Control unit

M-Pulse

Application

The control and evaluation electronics M-PULSE combines highest sensitivity with reliability and an easy handling. Due to the latest electronics in its' inside the M-PULSE provides an effecient fade-out of the product effect and adapting digital filters. 18 switching outputs, 16 switching inputs, 2 analog inputs and several interfaces allow great flexibility for the control of peripheral units or other equipment as well as for processing commands. The entire workflow is logged and saved. Even in case of a voltage drop the maximum 2048 data records will not get lost. Via the network connection all data can be analysed and archived easily on a pc. Thus the M-PULSE especially is appropriate for quality control applications - for example in the food industry.

Function

The device constantly checks the correct functioning of the sensor and the electronics. The electronics is able to adjust automatically on each sensor. This allows entirely maintenance-free operation. Drift actions caused by temperature or deterioration are eliminated. Expensive calibration and production downtimes can be avoided. The sensor signals are dressed using modern DDS-technology. A 32-Bit processor system analyses the dressed data in real time and filters out product effects and interferences realibly. The device provides several interfaces. Thus it can be integrated perfectly in automated manufacturing and is able to realise control tasks itself. The device also provides for connection with LAN/WLAN. The entire workflow can be logged and analysed according to HACCP, ISO or IFS.

Equipment & specific characteristics

Intuitional handling

The uncomplicated handling concept is supported by usable features as the displays' reduction on the required information. Depending on the particular adjustments of each user certain menus can be blanked entirely.

Message- and reporting system

The device has an internal memory which is able to collect maximum 2048 messages. Every change of the user, of the charge and each metal alarm are recorded without interruption. Via network the data can be transferred to a pc and there be evaluated. With our software „M-Pulse Control" the user is able to write and to archive reports according to HACCP or IFS.

Product memory & -fade-out

Different products may require different adjustments on a device - for example concerning the stream velocity. These specific adjustments as well as the data of the product effect are stored in the electronic memory for 199 products. This data can be recalled if necessary with a simple keystroke. As easy as saving and recalling this data also is the breaking-in of the product effect. A demonstrator will accompany you step by step through the whole process - from the input of the name until the data acquisition.

Performance check

If regular tests for the validation (HACCP; IFS; ISO) of the sensor functioning are necessary, the electronics will support that using the integrated testing system. The tests will be requested from the user in optional intervals. Supported by a demonstrator the user operates the test successively. The device itself does not require such tests as it works maintenance-free. Additionally it constantly is controlled by internal self tests.

Modern electronics

Developing the electronics we attached great importance to savety and reliability. All important function blocks are equipped with self diagnostics systems. If errors occur, they will be identified, logged and displayed. The sensor is supplied via a high-power amplifier. All signals are generated by modern DDS signal transducers which work crystal stable and without drift. The modern HDS-IQ-receiver detects even smallest signals. A 32 bit multiprocessor system allows a fast and efficient evaluation of the signals. For the connection of the system to the environment there are several serial and parallel interfaces are available.

Technical data

Mechanical data	
Dimensions	W x H x D: 200 x 300 x 80 mm
Weigth	4 kg
Handling	
Keyboard	11 keys (4x arrow; ESC; enter; password; 4x function key)
Display	4 x 20 characters; illuminated (blue); brightness & contrast adjustable
Conditions of use	
Storage temperature	-10°C .. 60°C
Operating temperature	0°C .. 50°C
Protection class	IP 65
Supply voltage	85 - 264 VAC; 50/60 Hz
Power consumption	typ. 20 W; max. 100 W
Electrical connection	3 m cable; L1,N,PE; 1,5 mm²
Sensitivity	(see sensor or device)
Interfaces	
Sensor - transmitter	50 Ohm; overload- & short-circuit proof (50 .. 650 kHz)
Sensor - receiver	HDC-IQ - receiver with sensor-readjustment and monitoring
Digital inputs	16 Stk.; optical isolated; V_{IL} = -5 .. 1,5V; V_{IH} = 6 .. 50V multifunction-key external product selection ejection and level guard light barrier for synchronize the ejector transitfunction; external stop; external failure
Analog inputs	2 pieces; 0 .. 10V; resolution 10bit (one for external speed gathering)
Digital Outputs (low power)	12 pieces; high-side/open-drain; max. 20 mA; overload- & short circuit proof device state outputs to control a frequency converter
Digitale outputs (high power)	6 pieces; high-side/open-drain; max. 200 mA; overload- & short circuit proof 3x transducer ejector device is in stopped state
Interface - printer	RS232 & power supply for M-Pulse printer
Interface - touchpanel	interface & power supply for M-Pulse touchpanel
Interface - networking	optional RS232; RS485; ethernet or WiFi
Relay	2x change-over contact; 48 V, 5 A; function eligible
Voltage output	24VDC; stabiliszed, overload- & short circuit proof; max. 25W for external components

Order information & accessories

Designation	Order number
M-Pulse control unit with wall holder	16730000021
M-Pulse control unit	16730000020
M-Pulse printer IP 65	08410000114
M-Pulse printer IP 20	08410000113
M-Pulse connecting kit ethernet (non pluggable)	08410000108
M-Pulse connecting kit ethernet (pluggable)	with 5 m cable: 08410000107 with 10 m cable: 08410000124 with 15 m cable: 08410000125
M-Pulse connecting kit WiFi	08410000109
M-Pulse connecting kit RS485 (pluggable)	08410000101
recommended RS485-PCI-card for PC	08410000009
M-Pulse connecting kit RS232	08410000104
M-Pulse touchpanel	08410000110
M-Pulse touchpanel with wall holder	08410000111
Software M-Pulse Control & Tools	08410000106

Beyond the components listed above many other optional components are available depending on the type of device. Exact information is given in the particular data sheets.

Software M-Pulse Control

The software M-PULSE Control serves for a complete documentation of the production process. By the software all detectors can be linked via RS485, Ethernet or WLAN. The software permanently collects all relevant parameters und archives them in the data base. The data can be recalled, analysed or exported as requested. The program contains further tools for processing and diagnostics. Thus product adjustments can be edited and archived on the pc and the measured value acquisition can be pursuit live. If you are interested please ask for a gratis demo version of the software.