

Data sheet

SM 221 (221-1BF30)

Technical data

Type	Order no.	221-1BF30
Note - Features - 8x DI Code - V Current consumption/power loss - 25 mA - Power loss - 2 W - V Current consumption from backplane bus - 25 mA - Power loss - 2 W - V Current consumption from backplane bus - 2 W - V Current consumption from backplane bus - 2 W - V Current consumption from backplane bus - 2 W - V Current consumption from load voltage W Cable length, shielded - 1000 m - Cable length, unshielded - 600 m - Cable length, unshielded - 600 m - Cable length, unshielded - Current consumption from load voltage L+ (without load) - Rated value - DC 20.428.8 V - V Current consumption from load voltage L+ (without load) - C Current consumption from load voltage L+ (without load) - C Current consumption from load voltage L+ (without load) - C Current consumption from load voltage L+ (without load) - C Current consumption from load voltage L+ (without load) - C Current consumption from load voltage L+ (without load) - C Current consumption from load voltage L+ (without load) - C Current consumption from load voltage L+ (without load) - C Current consumption from load voltage L+ (without load) - C Current consumption from load voltage Current DC 205 V Current consumption load voltage Current C Current consumption C Current consumption C Current Current C Current Current	Туре	SM 221
Features 8x DI DC 24 V Current consumption/power loss Current consumption from backplane bus 25 mA Power loss 2 W Technical data digital inputs Number of inputs 8 Cable length, shielded 6000 m Rated load voltage Current consumption from load voltage L+ (without load) Rated value DC 20.428.8 V Input voltage for signal '0' DC 05 V Input voltage for signal '1' DC 1528.8 V Input voltage for signal '1' DC 1528.8 V Input voltage hysteresis - Signal logic input Frequency range Input current for signal '1' TAMA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of '0' to '1' 3 ms Input delay of '1' to '0' 3 ms Number of simultaneously utilizable inputs horizontal configuration 8 Input characteristic curve IEC 61131-2. type 1 Initial data size 1 byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic information read-out none Diagnostic information read-out none Diagnostic information read-out none Channel error display none	General information	
Current consumption/power loss Current consumption from backplane bus 25 mA Power loss 2 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, shielded 600 m Rated load voltage Current consumption from load voltage L+ (without load) Rated value DC 20.428.8 V Input voltage for signal '0' DC 05 V Input voltage for signal '1' DC 1528.8 V Input characteristic curve Input September Sep	Note	-
Current consumption from backplane bus 2 W Technical data digital inputs Number of inputs 8 Sacable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage Current consumption from load voltage L+ (without load) Rated value DC 20.428.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" TO 1528.8 V Input voltage for signal "1" TO 1528.8 V Input voltage for signal "1" TO 1528.8 V Input voltage hysteresis Signal logic input Sinking input Frequency range Input create for signal "1" TO MA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "1" to "0" 3 ms Input characteristic curve IEC 61131-2, type 1 Initial data size 1 byte Status display green LED per channel Interrupts no Process alarm no Dagnostic interrupt no Diagnostic interrupt no Diagnostic interrupt no Diagnostic interrupt none Group error display none Channel error display none	Features	
Power loss 2 W Technical data digital inputs Number of inputs 8 Cable length, shielded 1000 m Cable length, unshielded 600 m Rated load voltage Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" TO 1528.8 V Input delay of "0" to signal signa	Current consumption/power loss	
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Number of Inputs Able length, shielded Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value Input voltage for signal "0" Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Signal logic input Frequency range - Input resistance - Input resistance - Input rement for signal "1" Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" Input delay of "0" to "1" Number of simultaneously utilizable inputs horizontal configuration Rumber of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Rumber of simultaneously utilizable inputs horizontal Rumber of simultaneously utilizable inputs horizontal Rumber of simultaneously utilizable inputs hori	Power loss	2 W
Cable length, shielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Signal logic input Sinking input Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 1 byte Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic interrupt no Diagnostic functions Diagnostic information read-out none Supply voltage display none Group error display none	Technical data digital inputs	
Cable length, unshielded 600 m Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Signal logic input Sinking input Frequency range - Input resistance - Input current for signal "4" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Input delay of "1" to "0" 3 ms Input characteristic curve IEC 61131-2, type 1 Initial data size 1 byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic functions none Supply voltage display none Group error display none	Number of inputs	8
Rated load voltage - Current consumption from load voltage L+ (without load) - Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage fysteresis - Signal logic input Sinking input Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Input delay of "1" to "0" 3 ms Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status display great LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic functions none Supply voltage display none Channel error display none	Cable length, shielded	1000 m
Current consumption from load voltage L+ (without load) Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage for signal "1" DC 1528.8 V Input voltage physteresis - Signal logic input Sinking input Frequency range - Input resistance Input rerisitance Input rerisitance Input rerisitance Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible Wes Max. permissible BERO quiescent current Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 byte Status information, alarms, diagnostics Status display Green LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic interrupt no Diagnostic information read-out none Supply voltage display none Group error display none Channel error display none	Cable length, unshielded	600 m
Rated value DC 20.428.8 V Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Signal logic input Sinking input Frequency range - Input resistance - Input resistance - Input resistance - Input connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal 8 configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic interrupt no Diagnostic interrupt no Diagnostic information read-out none Supply voltage display none Group error display none	Rated load voltage	-
Input voltage for signal "0" DC 05 V Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Signal logic input Sinking input Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Rumber of simultaneously utilizable inputs vertical configuration Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic functions no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Channel error display none	Current consumption from load voltage L+ (without load)	-
Input voltage for signal "1" DC 1528.8 V Input voltage hysteresis - Signal logic input Sinking input Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 1 byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic information read-out none Supply voltage display none Group error display none Channel error display none	Rated value	DC 20.428.8 V
Input voltage hysteresis - Signal logic input Sinking input Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Diagnostic interrupt no Diagnostic interrupt no Diagnostic information read-out none Supply voltage display none Group error display none Channel error display none	Input voltage for signal "0"	DC 05 V
Signal logic input Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Residual size 1 byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions none Group error display none Channel error display none Channel error display none	Input voltage for signal "1"	DC 1528.8 V
Frequency range - Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 1 byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostic functions no Diagnostic functions no Diagnostics information read-out none Group error display none Channel error display none	Input voltage hysteresis	-
Input resistance - Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Channel error display none	Signal logic input	Sinking input
Input current for signal "1" 7 mA Connection of Two-Wire-BEROs possible yes Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none	Frequency range	-
Connection of Two-Wire-BEROs possible Max. permissible BERO quiescent current 1.5 mA Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Rumber of simultaneously utilizable inputs vertical configuration Rumber of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Channel error display none	Input resistance	-
Max. permissible BERO quiescent current Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Channel error display none	Input current for signal "1"	7 mA
Input delay of "0" to "1" 3 ms Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none	Connection of Two-Wire-BEROs possible	yes
Input delay of "1" to "0" 3 ms Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration 8 Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Max. permissible BERO quiescent current	1.5 mA
Number of simultaneously utilizable inputs horizontal configuration Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out supply voltage display Group error display none Channel error display none	Input delay of "0" to "1"	3 ms
Number of simultaneously utilizable inputs vertical configuration Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out Supply voltage display none Group error display Channel error display none	Input delay of "1" to "0"	3 ms
Input characteristic curve IEC 61131-2, type 1 Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out supply voltage display Group error display Channel error display none		8
Initial data size 1 Byte Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Number of simultaneously utilizable inputs vertical configuration	8
Status information, alarms, diagnostics Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Input characteristic curve	IEC 61131-2, type 1
Status display green LED per channel Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Initial data size	1 Byte
Interrupts no Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Status information, alarms, diagnostics	
Process alarm no Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Status display	green LED per channel
Diagnostic interrupt no Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Interrupts	no
Diagnostic functions no Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Process alarm	no
Diagnostics information read-out none Supply voltage display none Group error display none Channel error display none	Diagnostic interrupt	no
Supply voltage display none Group error display none Channel error display none	Diagnostic functions	no
Group error display none Channel error display none	Diagnostics information read-out	none
Channel error display none	Supply voltage display	none
	Group error display	none
Isolation	Channel error display	none
	Isolation	



Between channels	
Between channels of groups to	8
Between channels and backplane bus	yes
Insulation tested with	DC 500 V
Datasizes	
Input bytes	1
Output bytes	0
Parameter bytes	0
Diagnostic bytes	0
Housing	
Material	PPE / PA 6.6
Mounting	Profile rail 35 mm
Mechanical data	
Dimensions (WxHxD)	25.4 mm x 76 mm x 88 mm
Net weight	90 g
Weight including accessories	-
Gross weight	-
Environmental conditions	
Operating temperature	0 °C to 60 °C
Storage temperature	-25 °C to 70 °C
Certifications	
UL certification	yes
KC certification	-