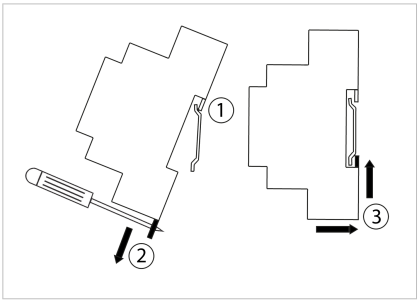
Mount the Intesis Cascade Controller over a DIN rail, preferably inside a grounded metallic industrial cabinet.

DIN rail mounting

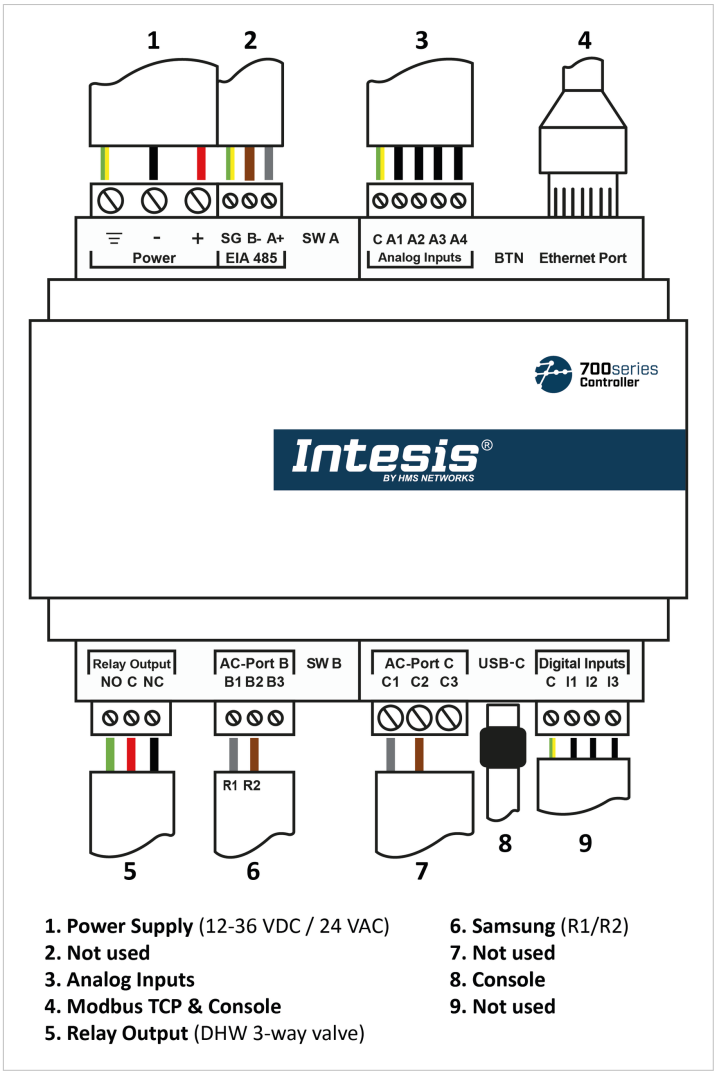
Keep the clips in their original position.

1. Fit the cascade controller's top-side clips in the upper edge of the DIN rail.
2. Press the low side of the cascade controller gently to lock it in the DIN rail.
3. Make sure the cascade controller is firmly fixed.

For some DIN rails, to complete step 2, you may need a small screwdriver or similar to pull the bottom clip down.



Connections



1. **Power Supply** (12-36 VDC / 24 VAC)
2. **Not used**
3. **Analog Inputs**
4. **Modbus TCP & Console**
5. **Relay Output** (DHW 3-way valve)
6. **Samsung** (R1/R2)
7. **Not used**
8. **Console**
9. **Not used**

Power supply: Use a SELV-rated NEC class 2 or Limited Power Source (LPS) power supply. Connect the cascade controller's ground terminal ( ) to the installation grounding.

Power rating:

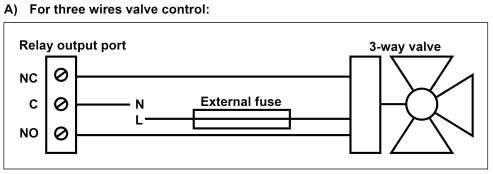
- **For DC**: 12 .. 36 VDC ±10%, Max: 250 mA
- **For AC**: 24 VAC ±10 %, 50-60 Hz, Max: 200 mA
  Recommended voltage: 24 VDC, Max: 127 mA

Relay Output:

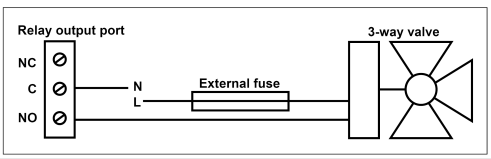
- **Type of load**: Motor load
- **Contact rating**: 250 VAC
  Max:
  - **NO**: 5 A
  - **NC**: 3 A

It is mandatory to add an external fuse to protect the 3-way circuit:

A) For three wires valve control:



B) For two wires valve control:



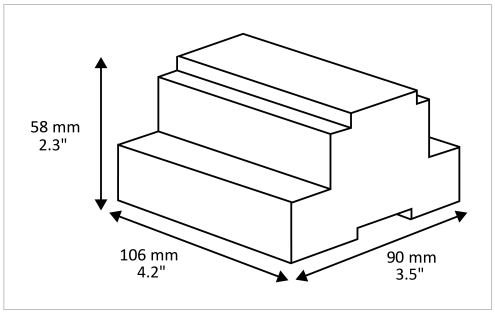
Communication ports:

PORT	USAGE	WIRING				
EIA-485	*Not used*					
Analog Inputs	Temperature monitoring and control of heating/cooling buffer tanks, domestic hot water (DHW), and an outdoor temperature sensor	**C**: Common	**A1**: Input 1	**A2**: Input 2	**A3**: Input 3	**A4**: Input 4
Ethernet	**As a TCP/IP port**: Modbus TCP **As a console port**: Connection to a PC for configuration purposes	Ethernet cable (CAT5 or higher) When using the building LAN, contact the network administrator and make sure traffic is allowed. When starting up the cascade controller for the first time, DHCP will be enabled for 30 seconds. After that time, the default IP 192.168.100.246 will be set.				
Relay Output	DHW 3-way valve control	**NO**: Normally Open		**C**: Common	**NC**: Normally Closed	
AC-Port B Observe polarity	Samsung bus	**B1**: R1	**B2**: R2	B3: *Not used*		
AC-Port C	*Not used*					
USB-C	Connection to a PC for configuration purposes	USB Type-C				
Digital Inputs	*Not used*					

Dimensions

NET DIMENSIONS (HxWxD)
Millimeters: 90 x 106 x 58 mm
Inches: 3.5 x 4.2 x 2.3"

Leave enough clear space to wire the cascade controller easily and for the subsequent manipulation of elements.



Technical Specifications

Housing	Plastic, type PC (UL 94 V-0). Color: Light Grey. RAL 7035 Net dimensions (HxWxD): Millimeters: 90 x 106 x 58 mm / Inches: 3.5 x 4.2 x 2.3"	
Net weight	240 g	
Mounting	DIN rail EN60715 TH35	
Wires (for power supply and low-voltage signals)	Per terminal: solid wires or stranded wires (twisted or with ferrule) Wire cross-section/gauge: One core: 0.2 .. 2.5 mm^2 (24 .. 14 AWG) Two cores: 0.2 .. 1.5 mm^2 (24 .. 16 AWG) Three cores: Not permitted For distances longer than 3.05 meters (10 feet), use class 2 cables	
Power	1 x Green pluggable terminal block (3 poles) 12 .. 36 VDC +/-10%, 3W - Max: 250 mA 24 VAC +/-10% 50-60 Hz, 50-60 Hz, 4.8 W - 200 mA Recommended: 24 VDC, Min.: 125 mA	
Ethernet	1 x Ethernet 10/100 Mbps RJ45	
EIA 485 Port	1 x Green pluggable terminal block (3 poles) Reserved for future use	
Analog Inputs Port	1 x green pluggable terminal block (5 poles) Common, A1, A2, A3, and A4	
Relay Output	1 x green pluggable terminal block (3 poles) DHW 3-way valve control It is mandatory to add an external fuse to protect the 3-way circuit. See Relay Output (page 1) in the Connections section above.	
AC-Ports	AC-Port B (serial, 3 poles): Samsung bus connection (R1/R2) AC-Port C (serial, 3 poles): Not used	
LEDs	2 x Run (Power/Error) 2 x Port EIA-485 (Not used) 2 x Ethernet Link/Speed	2 x AC-Port B TX/RX 2 x AC-Port C (Not used)
Digital inputs	1 x Green pluggable terminal block (4 poles) Reserved for future use	
Console port	USB Type-C compliant	
DIP switches **SW A** **SW B**	2 x DIP switch blocks for EIA-485 serial port configuration: **SW A (EIA 485 port)**: • Reserved for future use **SW B (AC-Port B port)**: Position 1: On: 120 Ω termination active; Off: 120 Ω termination inactive (default); Positions 2 and 3: On: Polarization active (default); Off: Polarization inactive	
Push button	1 x Push button Factory reset	
Operational temperature	Celsius: -10 .. 70°C Fahrenheit: 14 .. 158°F	
Operational humidity	5 to 95%. No condensation	
Isolation between comm. ports	1000 VDC	
Protection	IP20 (IEC60529)	

Disposal and Recycling

This product contains electronic components and must be properly disposed of according to local laws and regulations. For further information, refer to: https://www.hms-networks.com/sustainability

For further information on the installation, connection, and configuration of this cascade controller, refer to the User Manual.