



Synco™ 900

Radiator Control Actuator

SSA955

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- RF-controlled actuator for radiator valves
 - RF communication based on KNX standard (868 MHz, bidirectional)
 - Battery-powered by commercially available 1.5 V batteries (reversed polarity protection)
 - Low power consumption
 - Silent mode (e.g. for use in sleeping rooms)
 - Nominal stroke 2.5 mm
 - Valve positioning force 110 N
 - Automatic identification of valve stroke
 - Parallel connection of multiple actuators possible
 - Integrated temperature sensor
 - For direct mounting with coupling nut (no tools required)
 - Manual adjustment

Use

- For integration into the Siemens Synco 900 system
- Suited for use in heating plant for operating radiator valves from Siemens or radiator valves of other manufacture
- Several radiator control actuators can be used in one room

Compatibility

Siemens valves

The SSA955 is suited for use with the following types of radiator valves from Siemens:

Type reference	Valve type	k_{vs} [m ³ /h]	PN class	Data Sheet no.
VDN... , VEN... , VUN..	Radiator valves	0.25...1.41	PN10	2105, 2106
VD... , CLC...	Radiator valves	1.9...2.6	PN10	2103
VPD... , VPE...	MCV radiator valves	0.02...0.48	PN10	2185
VD... , VE... , VU...	Radiator valves	0.25...3.4	PN10	2145, 2146
2T../A	Radiator valves	1.25...2.5	PN10	4848

For radiator valves with AV... adapters, refer to "Accessories"

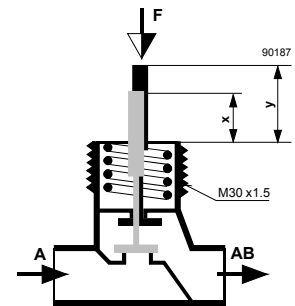
k_{vs} = nominal flow rate of chilled water (5...30 °C) through the fully opened valve (H_{100}) at a differential pressure of 100 kPa (1bar)

Valves of other manufacture without adapter

The SSA955 can operate without adapter radiator valves of other manufacture provided they have a connecting thread M30x1.5 mm and meet the following requirements:

Requirements placed on valves of other manufacture:

Force	100 N nominal
Fully closed	$x > 9.0$ mm
Fully open	$y \leq 14.5$ mm



The following makes satisfy these requirements and can be used with the SSA955:

- Honeywell MNG
- Cazzaniga
- Heimeier
- TA
- Finimetall
- Oventrop M30x1.5 (from 2001)
- Junkers

Other combinations on request.

Valve preadjustment / kv limitation

To ensure optimum control performance, the valve's volumetric flow should not be preadjusted.

If preadjustments are required, refer to the relevant technical documentation on the valves for detailed information. The SSA955 supports valves with a stroke of > 0.5 mm (refer to paragraph "Calibration").

Accessories

Adapters AV... for valves of other manufacture

For fitting the SSA955 to radiator valves of other manufacture, the following types of adapters are available:

Type reference	For radiator valves from:	Type reference	For radiator valves from:
AV51	Beulco distributor M30x1 mm	AV57	Herz
AV52	Comap	AV58	Oventrop (M30x1.0)
AV53	Danfoss RA-N (RA2000)	AV59	Vaillant
AV54	Danfoss RAVL	AV60	TA
AV55	Danfoss RAV	AV61	Markaryd
AV56	Giacomini	AV100-MLG	Siemens RADIAGYR valves

Ordering

When ordering please give quantity, product name and type reference.
Radiator valves and adapters, if required, must be ordered as separate items.

Scope of delivery

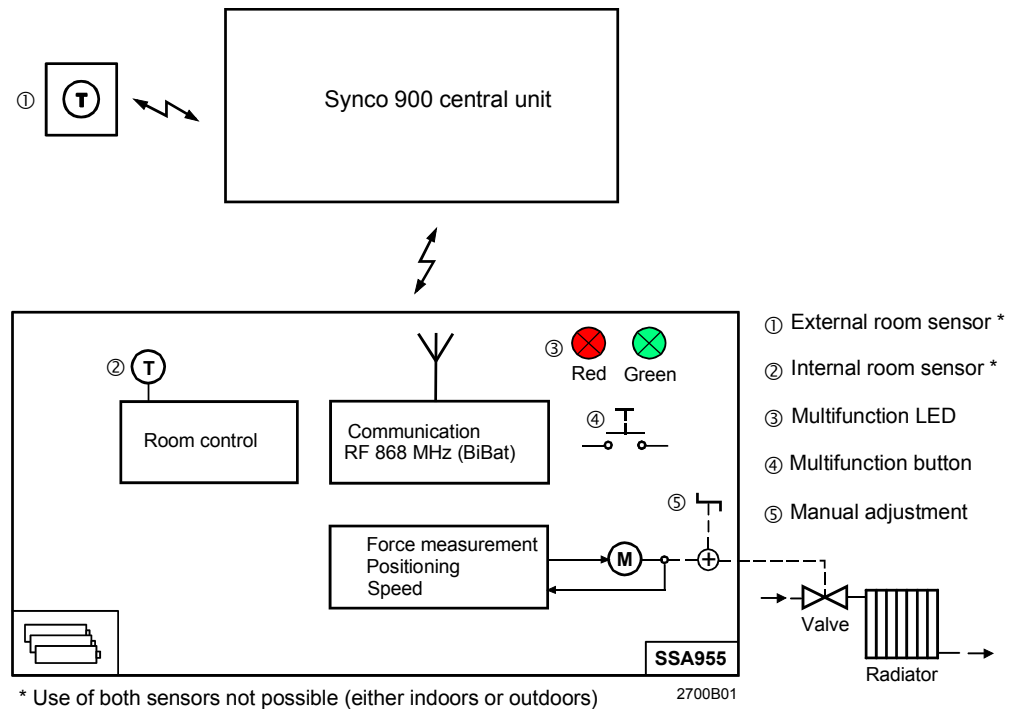
Each SSA955 is supplied complete with alkaline batteries and Mounting Instructions.

Product documentation

The Operating and Commissioning Instructions for the SSA955 are contained in the product documentation of the central apartment unit.

Functions

Block circuit diagram

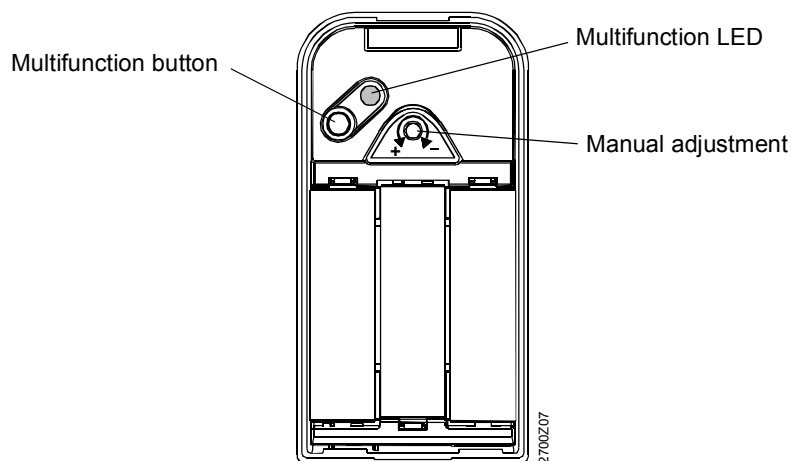


Main function	The SSA955 controls the room temperature based on the data delivered by the central apartment unit.
Parallel operation	When using several SSA955 in one room, the first SSA955 integrated in the room operates as the lead controller. The other SSA955 are controlled by the lead controller via the central apartment unit. The multifunction button can be used to query the lead controller. The multifunction LED indicates when the SSA955 operates as lead controller.
Binding	The binding is used by the SSA955 to sign on at the central apartment unit, thus integrating it into the RF system. The binding process is triggered via the multifunction button. It is indicated by the multifunction LED.
Calibration	Every time a binding is established and every time the batteries are changed, the SSA955 automatically starts the calibration process. This ensures that the SSA955 will be optimally matched to the respective radiator valve. The SSA955 informs the central apartment unit if calibration could not be performed. If the valve's stroke drops below the minimum, or if no valve has been attached to the actuator, the SSA955 will deliver an error message. If calibration was successful, the SSA955 will automatically switch to control mode.
Silent mode	For use in rooms, such as sleeping rooms, where extremely quiet operation is required, the SSA955 can be switched to low-noise operation from the central apartment unit.
Summer operation	Summer operation is triggered from the central apartment unit. When the SSA955 receives a command to start summer operation, the radiator valve will be opened or closed, depending on the position demanded by the central apartment unit.
Antilime function	The antilime function is triggered by the central apartment unit according to a time schedule. When the SSA955 receives an antilime command, the radiator valve will be fully opened and fully closed once. This prevents the valve from seizing. When the antilime function is completed, the valve will assume the previous control position again.
State query	The multifunction button can be used to query the battery state and the lead control function. Both battery state and lead control function are indicated by the multifunction LED.
RF connection test	The multifunction button can be used to trigger a connection test. This test is made to check the radio link to the central apartment unit. The RF connection test is indicated by the multifunction LED.
Supply state	The multifunction button can be used to reset the SSA955 to the default state as supplied. Then, the SSA955 must be reintegrated into the system.
RF failure	If the radio transmission between SSA955 and central apartment unit is interrupted, the built-in temperature sensor and the comfort setpoint will be used for control.
Error and maintenance messages	All error and maintenance messages are forwarded to the central apartment unit where they appear on the display.

The following messages are delivered by the SSA955:

Error messages	Maintenance message
Communication error (no communication for one hour) Calibration error (undefined valve travel) Sensor error (failure of integrated room temp. sensor)	Batteries discharged (battery life \leq 3 months)

Operating and indicating elements



Overview of functions of the indicating and operating elements of the SSA955:

Multifunction LED	Multifunction button	Manual adjustment
Battery state	Battery state query	Manual change of room temperature
Binding state	RF connection test	Refer to "Manual adjustment"
Binding process	Binding	
Calibration state	Calibration	
Calibration process	Disconnect device from the system	
Lead controller	Restoring the default state	

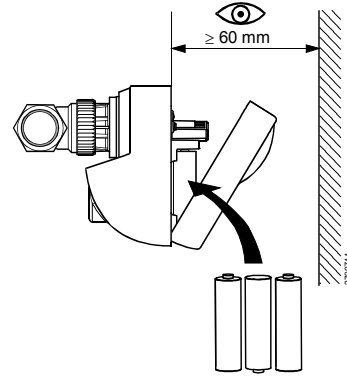
For more detailed information about the functions and operation of the SSA955, refer to the product documentation covering the central apartment unit.

Notes on engineering and operation

Mounting location

- The mounting location should be chosen such that the integrated temperature sensor can acquire the room temperature as accurately as possible. The SSA955 should not be installed in niches or bookshelves and not behind doors or curtains. Temperature measurement should not get adversely affected by direct solar radiation or other heat or refrigeration sources
- The permissible temperatures must be observed (refer to "Technical data")
- For notes relating to engineering and mounting RF devices of the Siemens Synco 900 system, refer to Data Sheet CE1N2708en

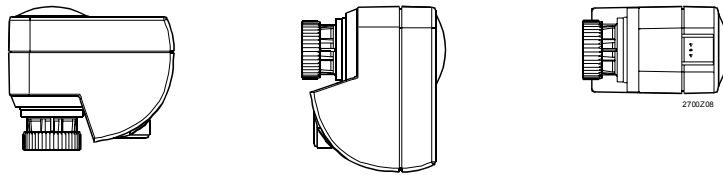
When mounting the SSA955, ensure that there is sufficient clearance to replace the batteries, to press the multifunction button and to monitor the multifunction LED.



Installation

Actuator and valve are joined by a coupling nut with no need for using tools. The SSA955 is supplied with the stem fully retracted (to facilitate mounting).
 Note: Mount the SSA955 first and then insert the batteries.

Preferred mounting positions



Commissioning

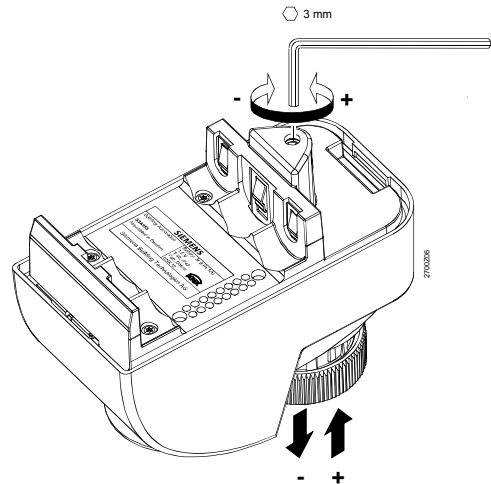
Prior to commissioning, check to ensure that the SSA955 is correctly fitted to the valve and that the batteries are correctly inserted. For more detailed information about commissioning, refer to the Synco 900 Operating Instructions.

Maintenance / change of batteries

The SSA955 is maintenance-free. The system indicates when batteries must be replaced. The batteries are to be inserted when the SSA955 is mounted (reversed polarity protection).

Manual adjustment

The SSA955 is protected against overloads and blocking (slip clutch). For service work, or in the event of fault, the SSA955 can be driven to any position using a 3 mm hexagonal socket wrench.



Repairs

The SSA955 cannot be repaired. It must be replaced as a complete unit.

Disposal





In terms of disposal regulations, the SSA955 is an electronic device and must not be disposed of together with domestic waste. The relevant national legal regulations must be complied with. The SSA955 must be disposed of through the relevant channels. Local and currently valid legislation must be observed. Exhausted batteries must be disposed of in compliance with environmental regulations.

Warranty

Application-related technical data are only warranted in connection with the Siemens Synco 900 system. For equipment combinations, refer to the Data Sheet of the central apartment unit.

When using the SSA955 in connection with valves of other manufacture that are not mentioned in this Data Sheet under “Accessories”, correct functioning must be ensured by the user. In that case, Siemens will assume no responsibility for service and warranty.

Technical data

Power supply	Type of battery	3 x alkaline batteries LR6 (AA) 1.5 V
	Battery life (capacity ≥ 2.5 Ah)	in normal operation: 3 years in silent mode: 2 years
RF	RF	868 MHz (bidirectional)
	Range	typically 30 m in buildings
	Protocol	KNX RF-compatible 
Noise level	Sound power level (LwA)	< 30 dBA in normal operation < 25 dBA in silent mode
		EN ISO 3741
Actuator	Nominal stroke	2.5 mm
	Minimum valve stroke	0.5 mm
	Positioning force	typically 110 N
Temperature of medium	Permissible temperature of medium in the connected valve	1...110 °C
Built-in temp. sensor	Sensing element	NTC 4.7 kOhm
	Measuring range	0...50 °C
	Time constant	29 minutes
Controllers	Type of controller	PID
Standards	 conformity to	
	EEC directive	89/336/EC
	- Immunity	- EN 61000-6-1
	- Emissions	- EN 61000-6-3
	Low-voltage directive	73/23/EC
- Electrical safety	- EN 60730-1	
RTTE Radio & Telecom. Equipm.	99/5/EC	
Radio communication	- EN 300220-1, EN 300220-3, EN 301489-3	
Protection	Safety class	III to EN 60730
	Housing	IP40 ¹⁾ to EN 60529
	Degree of pollution	2 nach EN 60730
Dimensions	Dimensions	refer to “Dimensions”
	Coupling thread to valve	cap nut M30x1.5
Weight	Weight incl. batteries and packaging	0.305 kg
Housing material		plastic ASA+PC
Housing colors		white NCS S 0502-G

¹⁾ Completely mounted

Environmental conditions

	Operation IEC 60721-3-3	Transport IEC 60721-3-2	Storage IEC 60721-3-1
Climatic conditions	class 3K5	class 2K3	class 1K3
Temperature	0...+50 °C	-25...+70 °C	-20...+65 °C
Humidity	5...95 % r.h.	<95 % r.h.	
Humidity	5...95 % r.h. (noncondensing)	<95 % r.h.	5...95 % r.h.
Mechanical conditions	class 3M2	class 2M2	class 1M2
Elevation above sea level	min. 700 hPa, corresponding to max. 3,000 m above sea level		

Dimension

Dimensions in mm

