

**Excerpts**

**Practical field device test with respect to the interoperability on the Foundation  
Fieldbus Multivendor equipment**

**Information of the manufacturer:**

Manufacturer: Yamatake Cop. 0DFC69  
 Model: Manual: ST3000 (DST); Device: STD920  
 Type: Pressure Transmitter  
 Revision: .0.1 OCT 02  
 Serial No. \* 543928200 \*  
 Device ID 0DFC96YamatakeP9010201Y402X0001  
 VFD Name DSTJ  
 Function blocks 2xAI, PID, DIAG  
 Comm. profile class 31PS (without backup LAS)  
 DD Revision 1.5  
 Device type 0001  
 Capability file name 010201

**Illustration of specimen:**

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**Test environment:**

Fig. 1 Segment topology

Device No.:	Manufacturer	Description	Device ID	Rev.

Table 1: Field devices of the segment

Host: Freelance (ABB), FIO100 Rev.:1.21  
 Software: Freelance 200 V 6.2  
 Fieldbus distributor: JBBS-49M614 (Relcom Inc.)  
 Power repeater: BRPC-49-M213 (InterLinkBT)

Fig. 2: Test project

The cyclical communication of the specimen was tested by means of the test project depicted in fig. 2. It is the task of the project to link the function blocks of the specimen with various function blocks of other field devices and to check their functionality subject to stress factors such as, for instance, failure of the host. The project depicts a control consisting of six analog inputs (AI1-6), two input selectors (IP), one PID regulator and one analog output. The IP blocks are set to MAX, which means that the system always selects the highest value. This value is switched to the input of the PID block (bypass) and is forwarded to the AO block. The right-hand side of the project uses the controller in the host, the left-hand side works field-based, i.e. the functions of the left-hand side continue to be available during a failure of the host.

### **Test results:**

#### **Physical layers:**

It was stated that the device cannot be operated when the polarity is mixed up. The current consumption of the device is even satisfactory at the moment when the device is turned on. Doing so there were no start-up peaks which exceeded the current rating (see fig. 3).

Fig. 3: start-up current

#### **Communication quality**

The replies of the field device (FD) to a pass token (PT) sent to the address of the FD were analysed in this test. This measurement resulted in an error of 0.4 % with only one termination in the segment. As the defaults of the specimen did not occur in a sequence they can be evaluated to be uncritical.

#### **File packet:**

It was not possible to get the respective DDs from the FF homepage (not certified?). To bring in the DDs supplied by the manufacturer did not involve any problems. It was not possible though to match it with the device (DSTJ) available in the live list (default reported: different device type). After detailed analysis of this problem it was stated that the information of the ID number at the 7 – 10 digit does not comply with the indicated CFF.File (device type). The default results from the fact that the ABB system checks for plausibility in this place. Remedy: correction of the CFF-files or deactivation of the plausibility mode.

#### **Acyclical services:**

These worked without flaws after the problem was solved. Only one special feature was stated, however, when the device was connected to the segment at full default address range: the device does not automatically move up to the default address range when space is made available there. It first has to be separated from the bus and reconnected again before it takes up communication with the LAS-. This can cause serious problems, especially when new plants are started up.

#### **Cyclical services:**

Two AI blocks (highlighted in blue) of the device were integrated into the project depicted in fig. 2. The figures of the individual blocks refer to the device number in table 1. The striking fact during the parameter setting was that the transducer block did not get into the AUTO mode before the corresponding AI block was set to AUTO mode. Moreover it was striking that the functions of the specimen after operation with another host system were not fully available before „force delead“ was available and all functions were configured again.

### **Conclusion:**

The Yamatake pressure transmitter can be operated with the ABB system. All basic functions are supported. It seems to be reasonable though to possibly eliminate the problems faced or to describe them in the manual as they cannot be mastered by the user.

Signed Dietz  
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Fieldbus Specialist

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