

# Template:FMM650 Electrical characteristics

## Electrical characteristics

Characteristic description	Value		
	Min.	Typ.	Max. Unit
Supply Voltage:			
Supply Voltage (Recommended Operating Conditions)	+8		+32 V
Digital Output (Open Drain grade):			
Drain current (Digital Output OFF)			120 $\mu$ A
Drain current (Digital Output ON, Recommended Operating Conditions)			0.5 A
Static Drain-Source resistance (Digital Output ON)	400	300	m $\Omega$
Digital Input:			
Input resistance (DIN1)	15		k $\Omega$
Input resistance (DIN2)	15		k $\Omega$
Input resistance (DIN3)	15		k $\Omega$
Input voltage (Recommended Operating Conditions)	0		Supply voltage V
Input Voltage threshold (DIN1)	7.5		V
Input Voltage threshold (DIN2, DIN3, DIN4)	2.5		V
Analog Input:			
Input voltage (Recommended Operating Conditions), Range 1	0		+10 V
Input resistance, Range 1	120		k $\Omega$
Input voltage (Recommended Operating Conditions), Range 2	0		+30 V
Input resistance, Range 2	147		k $\Omega$
Output Supply Voltage 1-Wire:			
Supply voltage	+3.3		+3.9 V
Output inner resistance	7		$\Omega$
Output current ( $U_{out} > 3.0$ V)	30		mA
Short circuit current ( $U_{out} = 0$ )	75		mA
CAN Interface:			

Internal terminal resistors CAN bus		120/6 0		Ω
Differential input resistance	19	30	52	kΩ
Recessive output voltage	2	2.5	3	V
Differential input resistance	0.5	0.7	0.9	V
Common mode input voltage	-30		30	V
Power supply current (Hardware version with internal battery):				
Deep Sleep, average, I <sub>cc.ds</sub>		2.5	4	mA
Sleep, average, I <sub>cc.ds</sub> , V <sub>cc</sub> =10V		45		mA
Sleep, average, I <sub>cc.ds</sub> , V <sub>cc</sub> =30V		25		mA
U <sub>cc</sub> =12.6V, all modules fully working, internal battery is charging, I <sub>cc1</sub>			350	mA
U <sub>cc</sub> =12.6V, all modules fully working, internal battery is charging, I <sub>cc2</sub>			300	mA
U <sub>cc</sub> =25.2V, all modules fully working, internal battery is charging, I <sub>cc3</sub>			195	mA
U <sub>cc</sub> =25.2V, all modules fully working, internal battery is charging, I <sub>cc4</sub>			140	mA
RS232/RS485 Input Voltage:				
RS232 input voltage range (common-mode voltage)	-15		+15	V
RS485 input voltage range on A or B pin (common-mode voltage)	-7		+12	V

✘ **Analog Input error margin can increase if temperature varies.**

## Absolute maximum ratings

Characteristic description	Value		
	Min.	Typ.	Max. Unit
Supply Voltage (Absolute Maximum Ratings)	-32		+32 V
Drain-Source clamp threshold voltage (Absolute Maximum Ratings), (I <sub>drain</sub> = 2 mA)			+36 V
Digital Input Voltage (Absolute Maximum Ratings)	-32		+32 V
Analog Input Voltage (Absolute Maximum Ratings)	-32		+32 V
RS232 Input Voltage (Absolute Maximum Ratings)	-25		+25 V