

ISO 11783-2:2012-03 (E)

Tractors and machinery for agriculture and forestry - Serial control and communications data network - Part 2: Physical layer

Contents		Page
Foreword		v
Introduction		vi
1	Scope	1
2	Normative references	1
3	Terms and definitions	1
4	General description	1
4.1	Network physical layer	1
4.2	Physical media	1
4.3	Differential voltage	2
4.4	Bus	2
4.4.1	Levels	2
4.4.2	Voltage range	2
4.4.3	Termination	2
4.5	Resistance and capacitance	3
4.5.1	Internal resistance (R_{in}), capacitance (C_{in})	3
4.5.2	Differential internal resistance (R_{diff}), capacitance (C_{diff})	4
4.6	Bit time	5
4.7	AC parameters	5
5	Functional description	6
6	Electrical specifications	7
6.1	Electrical data	7
6.1.1	General	7
6.1.2	Absolute maximum ratings	7
6.1.3	DC parameters	7
6.1.4	Bus voltages (operational)	9
6.1.5	Electrostatic discharge (ESD)	9
6.2	Physical media parameters	9
6.2.1	Twisted quad cable	9
6.2.2	Topology	10
6.2.3	ECU connection to TBC_PWR and TBC_RTN	11
6.2.4	Power For TBC_PWR and TBC_RTN	11
6.3	TBC parameters	12
6.4	Connectors	13
6.4.1	General	13
6.4.2	Bus extension connector	14
6.4.3	Implement bus breakaway connector	16
6.4.4	In-cab connector	21
6.4.5	Diagnostic connector	24
7	Conformance tests	29
7.1	General requirements	29
7.2	Internal resistance	29
7.3	Internal differential resistance	30
7.4	ECU recessive input threshold	30

7.5	ECU dominant input threshold	31
7.6	ECU dominant output	31
7.7	ECU internal delay time	32
8	Bus failure and fault confinement	33
8.1	General	33
8.2	Loss of network connection	33
8.3	Node power or ground loss	33
8.4	Open and short failures	33
Annex A (informative) Protocol controller timing and naming		37
Annex B (informative) Examples of physical layer circuits		41
Bibliography		50