Clause 104 Maintenance Requests #4

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Overview

Item	Updated?
Unsupported SCCP registers return all 1s Data and CRC	New
Add 2A limitation to 146.8.6 MDI Fault Tolerance	New

Unsupported SCCP registers

Technical, 802.3bu, Page 62, 104.7.2

Need to Address: **TBD**

Solution Details: **TBD**

Comment

► PDs are not required to support all SCCP commands. Read commands which are unsupported require a distinguishing feature to accurately determine read data is invalid. Traditional remedies for similar protocols are to return all 1s in the data and CRC8 fields. Note, a 1 is the appropriate return value for an open-drain protocol.

Suggested Remedy

Add a clarifying requirement after the second sentence of 104.7.2.

All data and commands shall be transmitted least significant bit first using SCCP. The PSE initiates all transactions. Any unsupported read command shall return all 1s in the data and CRC8 fields.

Practical 2A Current Limit

Need to Address: **TBD**

Solution Details: **TBD**

Technical, 802.3cg, Page 166, 146.8.5

Comment

104.6.2 references 146.8.5 which specifies a 60V, 2A fault tolerance requirement. 146.8.6 specifies a 60V, infinite fault tolerance requirement. These values need to be harmonized as a practical implementation requires galvanic isolation and cannot rely on the Table 146-9 Note, specifically "The maximum current is limited by the 50Ω termination resistors in each signal line.".

Suggested Remedy

Change 146.8.6 first sentence from

The wire pair of the MDI shall withstand without damage the application of short circuits of any wire to the other wire of the same pair or ground potential, as per Table 146–9, under all operating conditions, for an indefinite period of time.

To

The wire pair of the MDI shall withstand without damage the application of short circuits of any wire to the other wire of the same pair or ground potential, as per Table 146–9, under all operating conditions, for an indefinite period of time with the source current limited to 2000mA.

Delete Note below Table 146-9.

NOTE—Typically, industrial control circuits are SELV/PELV limited to a maximum voltage of 60 V. The maximum current is limited by the 50 Ω termination resistors in each signal line. Depending on the internal structure of the PHY IC, additional external clamping diodes could be necessary. Due to the AC signal coupling, the maximum current is applied only while charging the signal coupling capacitors.

Subclause 104.6.2

104.6 Additional electrical specifications

104.6.2 Fault tolerance

Change the first paragraph in 104.6.2 as follows:

The PI for Type A, Type B, and Type C PSEs and PDs shall meet the fault tolerance requirements as specified in 96.8.3. The PI for Type E PSEs and PDs shall meet the fault tolerance requirements as specified in 146.8.5.

Subclause 146.8.5 and 146.8.6

146.8.5 MDI DC power voltage tolerance

The DTE shall withstand without damage the application of any voltages between 0 V dc and 60 V dc with the source current limited to 2000 mA, applied across BI_DA+ and BI_DA−, in either polarity, under all operating conditions, for an indefinite period of time. This requirement ensures that all devices tolerate DC powering voltages, such as those in Clause 104, even if the device does not require power.

146.8.6 MDI fault tolerance

The wire pair of the MDI shall withstand without damage the application of short circuits of any wire to the other wire of the same pair or ground potential, as per Table 146–9, under all operating conditions, for an indefinite period of time. Normal operation shall resume after the short circuit(s) is/are removed.

The wire pair of the MDI is expected to withstand, without damage, high-voltage transient noises and ESD per application requirements. Table 146–9 gives an overview about possible connection faults for the wire pair (BI_DA+ and BI_DA−).

Table 146–9—Fault conditions

BI_DA+	BI_DA−
BI_DA−	BI_DA+
Ground	No fault
No fault	Ground
Ground	Ground
+60 V dc	No fault
No fault	+60 V dc
+60 V dc	+60 V dc
Ground	+60 V dc
+60 V dc	Ground

NOTE—Typically, industrial control circuits are SELV/PELV limited to a maximum voltage of 60 V. The maximum current is limited by the 50 Ω termination resistors in each signal line. Depending on the internal structure of the PHY IC, additional external clamping diodes could be necessary. Due to the AC signal coupling, the maximum current is applied only while charging the signal coupling capacitors.