



General information	
Product type designation	SM 1221, DI 16x24 V DC
Supply voltage	
Rated value (DC)	24 V
permissible range, lower limit (DC)	20.4 V
permissible range, upper limit (DC)	28.8 V
Input current	
from backplane bus 5 V DC, max.	130 mA
Digital inputs	
• from load voltage L+ (without load), max.	4 mA; per channel
Output voltage	
Power supply to the transmitters	
• present	Yes
Power loss	
Power loss, typ.	2.5 W
Digital inputs	
Number of digital inputs	16
• in groups of	4
Input characteristic curve in accordance with IEC 61131, type 1	Yes
Number of simultaneously controllable inputs	
all mounting positions	
— up to 40 °C, max.	16
horizontal installation	
— up to 40 °C, max.	16
— up to 50 °C, max.	16
vertical installation	
— up to 40 °C, max.	16
Input voltage	
• Rated value (DC)	24 V
• for signal "0"	5 V DC at 1 mA
• for signal "1"	15 V DC at 2.5 mA
Input current	
• for signal "0", max. (permissible quiescent current)	1 mA
• for signal "1", min.	2.5 mA
• for signal "1", typ.	4 mA
Input delay (for rated value of input voltage)	
for standard inputs	
— parameterizable	Yes; 0.2 ms, 0.4 ms, 0.8 ms, 1.6 ms, 3.2 ms, 6.4 ms and 12.8 ms, selectable in groups of four
for interrupt inputs	
— Parameterizable	Yes
Cable length	
• shielded, max.	500 m
• unshielded, max.	300 m
Interrupts/diagnostics/status information	
Alarms	
• Diagnostic alarm	Yes

Diagnostics indication LED			
for status of the inputs	Yes		
Potential separation			
Potential separation digital inputs			
between the channels, in groups of	4		
Degree and class of protection			
IP degree of protection	IP20		
Standards, approvals, certificates			
CE mark	Yes		
CSA approval	Yes		
UL approval	Yes		
cULus	Yes		
FM approval	Yes		
RCM (formerly C-TICK)	Yes		
KC approval	Yes		
Marine approval	Yes		
Ecological footprint			
environmental product declaration	Yes		
Global warming potential			
— global warming potential, (total) [CO2 eq]	123 kg		
— global warming potential, (during production) [CO2 eq]	12.1 kg		
— global warming potential, (during operation) [CO2 eq]	111 kg		
— global warming potential, (after end of life cycle) [CO2 eq]	-0.434 kg		
Ambient conditions			
Free fall			
Fall height, max.	0.3 m; five times, in product package		
Ambient temperature during operation			
min.	-20 °C		
max.	60 °C		
permissible temperature change	5°C to 55°C, 3°C / minute		
Ambient temperature during storage/transportation			
min.	-40 °C		
max.	70 °C		
Air pressure acc. to IEC 60068-2-13			
Storage/transport, min.	660 hPa		
Storage/transport, max.	1 080 hPa		
Relative humidity			
Operation at 25 °C without condensation, max.	95 %		
Connection method			
required front connector	Yes		
Mechanics/material			
Enclosure material (front)			
plastic	Yes		
Dimensions			
Width	45 mm		
Height	100 mm		
Depth	75 mm		
Weights			
Weight, approx.	210 g		
Classifications			
		Version	Classification
	eClass	16	27-24-22-04
	eClass	14	27-24-22-04
	eClass	12	27-24-22-04
	eClass	9.1	27-24-22-04

eClass	9	27-24-22-04
eClass	8	27-24-22-04
eClass	7.1	27-24-22-04
eClass	6	27-24-22-04
ETIM	10	EC001419
ETIM	9	EC001419
ETIM	8	EC001419
ETIM	7	EC001419
IDEA	4	3566
UNSPSC	15	32-15-17-05

Approvals / Certificates

General Product Approval



[Miscellaneous](#)

[Manufacturer Declaration](#)



[Metrological Approval](#)

General Product Approval



[China RoHS](#)



General Product Approval

EMV

For use in hazardous locations



[FM](#)

[CCC-Ex](#)



For use in hazardous locations

Maritime application

[Type Examination Certificate](#)



[Miscellaneous](#)

[CCC-Ex](#)



Maritime application



[NK / Nippon Kaiji Kyokai](#)



[CCS \(China Classification Society\)](#)

Maritime application

Environment

[KR \(Korean Register of Shipping\)](#)



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