MasterBus Tanklevel Interface

Interface between tank level sensor and MasterBus

USER AND INSTALLATION MANUAL

10000016386/02

1 GENERAL INFORMATION

Use of this manual

This manual serves as a guideline for the safe and effective operation of the MasterBus Tanklevel Interface. Keep this manual at a secure place!

Warranty

Mastervolt assures the product warranty of the Tanklevel Interface during two years after purchase, on the condition that the product is installed and used according to the instructions in this manual.

Installation or use not according to these instructions may result in under performance, damage or failure of the product and may void this warranty. The warranty is limited to the cost of repair and/or replacement of the product. Costs of labour or shipping are not covered by this warranty.

⚠️ **CAUTION!**
Never remove the identification label. This will void the warranty.

Liability

Mastervolt can accept no liability for:

- consequential damage due to use of the Tanklevel Interface;
- possible errors in the manuals and the results thereof;
- use that is inconsistent with the purpose of the product.

Disclaimer

Our products are subject to continual development and improvement. Therefore, additions or modifications to the products may cause changes to the technical data and functional specifications. No rights can be derived from this document. Please consult our online Terms & Conditions of Sale.
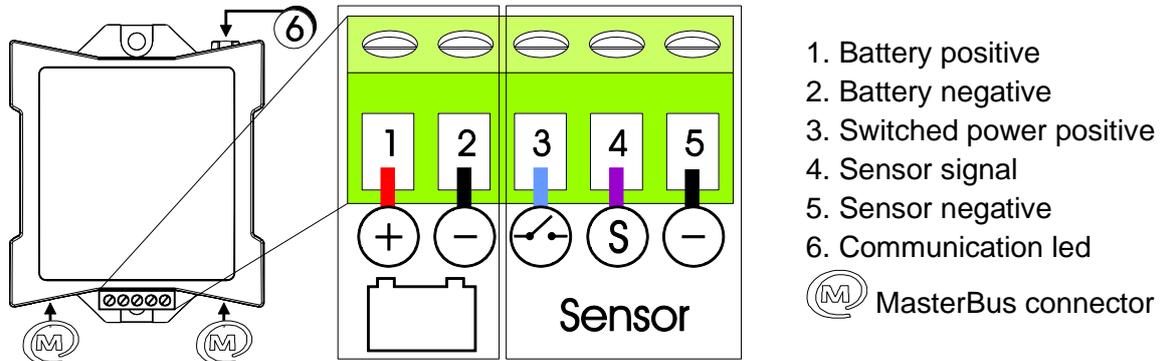
Correct disposal of this product

This product is designed and manufactured with high quality materials and components, which can be recycled and reused. Please be informed about the local separate collection system for electrical and electronic products.

Please act according to your local rules and do not dispose of your old products with your normal household waste. The correct disposal of your old product will help prevent potential negative consequences to the environment and human health.

2   INSTALLATION

Step 1.   Mount the Tanklevel Interface to any flat surface. The Tanklevel Interface comes with a DIN rail mount option. Alternatively, use the two mounting holes.

Step 2.   Insert the MasterBus cable (included, 1m) to integrate the interface into the MasterBus network. Make sure that the MasterBus network is properly terminated at the two ends with a terminator.

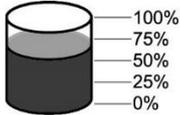Step 3.   Connect the sensor wires 3 (in case of a switchable sensor), 4 & 5 to the screw terminal.

1. Battery positive
2. Battery negative
3. Switched power positive
4. Sensor signal
5. Sensor negative
6. Communication led

⊚ MasterBus connector

Step 4.   Connect the battery cables (1 & 2) in case of a powered sensor.

Step 5.   A flashing LED (6) indicates that the MasterBus communication is working.

Step 6.   Use a MasterBus USB Interface to connect a Windows PC (laptop or notebook) with MasterAdjust software, to configure the Tanklevel Interface.
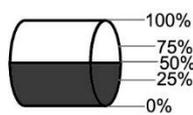
3 CONFIGURATION

Before you start

This interface is calibrated by determining at which level the tank is full and at which level it is empty. The interface then calculates the tank level by interpolation. This min/max method of calibration only works for a linear tank, i.e. where all levels are equal. If your tank is non-linear, you need to calibrate manually.

Linear: *Non-linear:*

- Min/max calibration
  1. In MasterAdjust, select **Min/Max** from the **Calibr.mechanism** options.
  2. When the tank is empty, press the **Tank empty** button.
  3. When the tank is full, press the **Tank full** button.
- Manual calibration
  1. In MasterAdjust, select **Manual** from the **Calibr.mechanism** options.
  2. Enter the data in the **Value @ x%** fields. This information either comes with the tank, or can be calculated, or can be determined by using the sensor information on the Monitoring tab while changing the tank content.
     Example situation:
     - resistive type sensor; 6 Ohm when empty, 186 Ohm when full.
     - tank volume = 1000 liter

     When the tank is empty and the sensor is on, add 50 liter. Check the sensor value on the Monitoring tab and enter this value in the Value % 5% field. Add another 50 liter, check the sensor value and enter this value in the Value % 10% field. And so on.

The following table shows the Tanklevel Interface configuration items as displayed in MasterAdjust.

	Description	Default	Range
Configuration			
Device			
Language	Set the Tanklevel Interface menu language	English	See specifications
Name	User defined device name, visible throughout the MasterBus network	Tanklevel	12 characters max
Unit	Unit of measurement. The interface automatically converts the units.	Liter	Liter, US gallon, UK gallon
Sensor			
Type	Select the sensing method	Resistive	Resistive, current, voltage
Power	Option for powered sensors. Smart: the sensor is switched * On only if necessary.	Off	Off, On, Smart
Damping	Sensor fluctuations can be damped to different levels. The heavier the damping, the larger the fluctuations that are damped.	Light	Light, medium , heavy

Tank			
Type	This option allows for indicating the fluid type contained in the tank or its filling type. Example: a fresh water tank empties on use and a grey water tank fills on use.	Fuel	Fuel, Fresh water, Grey water, Black water, Empties on use, Fills on use
Volume	Enter the tank volume as specified. The volume is expressed in the selected unit of measurement.	0 Liter	0-65535 Liter, 0-17314 US Gallon, 0-14416 UK Gallon
High level alarm	Volume percentage at which the Almost Full alarm is triggered.	0 %	5-100%
Low level alarm	Volume percentage at which the Almost Empty alarm is triggered.	0 %	0-95%
Tank calibration			
Calibr.mechanism	Select the required method of calibration		Min/Max, Manual
Tank empty button	Used during the min/max calibration process		
Tank full button	Used during the min/max calibration process		
Value @ 0%	During the calibration process, enter the required value according to sensor type	0	0-400 Ohm, mA or V
Value @ 100%	During the calibration process, enter the required value according to sensor type	0	0-400 Ohm, mA or V
Calibr. Values	Used during the manual calibration process		
Lock setup button	Press to lock the tank setup configuration		
Events			
Event 1 source	Configure Up to 63 events using this interface's MasterBus alarms as source. For example, a low level freshwater tank can turn off the fresh water pump.	Disabled	Disabled, Low level, High level

* Smart powering keeps the Tanklevel Interface active but reduces power consumption from the battery. For Smart powering, your sensor must produce a reliable signal within 100 milliseconds, regardless the tank conditions. If you are not sure, choose *On* first, calibrate and read the corresponding values. Choose *Smart* next and calibrate again. If the values compare well, your sensor is suitable for Smart powering.
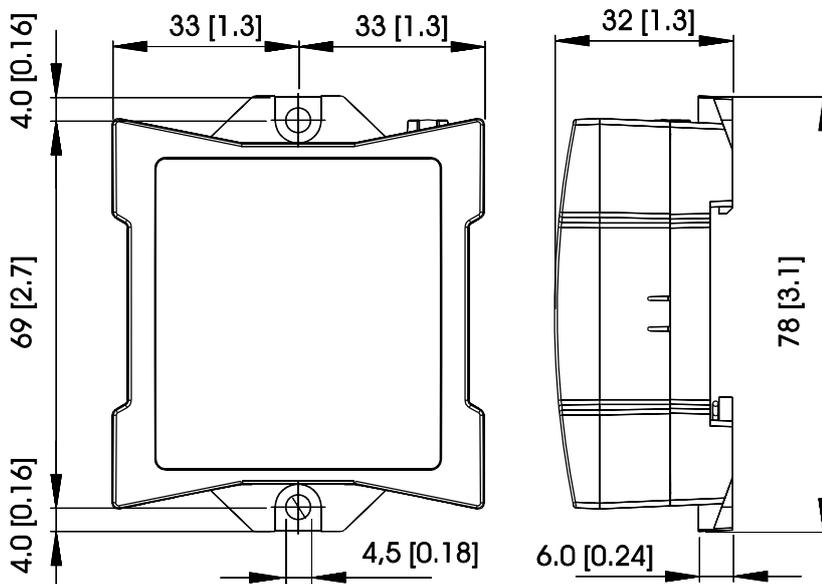
4 OPERATION

The Tanklevel Interface can monitor any volume level in your system, using any powered or non-powered electric sensor that complies with the specifications. A typical application of this interface is monitoring the water or fuel tank level in a ship. For this purpose, a float sensor must be mounted. To monitor the tank level, you can use a display like the Easy View 5 for example, or a laptop or notebook with the free downloadable MasterAdjust software. The following table shows the Tanklevel Interface monitoring and alarms items as displayed in MasterAdjust.

	Description	Default	Range
Monitoring			
Level	Tank level expressed in %	-	0-100%
Volume	Tank level expressed in liters or gallons	-	
Allow high alarm	Option to allow an alarm for an almost full tank	Not checked	Not checked, checked
Allow low alarm	Option to allow an alarm for an almost empty tank	Not checked	Not checked, checked
Voltage	Sensor's measurement in V	0	0-63 V
Current	Sensor's measurement in mA	0	0-20 mA
Resistance	Sensor's measurement in Ohm	0	0-300 Ohm
Alarms			
High level	Alarm to indicate the tank is almost full	Not checked	Not checked, checked
Low level	Alarm to indicate the tank is almost empty	Not checked	Not checked, checked

5 SPECIFICATIONS

Model:	MasterBus Tanklevel Interface
Product code:	77030300
Delivery also includes:	– Screw terminal (*5 positions, pluggable PCB terminal block, Phoenix Contact part # 1803604*)
	– MasterBus terminator
	– MasterBus cable (1m)
	– User manual
Battery voltage	0-63 V (< 200 mA), equals to the sensor supply voltage
Sensor voltage	0-70 V
Sensor resistance	0-300 Ohms
Sensor current	0 (4)-20 mA
Power consumption	280 mW
Languages available:	English, Nederlands, Deutsch, Français, Castellano, Italiano, Norsk, Svenska, Suomi, Dansk
Din rail mounting:	Yes, Din rail 30 mm [1.2 inch]
Protection degree:	IP 21
Dimensions:	66 x 78 x 32 mm [2.6 x 3.1 x 1.3 inch]; see drawing below
Weight:	Approx. 90 gr [0.20 lb] including screw terminal

Dimensions in mm [inch]

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