

Advant® OCS

Open Control System

S200L I/O

The Compact and Cost Effective I/O System

S200L I/O is a range of cost effective I/O units which are bus compatible with S200 I/O and can be mixed with them in any order on the same DIN rail.

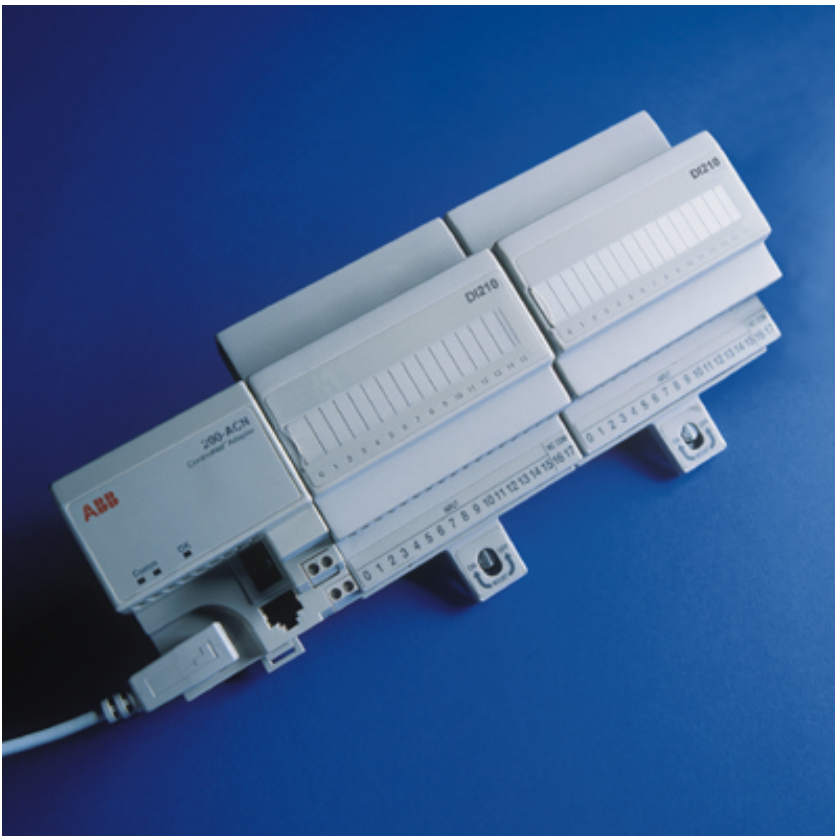
S200L I/O units can be connected to controllers via adapters for various field buses. They are intended for use in industrial environments and they fulfill the EMC directive 89/336/EEC.

Up to eight I/O units can be plugged together on a DIN rail, but they can also be split into two rows by means of the extension cables CE1 or CE3.

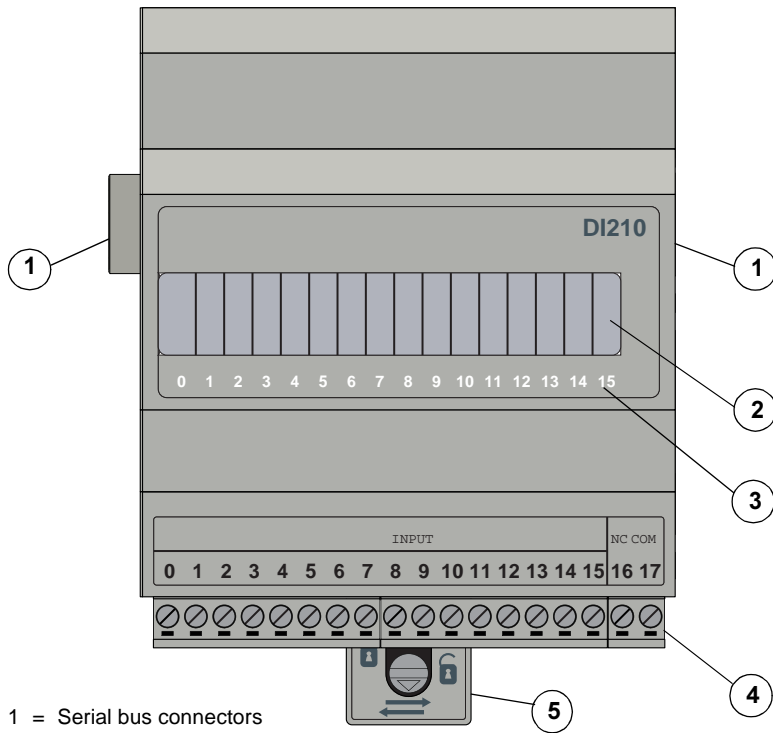
The inputs and outputs are filtered and galvanically isolated by optocouplers.

The S200L I/O system features:

- CE and UL approval.
- Software configurable functions.
- Safety function on outputs in remote configuration.
- The same I/O units in central and remote configurations.
- Compatible with S200 I/O.
- Detachable screw terminal blocks.



I/O units



- 1 = Serial bus connectors
- 2 = Labels on which in/output designations can be written
- 3 = LED indicators
- 4 = Detachable 18-pole screw terminal block
- 5 = Locking device

DI210

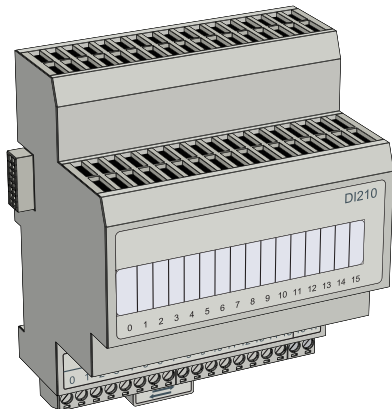
DI210 is an I/O unit for 16 digital input signals, nominally 24 V DC. The unit fulfills the requirements for digital inputs according to IEC 61131-2 type 1.

The inputs are galvanically isolated by optocouplers and share a common ground connection. They have a second-order low-pass hardware filter and a digital low-pass filter with a time constant set in the programming software.

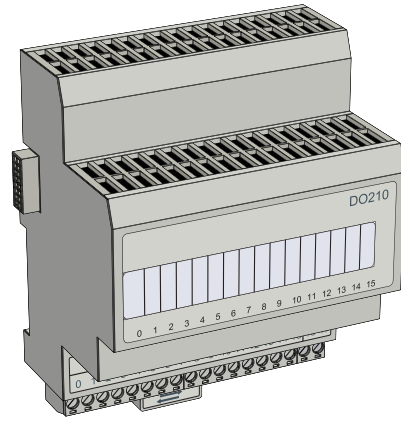
The status of each signal is indicated by a yellow LED on the front of the unit. The LED is lit when the input is TRUE.

Input 15 can also be used as a 16-bit pulse counter.

Power for the internal logic is provided via the serial bus.



DO210



DO210 is an I/O unit for 16 digital output signals, nominally 24 V DC.

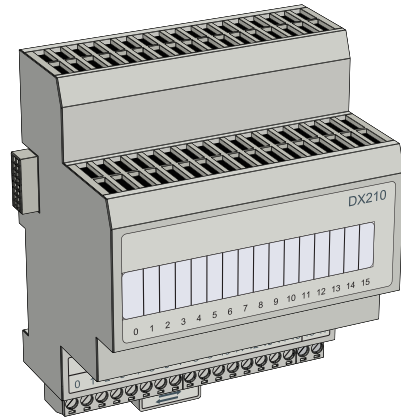
The outputs are galvanically isolated by optocouplers, short-circuit proof and share a common ground connection.

The status of each signal is indicated by a yellow LED on the front of the unit. The LED is lit if the output is activated and the external +24 V DC power supply is present.

Outputs can be connected in parallel.

Power for the internal logic is provided via the serial bus.

DX210

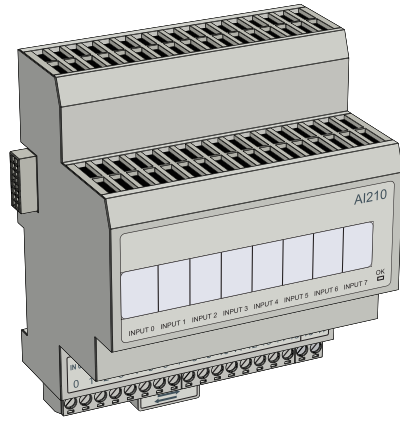


DX210 is an I/O unit for 10 digital input and 6 digital output signals, nominally 24 V DC. All I/O signals are galvanically isolated by optocouplers and share a common ground connection. Outputs are short-circuit proof.

The status of each signal is indicated by a yellow LED on the front of the unit. The output LEDs require the presence of the external +24 V power supply to function.

Outputs can be connected in parallel.

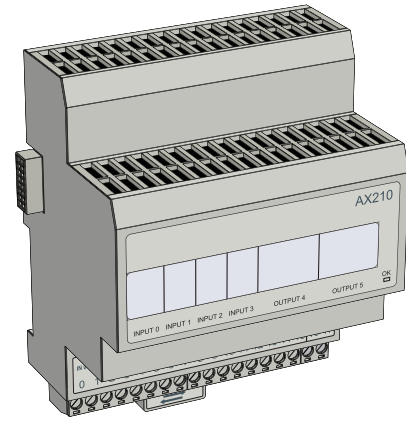
Power for the internal logic is provided via the serial bus.

AI210

AI210 is an I/O unit for eight analog single-ended input signals. The inputs are low-pass filtered, galvanically isolated from the serial bus by optocouplers and share a common ground connection. The internal logic requires an external +24 V DC power supply.

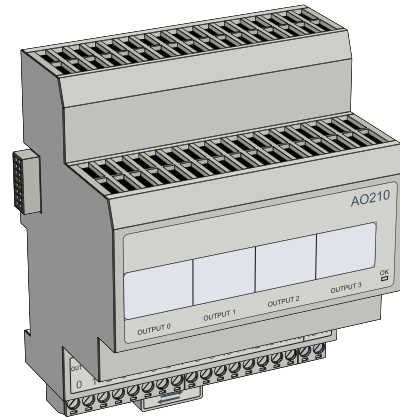
A common LED indicates correct operation with a green light and failure with red.

The input current range 4–20 mA or 0–20 mA is set in the programming software individually for each input.

AX210

AX210 is an I/O unit for four analog single-ended input signals and two analog single-ended output signals. All signals are low-pass filtered, galvanically isolated from the serial bus by optocouplers and share a common ground connection. The internal logic requires an external +24 V DC power supply.

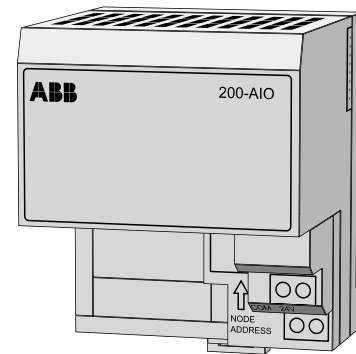
A common LED indicates correct operation with a green light and failure with red. The current range 4–20 mA or 0–20 mA is set in the programming software individually for each input/output.

AO210

AO210 is an I/O unit for four analog single-ended output signals. The outputs are low-pass filtered, galvanically isolated from the serial bus by optocouplers and share a common ground connection. The internal logic requires an external +24 V DC power supply.

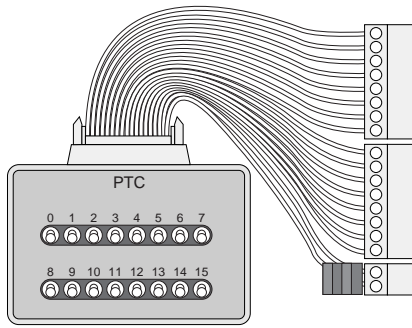
A common LED indicates correct operation with a green light and failure with red.

The output current range 4–20 mA or 0–20 mA is set in the programming software individually for each output.

Adapter 200-AIO

The adapter 200-AIO is used to connect up to eight units of type S200 I/O or S200L I/O to Advant Controller 210 or Advant Soft Controller via a TK210 cable. It has a female connector for the cable and a male connector for the serial I/O bus of the attached I/O unit.

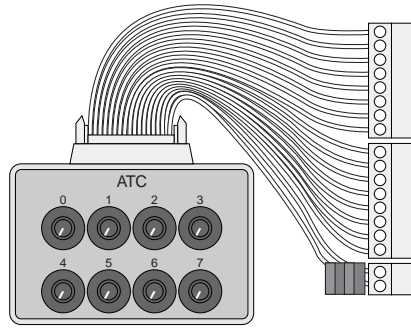
Test Unit 200-PTC



200-PTC is a test unit which simulates 16 digital input signals by means of switches numbered 0 to 15. A flat cable is supplied with two eight-pole terminal blocks which can be directly plugged into the digital input unit DI210 after its detachable terminal blocks have been removed. A two-pole terminal block is provided with extra connection pins to connect the 24 V DC process power supply cable.

Also the ten inputs on-board the Advant Controller 210 and DX210 can be simulated as above. In this case it is important not to activate any signals from the test unit to the outputs.

Test Unit 200-ATC



200-ATC is a test unit which simulates eight analog input signals by means of potentiometers numbered 0 to 7. A flat cable is supplied with two eight-pole terminal blocks which can be directly plugged into the analog input unit AI210 after its detachable terminal blocks have been removed. A two-pole terminal block is provided with extra connection pins to connect the 24 V DC process power supply cable.

One of the terminal blocks with its corresponding potentiometers can also be used to simulate the four inputs of the input/output unit AX210.

The current range is 2.5–21.5 mA.

Technical Data

General Specifications		DI210	
Power supply	+24 V DC (19.2–30 V DC) incl. 5% ripple according to IEC 61131-2 type 1 standard i.e. +20%, –15% and max. 5% ripple	Number of inputs	16 positive logic
Isolation voltage	Type-test voltage 350 V AC during 1 minute	Counter input	16-bit, up to 5000 Hz on input 15, reset on power-up and by user programming
Environment conditions	Industrial	Galvanic isolation	by means of optocouplers
Temperature		Status indicators	16 yellow LEDs for input indications
Operating	+5 °C to +55 °C	ON-state input voltage	15 V DC min., 24 V DC nominal, 30 V DC max.
Storage	–25 °C to +70 °C	ON-state input current	3.0 mA min. at 15 V DC, 5.2 mA nominal at 24 V DC, 6.8 mA max. at 30 V DC
Relative humidity	5 to 95%, non-condensing	OFF-state input voltage	< 6.0 V DC
Protection class	IP20	OFF-state input current	< 1.6 mA
Approvals (when product or packaging is marked)	CE-marked and meets the EMC directive 89/336/EEC UL listed according to UL508	Input impedance	6.2 kΩ max.
Dimensions	H 107 x W 94 x D 67 mm	Digital filter	Time constant set in software
Weight	240 g excl. package 324 g incl. package	Hardware filter	Second-order, low-pass filter Time constant 70 μs Input pulse width 90 μs min.
		Internal current consumption (from serial bus)	< 25 mA
		Power dissipation	3.5 W max. at 30 V DC with all inputs activated
		Unit identity	0210H
		Order code	DI210

DO210

Number of outputs	16 positive logic, short-circuit proof
Galvanic isolation	By means of optocouplers
Status indicators	16 yellow LEDs for output indication
ON-state output voltage	19 V DC min., 24 V DC nominal, 30 V DC max.
Output current per unit	7 A max.
ON-state current per output	1.0 mA min. 600 mA max.
Surge current	Limited to a value between 0.7 A and 1.5 A.
OFF-state voltage	5 V DC max. (if load resistance max. 10 k Ω), 30 V DC max. (if no load connected)
OFF-state leakage current	< 0.5 mA
ON-state voltage drop	< 0.15 V DC at 600 mA load current
Output signal delay	
OFF to ON	< 70 μ s
ON to OFF	< 350 μ s
External DC power	
Supply voltage	24 V DC nom. (19.2–30 V)
Supply current	4 mA + 5 mA per activated output + total load current
Internal current consumption (from serial bus)	< 70 mA
Power dissipation	5 W max. at 30 V DC with all outputs activated and 7 A total load current
Unit identity	0115H
Order code	DO210

DX210**General specifications:**

Galvanic isolation	By means of optocouplers
Status indicators	16 yellow LEDs for input/output indication
External DC Power	
Supply voltage	24 V DC nom. (19.2–30 V DC)
Supply current	2 mA + 5 mA per activated output + total load current
Internal current consumption (from serial bus)	< 40 mA
Power dissipation	3.5 W max. at 30 V DC with all inputs and outputs activated and total load current 3.6 A
Unit identity	0114H
Order code	DX210

Input specifications:

Number of inputs	10 positive logic
ON-state input voltage	15 V DC min., 24 V DC nominal, 30 V DC max.
ON-state input current	3.0 mA min. at 15 V DC, 5.2 mA nominal at 24 V DC, 6.8 mA max. at 30 V DC
OFF-state input voltage	< 6.0 V DC
OFF-state input current	< 1.6 mA

Input impedance	6.2 k Ω max.
Digital filter	Time constant set in software
Hardware filter	Second-order, low-pass filter, time constant 70 μ s, input pulse width 90 μ s min.
Output specifications:	
Number of outputs	6 positive logic, short-circuit proof
ON-state voltage	19 V DC min., 24 V DC nominal, 30 V DC max.
Output current per unit	3.6 A max.
ON-state current per output	1.0 mA min. 600 mA max.
Surge current	Limited to a value between 0.7 A and 1.5 A.
OFF-state voltage	5 V DC max. (if load resistance max. 10 k Ω), 30 V DC max. (if no load connected)
OFF-state leakage current	< 0.5 mA
ON-stage voltage drop	< 0.15 V DC at 600 mA load current
Output signal delay	
OFF to ON	< 70 μ s
ON to OFF	< 350 μ s

AI210

Number of inputs	8 single-ended
Galvanic isolation	Serial bus is isolated from inputs by optocouplers
Crosstalk between inputs	–70 dB
Status indicators	One green/red LED for Power/ Fault indication
Input current range	4–20 mA or 0–20 mA
Input resistance	205 Ω \pm 0.2%
Filter	Third-order, low-pass filter with time constant 14 ms
Resolution	12 bits
Non-linearity	< 0.05% according to ISA-RP55.1
Accuracy at 25 °C	\pm 0.3% at full scale
Drift with temperature	\pm 0.005% of full scale per °C
Repeatability	\pm 0.05% of full scale
Overload without damage	32 mA max. continuously, only one input at a time
External DC Power	
Supply voltage	24 V DC nom. (19.2–30 V)
Supply current	Approx. 40 mA at 24 V DC
Internal current consumption (from serial bus)	20 mA max.
Power dissipation	< 3 W at 30 V DC
Unit identity	1901H
Order code	AI210

AO210

Number of outputs	4 single-ended
Galvanic isolation	Serial bus is isolated from outputs by optocouplers
Status indicator	One green/red LED for power /fault indication
Output current range	4–20 mA or 0–20 mA
Output load resistance	0–550 Ω at 19.2 V power supply 0–850 Ω at 24 V power supply 0–1100 Ω at 30 V power supply
Filter	Third-order low-pass filter with time constant 14 ms
Resolution	11 bits
Non-linearity	< 0.1% according to ISA-RP55.1
Accuracy at 25 °C	$\pm 0.5\%$ of full scale
Drift with temperature	< $\pm 0.005\%$ of full scale per °C
External DC Power	
Supply voltage	24 V DC nom. (19.2–30 V DC)
Supply current	Approx. 100 mA at 24 V DC (not including outputs)
Internal current consumption (from serial bus)	20 mA max.
Power dissipation	< 3 W at 30 V DC
Unit identity	1100H
Order code	AO210

AX210**General specifications:**

Galvanic isolation	Serial bus is isolated from in/outputs by optocouplers
Crosstalk between inputs	–70 dB
Status indicator	One green/red LED for power/fault indication
External DC Power	
Supply voltage	24 V DC nom. (19.2–30 V DC)
Supply current	Approx. 60 mA at 24 V DC (not including outputs)
Internal current consumption (from serial bus)	20 mA max.
Power dissipation	< 3 W at 30 V DC
Unit identity	1500H
Order code	AX210

Input specifications:

Number of inputs	4 single-ended
Input current range	4–20 mA or 0–20 mA
Input resistance	205 $\Omega \pm 0.2\%$
Filter	Third-order, low-pass filter with time constant 14 ms
Resolution	12 bits
Non-linearity	< 0.05% according to ISA-RP55.1
Accuracy at 25 °C	$\pm 0.3\%$ of full scale
Drift with temperature	< $\pm 0.005\%$ of full scale per °C
Repeatability	$\pm 0.05\%$ of full scale

Overload without damage	32 mA max. continuously, only one input at a time
Output specifications:	
Number of outputs	2 single-ended
Output current range	4–20 mA or 0–20 mA
Output load resistance	0–550 Ω at 19.2 V power supply 0–850 Ω at 24 V power supply 0–1100 Ω at 30 V power supply
Filter	Third-order low-pass filter with time constant 14 ms
Resolution	11 bits
Non-linearity	< 0.1% according to ISA-RP55.1
Accuracy at 25 °C	$\pm 0.5\%$ of full scale
Drift with temperature	< $\pm 0.005\%$ of full scale per °C

Adapter 200-AIO

I/O capacity	8 S200 I/O or S200L I/O units (can be mixed)
Max. current from internal 5 V DC	0.64 A
Connectors	One 15-pole female high-density D-type connector One male serial I/O bus connector
Dimensions	H 87 x W 68 x D 69 mm
Weight	100 g excl. package 195 g incl. package
Order code	200-AIO

Cable TK210V005

Connectors	Two 15-pole female high-density D-type connectors
Length	0.5 m
Weight	130 g
Order code	TK210V005

Cable TK210V010

Connectors	Two 15-pole female high-density D-type connectors
Length	1.0 m
Weight	180 g
Order code	TK210V010

Cable TK210V025

Connectors	Two 15-pole female high-density D-type connectors
Length	2.5 m
Weight	320 g
Order code	TK210V025

Cable 200-CE1

Range of use	Extension cable used to split I/O units into two rows
Connectors	Two female I/O bus connectors
Length	0.3 m
Weight	63 g
Order code	200-CE1

Cable 200-CE3

Range of use	Extension cable used to split I/O units into two rows
Connectors	Two female I/O bus connectors
Length	0.9 m
Weight	93 g
Order code	200-CE3

Grounding Clamp Holder

Range of use	Holder used to support grounding clamps for shielded process cables to Advant Controller 210 and to S200L I/O units.
Dimensions	H 10 x W 92 x D 13 mm
Weight	30 g

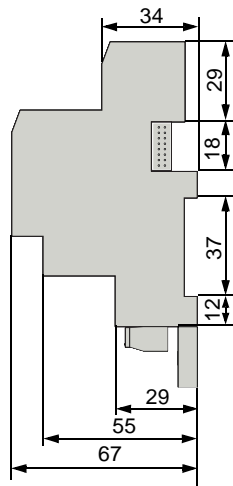
Test Unit 200-PTC

Number of simulated signals	16
Number of switches	16
Terminal blocks	8 + 8 + 2 poles
Cable length	150 mm
Power supply	24 DC nominal
Output signal voltage	24 V DC nominal
Dimensions	H 55 x W 84 x D 58 mm
Weight	180 g incl. cable
Order code	200-PTC

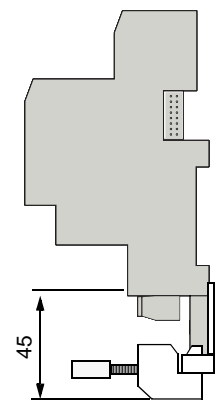
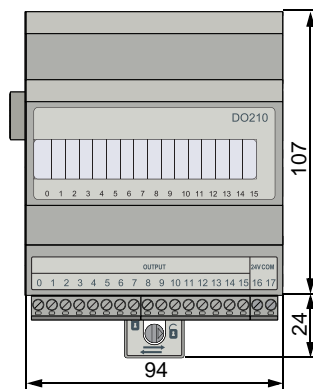
Test Unit 200-ATC

Number of simulated signals	8
Number of potentiometers	8
Terminal blocks	8 + 8 + 2 poles
Cable length	150 mm
Power supply	24 DC nominal
Output signal range	2.5–21.5 mA
Dimensions	H 55 x W 39 x D 56 mm
Weight	180 g incl. cable
Order code	200-ATC

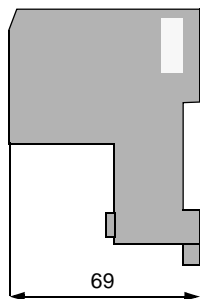
Dimensions



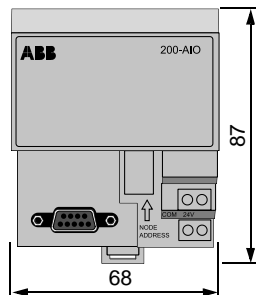
I/O-enhet S200L



I/O unit with grounding clamp and holder 200C-GCH



Adapter 200-AIO



All dimensions in mm



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