















Comparison table of telemetry and location modules, expanders and converters

MODULE	MT-020 Telemetry Module	MT-021 Telemetry Module	MT-051 Telemetry Module	MT-100 Telemetry Module	MT-101 Telemetry Module	MT-102 Telemetry Module	MT-151 LED v2 Telemetry Module
FEATURES							
I/O Resources							
Binary inputs	0 – 4 ¹⁾	0 – 4 ¹⁾	5	8 – 16 ¹⁾	8 – 16 ¹⁾	0 – 8 ¹⁾	16 – 28 ¹⁾
Binary outputs	2	4	-	0 – 8 ¹⁾	0 – 8 ¹⁾	0 – 8 ¹⁾	0 – 12 ¹⁾
Counter inputs	0 – 4 ^{1,4)}	0 – 4 ^{1,4)}	5	8 – 16 ^{1,2)}	8 – 16 ^{1,2)}	0 – 8 ^{1,2)}	0 – 4 ¹⁾
Analog inputs	2	2	-	2	2	6	6
1-wire input	2	2	1 ⁸⁾	-	-	-	-
Real Time Clock (RTC)	YES	YES	YES	YES	YES	YES	YES
Ethernet Port	-	-	-	-	-	-	YES
Serial port RS232/422/485	-	-	-	1(1/0/0/0)	2(2/1/1/0)	2(2/1/1/0)	2(1/0/1/1) ⁸⁾
Voice channel	-	-	-	-	-	-	-
Functionality							
Local configuration via RS232/USB/ETH	-/+/-	-/+/-	-/+/-	+/-/-	+/-/-	+/-/-	-/+/+
Remote configuration over GPRS	YES	YES	YES ⁹⁾	YES	YES	YES	YES
Unsolicited messaging	YES	YES	YES	YES	YES	YES	YES
Data packet sending	YES	YES ¹⁰⁾	YES	YES	YES	YES	YES
SMS sending	YES	YES	YES	YES	YES	YES	YES
User programming (lines of code limit)	-	-	-	100	1024	1024	5000
Standard serial protocols	-	-	-	-	YES ⁵⁾	YES ⁵⁾	YES ⁵⁾
Data packet routing	-	-	-	-	YES	YES	YES
Manual alarm setting for analog inputs	-	-	-	-	YES	YES ⁷⁾	-
Number of analog input alarm levels	4	4	4	4	6	4/6	4
Remote read/write with SMS	YES	YES	YES ¹⁶⁾	YES	YES	YES	YES
Access control ⁶⁾	YES	YES	YES	YES	YES	YES	YES
Local mirroring of external resources	-	-	-	-	YES	YES	YES
Datalogger	YES ¹⁸⁾	YES ¹⁸⁾	YES	YES	YES	YES	YES
MT-DP compatibility (OPC, CSV, ODBC)	YES	YES ¹⁰⁾	YES	YES	YES	YES	YES
Remote firmware upgrade over GPRS	YES	YES ¹⁰⁾	YES	YES	YES	YES	YES
Other							
Integral GSM/GPRS modem	YES	YES	YES	YES	YES	YES	YES
SIM cards	SIM/MIM ⁸⁾	SIM	SIM/μSIM/ MIM ⁸⁾	SIM	SIM	SIM	2xSIM/MIM ⁸⁾
3G network support	YES ⁸⁾	-	-	-	-	-	YES ⁸⁾
Integral GPS receiver	-	-	-	-	-	-	-
Integrated sensor T/H/P	P ⁸⁾	-	T	-	-	-	T
DC power supply (V)/solar panel (PV)	9 – 30	9 – 30	-	9 – 30	10,8 – 36	10,8 – 36	10,8 – 30
AC power supply (Vrms)	12 – 18	-	-	-	18 – 26,4	18 – 26,4	-
Power supply for external sensors (V)	12/20	-	-	-	-	-	-
Power supply monitoring input	YES/-	YES/-	YES/-	YES/-	YES/-	YES/-	YES/-
Rechargeable battery int./ext.	ext.	-	-	-	-	-	ext.
Internal battery supply	-	-	3/6/9xR20	-	-	-	-
Low power operation modes	-	-	YES	-	-	-	-
External antenna connector/ISM	YES	YES	YES	YES	YES	YES	YES
Protection class	IP40	IP40	IP67	IP40	IP40	IP40	IP40
Operating temperature range (°C)	-20...+55	-20...+55	-20...+60	-20...+65	-20...+65	-20...+65	-20...+65
Removable terminal blocks	YES	YES	YES	YES	YES	YES	YES
DIN rail mounting	YES	YES	-	YES	YES	YES	YES
Warranty	3 years	3 years	3 years	3 years	3 years	3 years	3 years
Built-in device	-	-	-	-	-	-	-

1) number of binary inputs/outputs and counter inputs is configurable
 2) fmax = 100Hz
 3) fmax = 250Hz
 4) fmax = 1kHz

5) Modbus RTU Master/Slave, transparent mode, other...
 6) password + internal list of authorized IP and telephone numbers
 7) for 2 inputs
 8) option

9) requires MTSpooler
 10) in new version since Q3 2012
 11) if connected to MT-101/102/202
 12) RS-232 to M-Bus converter
 13) external battery pack required








MODULE	MT-151 HMI v2 Telemetry Module	MT-156 HMI Telemetry Module	MT-202 Telemetry Module	MT-251 Telemetry Module	MT-331 Telemetry Module	MT-512 Telemetry Module	MT-651 Telemetry Module
FEATURES							
I/O Resources							
Binary inputs	16 – 28 ¹⁾	0 – 12 ¹⁾	-	0 – 2	0 – 8 ¹⁾	8	2
Binary outputs	0 – 12 ¹⁾	0 – 12 ¹⁾	-	1	0 – 4 ¹⁾	2	2 ²²⁾
Counter inputs	0 – 4 ¹⁾	-	-	-	0 – 6 ¹⁾	8	-
Analog inputs	6	10	-	-	0 – 2 ¹⁾	-	6 ²³⁾
1-wire input	-	1	-	-	1	-	-
Real Time Clock (RTC)	YES	YES	YES	YES	YES	YES	YES
Ethernet Port	YES	YES	-	YES	-	-	-
Serial port RS232/422/485	2(1/0/1/1) ⁸⁾	3(2/0/1/0/1 ²⁵⁾)	2(2/1/1/0)	2(1/0/1/0)	-	1(1/0/1 ⁸⁾ /0)	1(0/0/1/0)
Voice channel	-	-	-	-	-	YES	-
Functionality							
Local configuration via RS232/USB/ETH	-/+/+	-/+/+	+/-/-	-/+/+	-/+/-	-/+/-	-/+/-
Remote configuration over GPRS	YES	YES	YES	YES	YES	YES	YES
Unsolicited messaging	YES	YES	YES	YES	YES	YES	YES
Data packet sending	YES	YES	YES	YES	YES	YES	YES
SMS sending	YES	YES	YES	YES	YES	YES	YES
User programming (lines of code limit)	5000	5000	1024	5000	-	-	-
Standard serial protocols	YES ⁵⁾	YES ⁵⁾	YES ⁵⁾	YES ⁵⁾	-	YES ⁸⁾	YES ⁵⁾
Data packet routing	YES	YES	YES	YES	-	-	-
Manual alarm setting for analog inputs	-	-	-	-	-	-	YES
Number of analog input alarm levels	4	4	-	-	4	-	6
Remote read/write with SMS	YES	YES	YES	YES	YES ¹⁶⁾	YES	YES
Access control ⁶⁾	YES	YES	YES	YES	YES	YES	YES
Local mirroring of external resources	YES	YES	YES	YES	-	YES	-
Datalogger	YES	YES	YES	YES	YES	YES ⁸⁾	YES
MT-DP compatibility (OPC, CSV, ODBC)	YES	YES	YES	YES	YES	YES	YES
Remote firmware upgrade over GPRS	YES	YES	YES	YES	YES	YES	YES
Other							
Integral GSM/GPRS modem	YES	YES	YES	YES	YES	YES	YES
SIM cards	2xSIM/MIM ⁸⁾	2xSIM/MIM ⁸⁾	SIM	SIM/MIM ⁸⁾	SIM/MIM ⁸⁾	SIM	2xSIM
3G network support	YES ⁸⁾	YES ⁸⁾	-	YES	YES ⁸⁾	-	YES
Integral GPS receiver	-	-	-	-	-	-	YES
Integrated sensor T/H/P	T	T	-	-	T/H ⁸⁾ /P ⁸⁾	-	T
DC power supply (V)/solar panel (PV)	10,8 – 30	10,8 – 30	10,8 – 36	18 – 55	9 – 30/PV	9 – 30	7 – 30
AC power supply (Vrms)	-	-	18 – 26,4	-	-	-	-
Power supply for external sensors (V)	-	-	-	-	7 – 24	-	-
Power supply monitoring input	YES/-	YES/-	YES/-	YES/-	YES/-	YES/-	-
Rechargeable battery int./ext.	ext.	ext.	-	ext.	int.	-	-
Internal battery supply	-	-	-	-	-	-	YES
Low power operation modes	-	-	-	-	YES	-	YES
External antenna connector/ISM	YES	YES	YES	YES	YES	YES	YES
Protection class	IP40	IP40	IP40	IP40	IP40	IP40	IP65
Operating temperature range (°C)	-20...+65	-20...+65	-20...+65	-20...+60	0...+55 ¹⁹⁾	-20...+55	-20...+55
Removable terminal blocks	YES	YES	YES	YES	YES	YES	YES
DIN rail mounting	YES	YES	YES	YES	YES	YES	YES ⁸⁾
Warranty	3 years	3 years	3 years	3 years	3 years ¹⁷⁾	3 years	3 years
Built-in device	display	display	-	-	-	-	-

14) one dedicated input for pressure measurement
 15) voltage measurement, peak detector, differential measurement
 16) module is not receiving SMS asleep
 17) battery 1 year

18) device status recorder
 19) or -20...+55°C - depending on the version of the internal battery
 20) Li-Ion
 21) GSM i GPS

22) Output 1 for control external bistable relay
 23) 2 optoisolated groups of analog inputs: 2x10/100 V and 200 mV input with 1 μV resolution
 24) dedicated cable needed
 25) M-BUS








Comparison table of telemetry and location modules, expanders and converters

	MODULE	MT-652 Telemetry Module	MT-713 v.2 Telemetry Module	MT-723 Telemetry Module	MT-723 PT Telemetry Module	ML-231 Location Module	ML-941 Location Module	EX-101 Expander
FEATURES								
I/O Resources							NEWEST	
Binary inputs		2	5	6	6	5	–	8 – 16 ¹⁾
Binary outputs		2	2	2	2	2	1	0 – 8 ¹⁾
Counter inputs		–	5 ³⁾	5 ³⁾	5 ³⁾	2 ^{1,2)}	–	8 – 16 ^{1,2)}
Analog inputs		6 ²³⁾	3	3	3 ¹⁴⁾	2 ¹⁵⁾	–	2
1-wire input		–	–	–	–	YES	–	–
Real Time Clock (RTC)		YES	YES	YES	YES	YES	YES	–
Ethernet Port		–	–	–	–	–	–	–
Serial port RS232/422/485		1(0/0/1/0)	1(0/0/1/0)	–	–	1(0/0/0/1) ⁸⁾	1(0/0/0/1) ⁸⁾	2(2/1/1/0)
Voice channel		–	–	–	–	YES ⁸⁾	–	–
Functionality							NEWEST	
Local configuration via RS232/USB/ETH		-/+/-	-/+/-	-/+/-	-/+/-	-/+ ²⁴⁾ /-	-/-/-	+/-/-
Remote configuration over GPRS		YES	YES ⁹⁾	YES ⁹⁾	YES ⁹⁾	YES	YES ⁹⁾	–
Unsolicited messaging		YES	YES	YES	YES	YES	YES	YES
Data packet sending		YES	YES	YES	YES	YES	YES	YES
SMS sending		YES	YES	YES	YES	YES	YES	–
User programming (lines of code limit)		–	–	–	–	–	–	1000
Standard serial protocols		YES ⁵⁾	YES ⁸⁾	–	–	YES	YES ⁸⁾	YES ¹¹⁾
Data packet routing		–	–	–	–	–	–	–
Manual alarm setting for analog inputs		YES	–	–	–	–	–	YES
Number of analog input alarm levels		6	4	4	4	4	–	6
Remote read/write with SMS		YES	YES ¹⁶⁾	YES ¹⁶⁾	YES ¹⁶⁾	YES	YES ¹⁶⁾	–
Access control ⁶⁾		YES	YES	YES	YES	YES	YES	YES
Local mirroring of external resources		–	YES	–	–	–	–	–
Datalogger		YES	YES	YES	YES	YES	YES	YES
MT-DP compatibility (OPC, CSV, ODBC)		YES	YES	YES	YES	YES	YES	YES
Remote firmware upgrade over GPRS		YES	YES	YES	YES	YES	YES	–
Other							NEWEST	
Integral GSM/GPRS modem		YES	YES	YES	YES	YES	YES	–
SIM cards		2xSIM	SIM/MIM ⁸⁾	SIM	SIM	SIM/MIM ⁸⁾	SIM	–
3G network support		YES	–	–	–	–	–	–
Integral GPS receiver		YES	YES ⁸⁾	YES ⁸⁾	YES ⁸⁾	YES	YES	–
Integrated sensor T/H/P		T	T	T	T	T	T	–
DC power supply (V)/solar panel (PV)		7 – 30	9 – 30 ⁸⁾	7 – 30	7 – 30	9 – 30	2 – 5	10,8 – 36
AC power supply (Vrms)		–	–	–	–	–	–	18 – 26,4
Power supply for external sensors (V)		–	0–5/15 ⁸⁾ /24 ⁸⁾	0 – 5	0 – 5	–	–	–
Power supply monitoring input		–	YES/–	YES/YES	YES/YES	YES/–	YES/YES	YES/–
Rechargeable battery int./ext.		int. ²⁰⁾	–	–	–	ext.	–	–
Internal battery supply		–	3/6xR20	1xR14 ¹³⁾	1xR14 ¹³⁾	–	YES ⁸⁾	–
Low power operation modes		YES	YES	YES	YES	YES	YES	–
External antenna connector/ISM		YES ²¹⁾	YES	YES	YES	YES	–	–
Protection class		IP65	IP67	IP68	IP68	IP40	IP54	IP40
Operating temperature range (°C)		-20...+55	-20...+55	-20...+60	-20...+60	-20...+55	-20...+55	-20...+65
Removable terminal blocks		YES	YES	–	–	–	–	YES
DIN rail mounting		YES ⁸⁾	–	–	–	–	–	YES
Warranty		3 years	3 years	3 years	3 years	3 years	3 years ⁸⁾	3 years
Built-in device		–	–	–	–	accelerometer	accelerometer	–

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 2) fmax = 100Hz
 3) fmax = 250Hz
 4) fmax = 1kHz

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 6) password + internal list of authorized IP and telephone numbers
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	MODULE	RM-120 RS232/M-Bus Converter	MT-UPS-1 Telemetry Module	IOT-RT-01 IOT Sensor	IOT-RTH-01 IOT Sensor	IOT-RG-01 IOT Gateway	IOT-RG-02 IOT Gateway	IOT-TST-01 IOT Tester
FEATURES								
I/O Resources								
Binary inputs		–	–	–	–	–	–	–
Binary outputs		–	–	–	–	–	–	–
Counter inputs		–	–	–	–	–	–	–
Analog inputs		–	–	–	–	–	–	–
1-wire input		–	–	–	–	–	–	–
Real Time Clock (RTC)		–	–	YES	YES	–	–	YES
Ethernet Port		–	–	–	–	–	–	–
Serial port RS232/422/485		1 ¹²⁾	–	–	–	1(1/0/0/0)	1(0/0/1/0)	–
Voice channel		–	–	–	–	–	–	–
Functionality								
Local configuration via RS232/USB/ETH		-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-	-/-/-
Remote configuration over GPRS		–	–	–	–	–	–	–
Unsolicited messaging		–	–	–	–	–	–	–
Data packet sending		–	–	–	–	–	–	–
SMS sending		–	–	–	–	–	–	–
User programming (lines of code limit)		–	–	–	–	–	–	–
Standard serial protocols		–	–	–	–	–	–	–
Data packet routing		–	–	–	–	–	–	–
Manual alarm setting for analog inputs		–	–	–	–	–	–	–
Number of analog input alarm levels		–	–	–	–	–	–	–
Remote read/write with SMS		–	–	–	–	–	–	–
Access control ⁶⁾		–	–	–	–	–	–	–
Local mirroring of external resources		–	–	–	–	–	–	–
Datalogger		–	–	–	–	–	–	–
MT-DP compatibility (OPC, CSV, ODBC)		–	–	–	–	–	–	–
Remote firmware upgrade over GPRS		–	–	–	–	–	–	–
Other								
Integral GSM/GPRS modem		–	–	–	–	–	–	–
SIM cards		–	–	–	–	–	–	–
3G network support		–	–	–	–	–	–	–
Integral GPS receiver		–	–	–	–	–	–	–
Integrated sensor T/H/P		–	–	T	T/H	–	–	–
DC power supply (V)/solar panel (PV)		21,6 – 42	21,6 – 42/PV	–	–	5 – 30	5 – 30	–
AC power supply (Vrms)		–	–	–	–	–	–	–
Power supply for external sensors (V)		–	–	–	–	–	–	–
Power supply monitoring input		–	–	–	–	–	–	–
Rechargeable battery int./ext.		–	ext.	–	–	–	–	int. ²⁰⁾
Internal battery supply		–	–	YES	YES	–	–	–
Low power operation modes		–	YES	YES	YES	–	–	–
External antenna connector/ISM		–	–	–	–	YES	YES	–
Protection class		IP40	IP40	IP30	IP30	IP40	IP40	IP30
Operating temperature range (°C)		-20...+55	-20...+55	-20...+60	-20...+60	-20...+60	-20...+60	-20...+60
Removable terminal blocks		YES	YES	–	–	–	–	–
DIN rail mounting		YES	YES	–	–	–	–	–
Warranty		2 years	3 years	3 years	3 years	3 years	3 years	3 years
Built-in device		–	–	–	–	–	–	–

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