

The tables below describe the main characteristics which are respected by all MAS 85x modules.

Characteristics	Requirements	Respected values
Environment conditions		
Environment temperature Tu	Class T3	-25 °C ... +70 °C
Oscillation and shock	Mounting in frames or boxes on the vehicle or fixed at the under frame	Value table from 0,3 kg ... 30 kg
Relative humidity of the air	Annual average value At 30 days per year	<= 75 % 95 %
Operating conditions		
Nominal voltages Modules with designation T	$U_N = 24/36$ Vdc	Minimum voltage: $0,7 U_N$ Rating voltage: $1,15 U_N$ Maximum voltage $1,25 U_N$
Voltage interruption	Class S2	At interruptions of up to 10 ms no functional failure
Connecting interchange	Power and signal voltage	Divers protection circuits
Galvanic separation	All units ¹⁾	Tested at minimum 500Vdc
Reliability		
Duration of use	If no other arrangements	20 years
Service intervals	Module with Li battery	5 years
MTBF calculations	According agreement with customer	
Quality management	Visible, transparent and audit able development process	EN ISO 9001
Connecting technique		
Communication	RS232, CAN Ethernet Modem/Mouse	9 pole D-sub RJ 45 6 pole Mini-DIN
EMC		
Standard	Limits	Criteria
EN 55011 / wire connected	79/73 dB(µV) QP	Industry, A
EN 55011 / field application	50/57 dB(µV/m)	Industry A
Burst according EN 61000-4-4	2 kV	A
Surge according EN 61000-4-5	1 kV / 2 kV	B
HF on connectors ENV 50141		A
HF field (AM) EN 61000-4-3	20 V/m rms, 1 kHz, 80% AM	A
HF field (PM) ENV 50204	20 V/m rms, 50% PM	A
ESD according EN 61000-4-2	6 kV contact, 8 kV air	A

¹⁾ Exceptions are detailed documented in the technical data.

Refer to the Hardware System Manual, publication no. 43930129, for more information about the standards.

The tables below describe the main characteristics which are respected by all MAS 73x modules.

Characteristics	Requirements	Respected values
Environment conditions		
Environment temperature Tu	Class Tx	-40 °C ... +70 °C
Oscillation and shock	Mounting in frames or boxes on the vehicle or fixed at the under frame	Value table from 0,3 kg ... 30 kg
Relative humidity of the air	Annual average value At 30 days per year	<= 75 % 95 %
Operating conditions		
Nominal voltages Modules with designation TG Modules with designation TV	$U_N = 24/36$ Vdc $U_N = 72/110$ Vdc	Minimum voltage: $0,7 U_N$ Rating voltage: $1,15 U_N$ Maximum voltage $1,25 U_N$
Voltage interruption	Class S2	At interruptions of up to 10 ms no functional failure
Connecting interchange	Power and signal voltage	Divers protection circuits
Galvanic separation	All units ¹⁾	Tested at minimum 500Vdc
Reliability		
Duration of use	If no other arrangements	20 years
Service intervals	Module with LI battery	5 years
MTBF calculations	According agreement with customer	
Quality management	Visible, transparent and audit able development process	EN ISO 9001
Connecting technique		
Communication	RS232, CAN	9 pole D-sub
EMC		
Standard	Limits	Criteria
EN 55011 / wire connected	79/73 dB(μV) QP	Industry, A
EN 55011 / field application	50/57 dB(μV/m)	Industry A
Burst according EN 61000-4-4	2 kV	A
Surge according EN 61000-4-5	1,8 kV	B
HF on connectors ENV 50141		A
HF field (AM) EN 61000-4-3	20 V/m rms, 1 kHz, 80% AM	A
HF field (PM) ENV 50204	20 V/m rms, 50% PM	A
ESD according EN 61000-4-2	6 kV contact, 8 kV air	A

¹⁾ Exceptions are detailed documented in the technical data.

Refer to the Hardware System Manual, publication no. 43930129, for more information about the standards.

The tables below describe the main characteristics which are respected by all MAS 72x modules.

Characteristics	Requirements	Respected values
Environment conditions		
Environment temperature Tu	Class T3	-25 °C ... +70 °C
Oscillation and shock	Mounting in frames or boxes on the vehicle or fixed at the under frame	Value table from 0,3 kg ... 30 kg
Relative humidity of the air	Annual average value At 30 days per year	<= 75 % 95 %
Operating conditions		
Nominal voltages Modules with designation T Modules with designation TH	$U_N = 24$ Vdc $U_N = 36$ Vdc	Minimum voltage: $0,7 U_N$ Rating voltage: $1,15 U_N$ Maximum voltage $1,25 U_N$
Voltage interruption	Class S2	At interruptions of up to 10 ms no functional failure
Connecting interchange	Power and signal voltage	Divers protection circuits
Galvanic separation	All units ¹⁾	Tested at minimum 500Vdc
Reliability		
Duration of use	If no other arrangements	20 years
Service intervals	Module with LI battery	5 years
MTBF calculations	According agreement with customer	
Quality management	Visible, transparent and audit able development process	EN ISO 9001
Connecting technique		
Communication	RS232, CAN	Spring force terminals
Interfaces to process	Digital and analogue in- and outputs	Spring force terminals
EMC		
Standard	Limits	Criteria
EN 55011 / wire connected	79/73 dB(μV)	Industry, A
EN 55011 / field application	40/47 dB(μV)	Industry A
Burst according EN 61000-4-4	2 kV	A
Surge according EN 61000-4-5	1 kV / 2 kV	B
HF on connectors ENV 50141		A
HF field	10 V/m	A
ENC 50140	20 V/m	A
ESD according EN 61000-4-2	6 kV contact, 8 kV air	B

¹⁾ Exceptions are detailed documented in the technical data.

Refer to the Hardware System Manual, publication no. 43930129, for more information about the standards.