

DIN EN 13757-2:2024-12 (E)

Communication systems for meters - Part 2: Wired M-Bus communication (includes Amendment A1:2023)

Contents		Page
European foreword		5
Introduction		7
1	Scope	8
2	Normative references	8
3	Terms, definitions and abbreviations"	8
3.1	!Terms and definitions"	8
3.2	!Abbreviations"	9
4	Physical layer specifications	9
4.1	General	9
4.2	Electrical requirements slave	10
4.2.1	Master to slave bus voltages	10
4.2.2	Slave bus current and multiple unit loads	11
4.2.3	Dynamic requirements	12
4.3	Electrical requirements master	12
4.3.1	Parameters	12
4.3.2	Function types	13
4.3.3	Requirements	13
4.4	Electrical requirements mini-master	15
4.4.1	Definition of a mini-master	15
4.4.2	Requirements	15
4.5	Repeaters	15
4.5.1	General requirements	15
4.5.2	Additional requirements	16
4.6	Burst and surge requirements	16
4.6.1	General	16
4.6.2	Requirements for devices intended for domestic use	16
4.6.3	Requirements for devices intended for industrial use	16
5	Link Layer (master and slave)	16
5.1	General	16
5.2	Baud rate	16
5.2.1	Required baud rate	16
5.2.2	Recommended additional baud rates	16
5.2.3	Special baud rates	17
5.2.4	Baud rate after reset	17
5.2.5	Baud rate set	17
5.2.6	Auto speed mode	17
5.2.7	Transmit baud rate accuracy	17
5.3	Bit position	17
5.3.1	Synchronous transmit bit distortion	17
5.3.2	Gross transmit bit distortion and minimum signal element	17
5.3.3	Character interval requirement	18
5.3.4	Practical receive margin and character interval requirement	18
5.3.5	Minimum signal element	18
5.4	Byte format	18
5.5	Block format	18

5.5.1	Transmission interbyte gaps	18
5.5.2	Reception interbyte gaps	18
5.5.3	Idle time between datagrams	18
5.6	Datagram abort on collision	18
5.7	Datagram description	19
5.7.1	General	19
5.7.2	Data integrity	19
5.7.3	"Communication types"	19
5.7.4	Datagram coding	20
5.7.5	Addressing	20
5.7.6	Link layer time schedule	20
5.7.7	Datagram sequencing	20
6	Tables and figures	22
Annex B (informative) "Examples of protection techniques for M-Bus meters against surge/lightning"		28
Annex C (informative) Slave powering options		33
Annex D (informative) Slave collision detect		34
Annex E (informative) Wire installation		35
E.1	General	35
E.2	Type A: small in house installation	35
E.2.1	Description	35
E.2.2	Usage	35
E.3	Type B: large in house installation	35
E.3.1	Description	35
E.3.2	Usage	35
E.4	Type C: small wide area net	35
E.4.1	Description	35
Annex A (informative) Schematic implementation of slave		27
E.4.2	Usage	36
E.5	Type D: large wide area net	36
E.5.1	Description	36
E.5.2	Usage	36
E.6	Type E: mini installation (meter cluster)	36
E.6.1	Description	36
E.6.2	Usage	36
Annex F (informative) Protocol examples		37
F.1	Startup	37
F.2	Slave (meter) readout	37
Bibliography		38
Table 1 -- Signal quality characteristics for slaves and masters		22
Figure 2 -- Start stop distortion (example for bit 4), minimum signal element (example for bit 7) (Transmit)		23
Figure 3 -- Character interval requirement (Transmit)		23
Figure 4 -- Practical receive margin (example for two falling slopes)		24
Figure 5 -- Character interval requirement (Receive)		24
Figure 6 -- Minimum duration start element (Receive)		25

Figure 7 -- Reception of datagram packets 25
Figure 8 -- Quiescent time after reception 26
Figure A.1 -- Slave transceiver 27
Figure 1 -- Representation of bits on the M-Bus 10