

User's software Ferrum-plus of temperature sensors. Description

It realized a new idea for fee-free user software realization, useful for a wide task range from simple montage to an operational automatic temperature sensors Ferrum malfunction search-elimination with simultaneous general function of measuring process and service information control, dynamic reflection at the table protocol and it's transmitting to the settled interface addresses to the devices of registration, automatics and creating solutions. A communication with the presented at the object sensors in the digit provides by one not expensive communicative cable without distortion-noise up to a distance 5 km, two wires RS485 plus voltage suppl +2.. 15 V. Free software decreases the service costs approximately on a price of sensors. It's a gift from our Enterprise Iron Sunrise.

A new industrial temperature sensor Ferrum with 32 variants provide the measuring part length from 10 to 1500 mm, digital interface RS485 in the cable plug, any working sensor orientation; for liquid, gas, steam, particulate substances and solid bodies; measuring range -60.. +200°C, environment -60.. +85°C; 50 years of service life.

III.1 represents the photo of new Industrial Temperature Sensor Ferrum, 32 constructive variants provide the measurement part length from 10 to 1500 mm, digital interface RS485 in the cable plug, working sensor position is any necessary; for liquid, gas, steam, loose substance and solid bodies; measurement range -60.. +200 °C, whether temperature -60.. +85 °C; operational service 50 years.



III.1 Industrial Temperature Sensor FERRUM

The Initial Relevance and Problematics. Quit all of the typical technical equipment applications meet the usual difficulties like a necessity in specialized software, adopted to a place of installation by professional programmers. A problem increases itself in a case to determine a measurement order of sensors according the final user request and real automation. This way is enough expensive and significantly exceeds for sure a sensors price even they are absolutely not cheap.

The new software is aimed for automatic information reading by protocol mod-bus with defining order of reading of sensors massive up to 200 pcs also with automatic diagnostics, localization and malfunction elimination. Program Ferrum-plus is oriented for maximum of automation and for serious hand labor decrease.

Enumerated tasks are solving for a first time. The new possibilities for customers give a significant progress in sensor automation. Notice the universality of approach. It allows to create the base for any sensors, not only of temperature. Another feature of a realizing approach is a simple and friendly software, which don't require a special preparation and a wide knowledge in programming mastering. In deal a user's software is a universal workpiece of modified program by user, made by professionals, with a help of which a user easily and exactly solves his necessary tasks.

A protocol visualization form of working results of program is represented in the Control Table, see table 1. A program periodically scans all accessible address space of sensors, provides an identification of all switched, including with plant number, class of accuracy and a network address. Also providing monitoring of each sensor. Controls an exceeding of working measurement range limits, contact absence or short-cut of primary sensor, work errors, data stability. Settles an optimal transmitting speed of information from a standard range up to 9,6 kBod. With a base of received data automatically defines the status of interface network and of each sensor, normal-emergency. At a localization emergent statement of sensor or sensors group is providing their delete from the list of normal. It's recommends the sensors dubbing in the impotent case.

So increases the measurement reliability. A temperature reading frequency with simultaneous information saving defines by user, see name and address of saving file.

Table 1

Commands of control			
save program after table modification	stop/ turn on program in working mode	single start of a working program cycle	name and address of saving file
Received Data			
network status of sensors, time, automatically			
sum duration of a reading cycle of all sensors $\tau=XXXX,XXX$ sec			
reading frequency, limits $f=1.. 50 \cdot 10^6$ per hour, $f < \tau/3600$, user defined			
sensors in total/working/in emergency, automatically			
current date and time in the name of saving file day_month_year hour_min.exe			
reading order in cycle	sensor number defines by user, accuracy class, reading duration, network address define by program	user description, sensor status defines by program	register mod-bus, addresses for transfer define by user, results , in their list a temperature and sensor condition
1			
2..			
.. до 200			

A reading order in the cycle defines by user in the settings of the table 2-nd column.

The program is multi time increases a user work efficacy at the corresponding work stages, as a rule allows to escape a service from professional programmers. The significant difference of program is one universal for all Ferrum users is instead of became archaic the usual creating uncalculating number special programs and their versions in each place of application.