Teco Info

May 2012 BULLETIN FOR USERS OF TECO CONTROLLERS 33

Tecomat TC700 controls oil terminal Black Sea Terminal in Georgia

Control system Tecomat TC700 has been choosen to control Black Sea Oil Terminal in Georgia. The Oil Terminal is an important node for Azerbaijan Oil, diesel and heating oil from Caspian Sea. Technology of the Terminal is prepared for pumping oil derivatives transported between Azerbaijan and Georgia via railway to high capacity tanks and then to sea tankers. The owner of the Terminal is company SOCAR – Azerbaijan state oil company, one of the largest oil companies in the world. More details about this reference you may read inside this TecoInfo.

Turnover increased by 24%

Introduction by the Commercial Director

Year 2011 was for us very positive year. We have increased turnover of the company by 24% in both product lines – TC700 and Foxtrot. According to fields of applications, the highest increasing we have reached in building automation, where system Foxtrot is in small and medium-large applications used really often. For a large applications our customers use system TC700.

From regional point of view we beside our traditional customers develop new business in Benelux countries, Hungary, Romania and Kazakhstan. All new customers get intensive trainings both in our company and on their markets. A strong technical support is in our company obvious. It is very appreciated from new customers. In past time we have supported our growth by exhibiting at domestic exhibitions Electron and For Arch and at foreign exhibitions Hannover Messe in Germany and Power Kazakstan.

We are continuously developing our control systems according to requirements and trends. We integrate internet technologies, security and alarm systems, access systems, multimedia systems, ventilation and air condition systems etc. Our control systems Tecomat we expand by wireless products for both Building Automation and Industry Automation. At exhibition Amper 2012 we have presented new Foxtrot central module CP-1003 with double capacity of I/O modules and fast inputs/outputs. With this module we strengthen the position of Foxtrot especially on filed of industry, machinery and drives control. Following product – Tecometer – enlarge our position in Smart Metering.
From feedback of our customers and sales results we see we are on right direction to the future.

Ing. Jaromír Klaban
Commercial Director

Content

Expandation of Tecomat Foxtrot product line

In last year we have launched on the market many interesting products. First of all I have to mention central module of Tecomat Foxtrot system – CP-1000. This module is a full substitution of CU-2 central module, that gives to integrators a possibility of easy parametrization of smart building and home functions with parametrization software FoxTool, but allows them also very important possibility of free programming in software Mosaic. We have expanded the Tecomat Foxtrot system with CFox peripherals (connected to the system with CIB bus) and RFox peripherals (connected wirelessly), so customer may control all the house with one complex control system. Information about the most important new products you will find in this magazine. We pay attention also to field of machinery and process control. We have developed new central module CP-1003. This central module is designed specially for machinery and process control applications. It has high speed 100 kHz inputs and outputs and direct control of stepping motors. You may read about it in next article. ■

Ing. Jindřich Kubec
Hardware Development Manager

Foxtrot controls manufacturing lines in China

Czech company BRANO a.s. recently put into operation few full automated manufacturing lines in Shanghai in China, designated for assembly and check of door hinges for Volkswagen and Skoda with output power 2,900 pc per shift. All lines are manufacturing in continuous operation and each of them is controlled by 9 central modules Foxtrot connected into network at touch panel SofCon.

Further they run lines for assembly and checking of locks for fifth doors. Czech manufacturer BRANO has reached in China big interest of customers, what pleased us so much. ■

Multimedia systems and Foxtrot

BANG & OLUFSEN

We have integrated control system Foxtrot with top multimedia system Bang&Olufsen. This Danish top design and quality multimedia system is next in line after Control4 system. Multimedia systems becomes new and often used operator interface in luxury interiors. In its base they allow us to control, choose and distribute audio and video signal from any source to any place – Multiroom system. In connection with control system Foxtrot they allow with their control devices for multimedia system to control lights, shielding, temperature, ventilation, security system etc. Free programmable system Foxtrot has confirmed even here its universality. With a big advantage Foxtrot may complete specialised systems and operate "last mile", from center to last wall switch or socket. ■

Introduction of new central modules CP-1000 and CP-1003

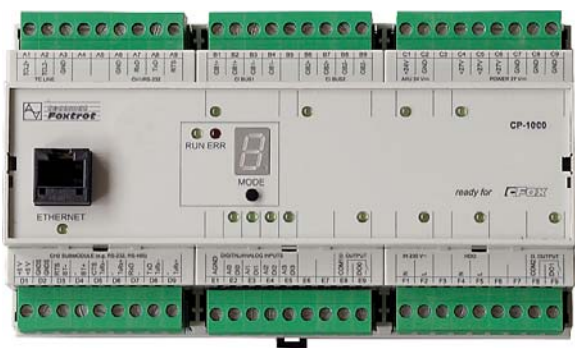
In 2011 we began sales of CP-1000, a new central module. Thanks to integrated 2 CIB inputs it is perfect solution for houses and buildings control. Two powered CIB inputs/branches means, that there is no need to instal and connect the external module to power the bus. Central module CP-1000 has size as 9 installation modules. Another bus branches you may add via new masters CF-1141, these may be connected to TCL2 bus. The new masters in 3 modules size has integrated CIB bus full powered circuits, so the assembly in switch board is more simple and it also saves place on DIN rail.

New central modules are free programmable as PLC in Mosaic software. Non-programmers may use parametrization software FoxTool, that let them parametrize all typical functions and combinations we may need in typical houses and buildings. CP-1000 and FoxTool let you connect all modules of iNELS 1) that on CIB bus integrated Teco company. CP-1000 and CF-1141 are full substitution of CU2-01M and MI2-02M, that we have manufactured in the past. Teco company guarantee customers continuity of development and full compatibility of its products with our past control systems.

The news, we prepare for Tecomat Foxtrot line at present, is central unit CP-1003. The module CP-1003 has 2 TCL2 buses and no CIB bus, so it is primary designated for machinery and industrial applications. But connection of CIB bus is possible by external masters CF-1141.

Two TCL2 buses let you connect up to 20 peripherals and double the number of controlled inputs and outputs. Central module is in size 9 installation modules and contains:
8 universal inputs AI/DI (0-10 V, 0/4-20 mA, resistance temperatur sensors, standard 24 V DC digital input). The module will have also 8 digital inputs. These are grouped in 4 and may be set as digital inputs type I according to IEC 61131, but also as fast counters or 2 complete counters for encoders up to 100 kHz. These inputs have power voltage option 5 or 24 V DC. Digital outputs create 7 relay outputs, organized to 2 groups of 3 relay 5 A and one switch relay 16 A. 4 fast transistors with supplement functions PWM and frequency output up to 100 kHz with direct control of stepper motor function. Permanent capacity of 1,5 A current has its use in machinery. Number of inputs complement 4 analog outputs and free slot for choosing any submodul with further I/O.
Central module CP-1003 has favourite free slot for up to 3 serial channels CH2, CH3 and CH4. Basic serial channel CH1 is with bus interface RS-485. Ethernet 10/100 MBit/s is
the base communication and programming channel as in the all Tecomat lines. ■

iNELS is registered trademark of company ELKO EP, s.r.o.



Foxtrot for healthy living

Intelligent ventilation with recuperation inVENTer® directly on CIB bus

We live in a period of mass expandation of low-energy and passive houses, when low consumption of energy is achieved by perfect isolation, heat loss is reduced by perfectly sealed windows and as a heat source we use heat pump. So controled ventilation with recuperation is more and more important topic.

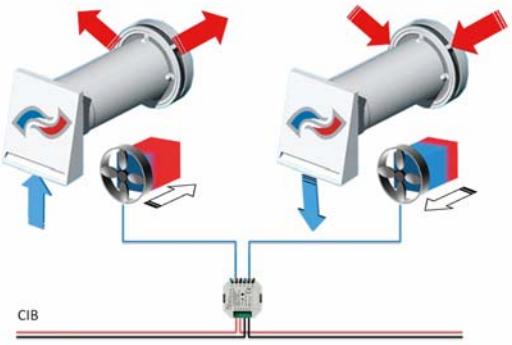
One possibility for saving energy spent for heating or cooling is proprietary system of ventilation with recuperation inVENTer. The principle of the system is in ceramic heat exchanger, the air from the room is going out through it for 70 sec. During that period the exchanger is charging temperature from the flowing air. So in winter it´s taking the heat and during summer, when we cool the room, it´s taking the cold. Follows the reverse phase, when the air is going back to room for 70 sec. and is taking the heat or cold from the exchanger. To protect the rooms for pressure or vacuum, they use double exchangers with synchronization.

CFox line has expanded with C-VT-0102B module, that meet the needs of inVENTer. The module may measure the temperature inside the rooms and directly control the direction and speed of fan in inVENTer device. Because the inVENTers are devices with low energy consumption, the energy from CIB bus is enough to power them.

We may say that these 2 fans are a part of C-VT-0102B module and the new product in CFox line is recuperation unit with air exchange capacity 30-40 m3 per hour. The functions of whole recuperation system, we may programme and set in application software. Except above mentioned recuperation mode we may for summer expand the programme for a mode of loading the house with cold air during the night, when we let the cold air go only inside the house. So we short the time of cooling with air condition.

Ventilation and recuperation system we may in Foxtrot combine with blind control, so just for instance during the summer the interiors are protected for direct sun shine. System may be completed with humidity sensor C-AQ-0004R and CO2 sensor C-AQ-0001R, showing us stuffy air inside. Inside the places where is smoking permitted, we may measure smoke concentration with C-AQ-0003R. So the control of climate is with Foxtrot really complex and intelligent.

That´s the way how Foxtrot helps to healthy living. ■



Air exchange principle

Smart Mirror – luxury and practicality

For control of intelligent houses we today commonly use beside classical devices also touch panels and tablets. In many interiors they may stress the house design, but somewhere it may disturb. Those who want to have luxury of control via big touch panel but to hide that inside the interiors, they may use Smart Mirror from company IBSolution s.r.o.

Smart Mirror is a combination of touch panel for home automation and quality mirror with display diagonal 15" and 19". In standby mode smart mirror looks like ordinary mirror. When you touch it, 15" or 19" touch panel is activated and begins to operate as touch control center of your building or house. Mirror is useful as control center of the building, internal communication station, media center or information center of your residence. With Smart Mirror you may control, entertain and inform all buildings or business units from one place. And you needn´t to hide it in public buildings. In standby mode it looks great in lobby, bathroom, saloon or kitchen. It may be placed at maximum distance 25mm from the wall or built-in to furniture.

This technology trick has been presented to visitors of For Arch 2011 exhibition in Prague even with connection with our control system Tecomat Foxtrot. ■

Wall switches for demanding customers

A lot of home automation manufacturers limit customers with choice of wall switches design. Conversely customers of Foxtrot system has almost no limits with choice of wall switches. Beside of basic wall switch line in design ABB Time we deliver other designs from different manufacturers. Range of devices with direct connection on CIB bus may be expanded with group controlers (2, 4 and up to 8 buttons) in variant on the wall from manufacturers Berker, Jung, Gira, Merten, Legrand, Bticino, Schneider, whose are the best on the market. Connecting of such elements gives us the possibility to use Foxtrot for the most demanding customers. If we want to read status of any wall switch design with Foxtrot, we may use standard inputs from peripheral line CFox, which may be placed into installation box under the wall switch. Available are modules with two inputs (C-IT-0200S), five inputs and four outputs (C-IT-0504S) and nine inputs and eight outputs (C-IT-0908S). With outputs we may control even LED indication on switches and input may measure room temperature. Openness of Foxtrot system brings to intelligent building and houses users a freedom of choice of wall switch and control designs. ■

Thermovalves directly on CIB bus

In filed of thermovalves we have away of already mentioned wireless (RF) valve R-HC-0101F developped new thermovalve **C-HC-0201F-E** , designed for direct connection to CIB bus.

Basic function of the valve is smooth set from 0 to 100%, but it has more functions. Two universal inputs, ready for connecting external temperature sensor or windows contact, simplify the work, improve the controlling principle and increase the savings by direct identification of open window. Of course, the window contact in Foxtrot system may be used also for safety part of the installation.

Modules for LED light control

In this time the classical bulb lights are dying, so we put effort to system approach of LED light control on CIB bus. LED lights has a big potential in intelligent houses and especially in the present time there is a huge development of LED lights and their designs. LED lights 30 or 100W are not exceptions. LED lights organized into linear belts gives us the whole new possibilities of lighting and even the color control!

Let out of our interest the LED bulb and LED tube control, these are designed for 230 V and we may switch them with any relay outputs from CFox products. Interesting topis is direct power LED control with controlled current source. Favourite LED belts are controlled by controlled voltage source. The need of control last two, we meet with : is designed for LED belts. It´s ready to control the belts 12V and 24V. Maximum total current in module is 24A, that is 6A per channel. It represents up to 10 m of belt.

The modules are visually almost the same, the difference is in connector and terminal design. For programmer they are the same.

C-DM-0006M-ILED

C-DM-0006M-ULED

These modules are modules on DIN rail into switch box. Each one is able to control independently up to 6 LED lights. On the other side, there is a possibility to group the channels and on one module we may create full color RGB channels. Module with name ending ILED is designed for direct LED chip (Power LED) control in standard lines 150/350/500 and 700 mA, up to 48V, what is equivalent of 13 white diods and 22 red diods. Module with name ending ULED

LED light control through DMX bus.

Foxtrot systems thinks of customers, who prefer lights with DMX512 protocol from manufacture. Submodule MR-0115 with tripple serial interface RS-485 allows to create from Foxtrot a master for 2 DMX branches, each for 512 devices. For programming you may use software Mosaic and it is supported by function block from library DMX512Lib. ■

Modules for IR remote control. Illuminance sensoring.

Experience of integrators has shown us the need to integrate into CFox line the infra-red universal receiver and transmitter. It may be used for system control of audio/video devices in different scenes and air-condition units control. Its outside or central units have communication interface accecible through its modems, remote control has each inside unit. And in intelligent installation we do need to control the units – temperature setting, mode change etc.

C-RI-0401S

According to these experience we developed new built-in module C-RI-0401S. It integrates inside both IR receiver and transmitter. Setting of each device is in „learn" mode when we generate commands on original remote controller and assign internal codes. The codes are called by Foxtrot then.

Module has 2 universal inputs, so we may connect binar signals – contacts, temperature resistance sensors or any resistance, for instance potentiometer. Analog values are processed in resolution 12 bits. Module is developed also for illuminance metering. It may be connected with external sensor BPW 21, that has the same sensibility like human eye.

C-RI-0401R-Time

Built-in module C-RI-0401S allows us to place the sensor, IR receiver and IR transmitter arbitrarily according to our needs, like stick directly to the sensor o fair-condition unit or audio/video device. Module C-RI-0401R-Time integrates all sensors into interior box in ABB Time design. The standard is white color, all sensors, IR receiver and IR transmitter inside. Other colors or sensor combination is possible as custom design. ■

TECOMETER

electricity consumption metering comfortable on TV screen

Our company together with ZPA Smart Energy, electricity meter producer, developed new product – Tecometer. The device of set top box shape, placed close to TV screen and connected with it by HDMI cable, may read wireless data from invoice electricity meter delivered by electricity supplier. Tecometer read value every 30 s and visualizes the values on TV screen in comfortable mode for last hour. The user may switch the TV on „Economy channel" and see the value of consumption in kWh and in Euro (or its currency) and the value, that will be invoiced by electricity supplier. He may see the historic data for any day or month for last year and compare it with previous year. Test project has begun with PRE (Prague´s electricity distributor) and ČEZ is preparing the project in Vrchlabi city. ■

New relay modules in CFox product line

New products of this summer are two power relays modules with guaranteed continuous switching current 16 A and peak current 80 A. New relay modules are available in two designs.

C-OR-0008M

Under name C-OR-0008M we deliver module in 6 modules size with DIN rail assembly. It contains 8 relays, each relay has 3 individual contacts. So they may be connected with different potentials or with external link of switch on and switch over contacts of two bordering relays we may directly control up to 4 blinds drives, sunblinds drives or other drives – doors, servos etc.

C-OR-0202B

Second type is C-OR-0202-B in boxed design or design under cover of controlled device. Module has 2 relays for continuous 16 A current, but also 2 inputs. Both are favourite universal inputs, that may be used for sensing the status of contact, and also meter the temperature with directly connected passive resistance sensor. The module may be connected with NTC 12k, Pt1000 and Ni1000 sensors. Each relay has 3 independent contacts. By connecting 2 of them we change the module for blind drive control. Combination with 2 inputs gives flexibility of use for this module. It may be used, for instance, for switching the room floor heating, and connect it with floor temperature sensor and surround temperature sensor. You may replace standard double wall switch or double switch button in old electroinstallation. Relay outputs replace contacts of old wall switch and we have wall switch and device controlled by system. 2 power relays with 2 inputs have wide range of use. ■

Connecting of GIOM3000 meteostation to the Tecomat systems

We have developed direct connection of GIOM3000 meteostation to the Tecomat Foxtrot systems. Meteostation is connected together with Foxtrot central module to the LAN network. For easy data reading in Mosaic we prepared for programmers function block in library MeteoGiom3000. Meteostation Giom3000 informs us about wind direction and speed, temperature, pressure and relative humidity. We have available other data, calculated from measured values – barometric altitude, relative pressure QNH/QFF, wind power according to Beaufort scale, windchill influenced by wind and humidity, pressure of saturated water vapor, absolute humidity g/m3 and g/kg and dew point.

New CFox, Rfox Design and Installation Guide

Just for spring trainings for designers we launched new CFoc, RFox Design and installation guide. The guide is continuously updated for news and practical guidance, how to connect standard devices like lights, blinds, thermostats for zone temperature control, presence detectors, etc., but also some tricks. The guide is too large, just for your imagine here are some topics:

- Floor electric or warm water heating, floor convectors, fan coils, intelligent ventilation with recuperation.
- LED lights – switching, dimming, color control, LED belts, direct power LED control, fluorescent lamp ballast DALI connecting, DMX interface device.
- Drives control for blinds and sunblinds.
- Presence detectors for safety systems and for lighting.
- Infra-red remote control.

Large topic is wall switch, button and heating controllers connection of different designs. Next huge topic is temperature metering. It contains combinations of many modules, temperature sensors and values. Similar topic is air quality metering – temperature, humidity, CO2 concentration. We do not forget cigarette smoke.

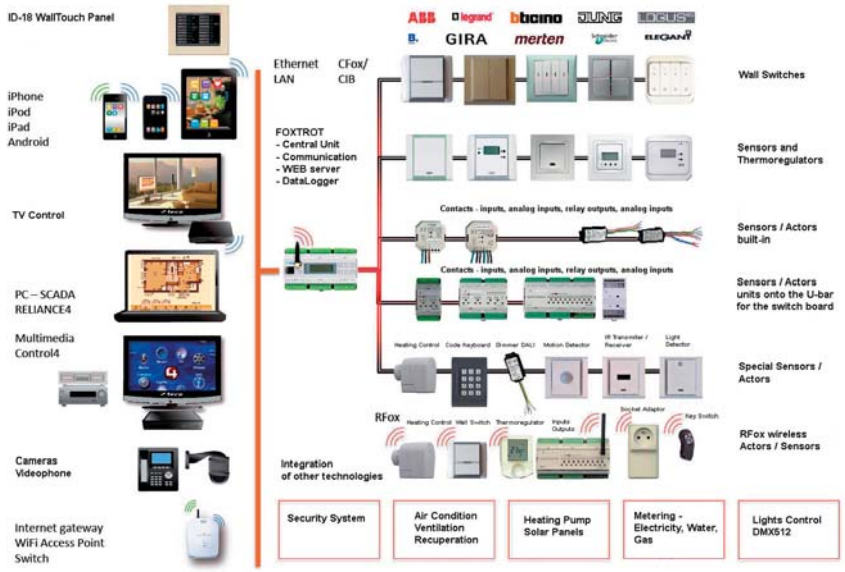
Actual topic is also electricity consumption metering. You´ll find how to connect the main and secondary electricity meter, water meter, gas meter, caloric meter.

You´ll also find how to connect to the system exterior device like sidewalks and eaves defrosting, PH and REDOX monitoring in pools and limited or continuous water level metering in walls and tanks.

Many articles are connected to device of some real manufacturers, e.g. fan coils and conventers ISAN, secondary electricity meters ZPA Smart Energy, wall switches GIRA, JUNG or ABB. ■

FOXTROT

Complete control system for buildings and houses



In the Czech Republic we recently see the increasing interest of public and media in home automation, often called intelligent building or houses. According to our experience, this interest comes from the fact that number of realized residential houses or buildings with any kind of home automation system in our country is fast growing. If we compare home automation in the Czech Republic with Western European countries or USA, the market here is still with a huge potential for growth. Some experts states that in such developed markets there is about 40% of new constructed residential houses and buildings equipped with any kind of home automation system, others state even higher numbers. In the Czech Republic we estimate about 1–2%. But the number has definitely increased in last year and according to our estimation the number of applied home automation systems increased about 30% in new constructed houses. The positive trend we see in the fact that there have been finished first small block of flats, constructed by developer companies, equipped with home automation systems in standard equipment. And other projects are under preparation. So even in economy recession we see there are developer companies here, who see it is better to add some add value to the offered flats and houses like home automation system then to beat competitors only with huge discounts in price. Home automation system gives to their customers benefit of high comfort of living and saving the operation costs and developers with this offer have better chances to sell their rsidential buildings.

In the Czech Republic we see the Foxtrot system as leader in home automation market. During last 3 years we have sold (worldwide) more then 6,000 pc of central modules and the number is still growing. Foxtrot as open control system free programmable by software Mosaic or simply parametrized by parametrization toll FoxTool (all typical functions of technology control in buildings are not programmed by a programmer, but very easy parametrized without knowledge of programming work) is a perfect solution for building and home automation because of its abilities, functions, wide range of peripherals and price of the system. And also thanks to its openness to other technologies. Foxtrot brings to its customers and users comfortable and especially reliable control system with long life time, proofed in hard environment of industry applications, but still for very pleasant price, much lower then comparable foreign systems, who haven´t find place on Czech market. ■

Let´s summarize what typically we may control by Foxtrot in buildings:

- **Heating, ventilation, air-condition**
  gas, electric and solid fuel boilers, heat pumps, solar panels, radiators, convectors, fan coils, floor heating – electric or warm water, recuperation, warm air heating, heated sidewalks, driveways, gutters
- **Controlled ventilation (air quality)**
  detectors of CO2, humidity, smoke, other gases
- **Lights**
  bulbs, tubes, saving bulbs, LED bulbs – scene control, light color control (chemotherapy), central switch off, presence simulation, function "panic"
- **Control of switching any devices**
  according to time, light, electricity tariffs, motion, sunrise and sunset, info from weather station etc.
- **Shielding**
  blinds, shutters, awnings, screen – control according to the intensity of light, time, sunrise and sunset, cooling – shading the sun, heating – heating of space by direct sunlight
- **Energy metering (electricity, water, gas, heat)**
  history, trends, graphs, archive, using tariffs from electricity providers, integration of photovoltaic panels, wind power and directing the energy from them
- **Weather station**
  temperature, humidity, air pressure, wind direction, wind speed
- **Irrigation**
  water control, flooding monitoring, fontains
- **Pool, whirlpool**
  temperature, lights, switching, covering
- **Security and safety alarm systems**
  motion sensors, window/door contacts, code keyboards, broken glass detectors, smoke sensors, perimeter protection – communication to central panel of security agency, mobile phone, nursery/hospital
- **Access system**
  RFID card/tag reader, electrical door locks, gate and garage door control, electronic porter with camera, videophone, biometric data integration
- **Camera system/Intercom**
  video recording on server, detection of car registration marks
- **Entartainment**
  multimedia players, central data storage (movies, music, images), projector, iTunes, connection with multimedia AV systems Control4, Bang&Olufsen
- **Communication**
  internet, GSM/SMS messages, iPhone, iPad, Smartphones, TV screen
- **Control**
  IR remote control, wall touch display, wall switches in various designs, thermo regulators, room managers, smartphones, iPad, iPod, iPhone, notebook, PC, TV screen
- **Data logging**
  all events recording, measured values recording
- **Wireless units connection**
  easy to expand system with new products without demolition
- **Two wires connection of elements**
- **Free topology**
- **Connection to ethernet/LAN network**
- **WEB server/WEB pages**
  perfect visualization at PC/notebook/TV screen/iPad/iPhone/Smartphone
- **Reliance**
  SCADA visualization system, monitoring and industrial process control
- **Automation/scenario programming**
  time and function scenarios, condition functions

The popularity of Foxtrot control system as the complex system for home and building automation is shown by numbers of applications not only in the Czech Republic, but also worldwide. Technicians – integrators appreciate its top technical and technology level and possibilities they get from it for control. On other side, the users of Foxtrot appreciate benefits like comfort, entertainment, savings in operation costs, safety, health of living. All these brings them Foxtrot system and may bring to you too. Important thing in the end – Foxtrot is so price interesting, that may be used even in standard family houses or flats!

For more information please visit www.controlyourhouse.com.

FOXTROT Control Your House!

During this year we have launched promotion campaign Foxtrot – Control Your House! The campaign is aimed at potential customers who prepare construction of new house or remodelling of their flat and tell them what benefits Foxtrot brings to their life.

Customer – the laymen – get information about Foxtrot advantages, what he can control by Foxtrot and what may be into the control system integrated. He may find a list of partners – authorized distributors. These companies have been trained for Foxtrot integration and installation, work for a long time in home automation and have many experiences and references. That´s why they are able to recommend customers many practical functions and smart tricks. Then the customer may use a maximum of Foxtrot abilities.

First thing in customers hands is brochure Foxtrot – Control Your House! and following website – www.controlyourhouse.com. We launched technical and promotion articles, these are also a part of the campaign. We cooperate with publishing companies and the mass media. The campaign is global, so we published the brochure in czech, english, russian and slovak languages. The website has also language versions. So you may find english (www.controlyourhouse.com), russian (www.controlyourhouse.com/ru), czech (www.ovladejsvujdum.cz) and slovak www.ovladajsvojdom.sk). The customer may choose a right language on each of them. A part of campaign is also our exhibition on selected trade fairs. Brochures are available for our distributors. They get a strong marketing tool for intelligent control promotion for potential customers. Shortly after launching the campaign we have received good feedback from our integrators, distributors and also from potential customers. Thanks to this campaign the benefits and advantages of living with Foxtrot get more and more customers. ■

Iridium for Teco

During October 2011 the application Iridium Mobile has been launched. It is a visualization tool, in which you may create for yourself or customer graphical oriented controlling and monitoring screens for portable devices with operation system iOS.

Iridium change your iPhone/ iPad/ iPod or Windows device into control panel of Foxtrot control systems. With Iridium GUI Editor you may create beautiful interfaces with animations and visual effects. Available is a possibility to import channels and commands from Excel. After finishing the import, the channels and commands are soon connected with control elements (buttons, lists, moving windows, text fields etc.) with function drag&drop (dragging the items by mouse). Iridium for Teco contains other product – Iridium for AV CONTROL, thanks to this you may easy and simply set the control of AV devices.

Iridium software package includes 3 components:

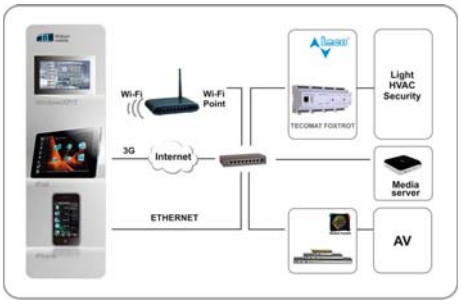
Iridium Client – is installed in your iPhone/ iPod/ or Windows device. Iridium Client controls your system Tecomat Foxtrot with prepared design of control panel.

Iridium GUI Editor – let you create beautiful interfaces with animations and visual effects.

Iridium Transfer – application for loading graphical interfaces prepared in Iridium GUI Editor (IRP) or AMX TPDesign4 (TP4) into your iPhone/ iPod/ iPad. Beside this Iridium Transfer may convert interface IRP, TP4 into format, which may be run at devices with Windows XP/7.

One Iridium license (iPhone/ iPad/ Windows) let you control your Foxtrot system from one device (iPhone/ iPod/ iPad or Windows panel).

You may find the software at AppStore. Here you may also download demo project into your iPad/ iPhone. Details you may find at: http://iridiummobile.cz/teco ■



News in Mosaic software

Let us kindly inform you about news in Mosaic software. We hope these will make your work and applications with our systems more easy and comfortable.

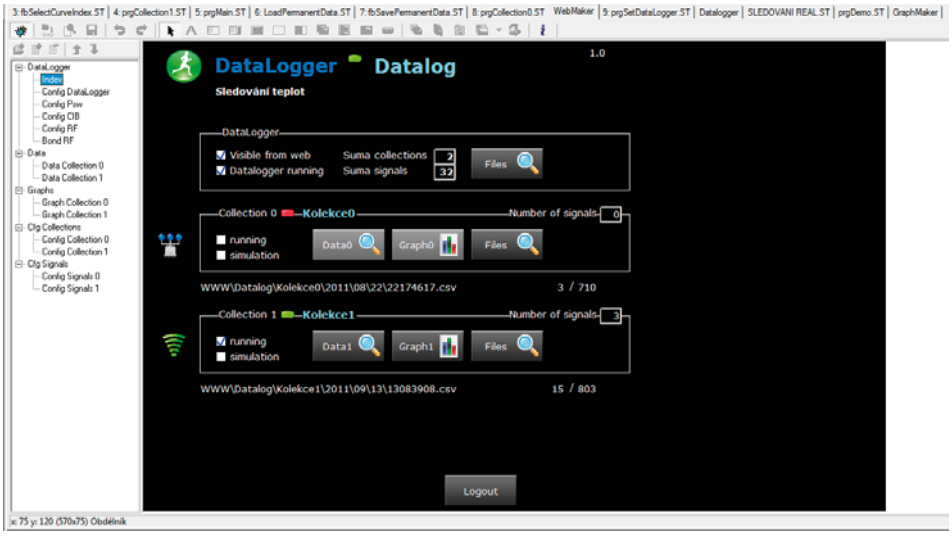
CFC editor

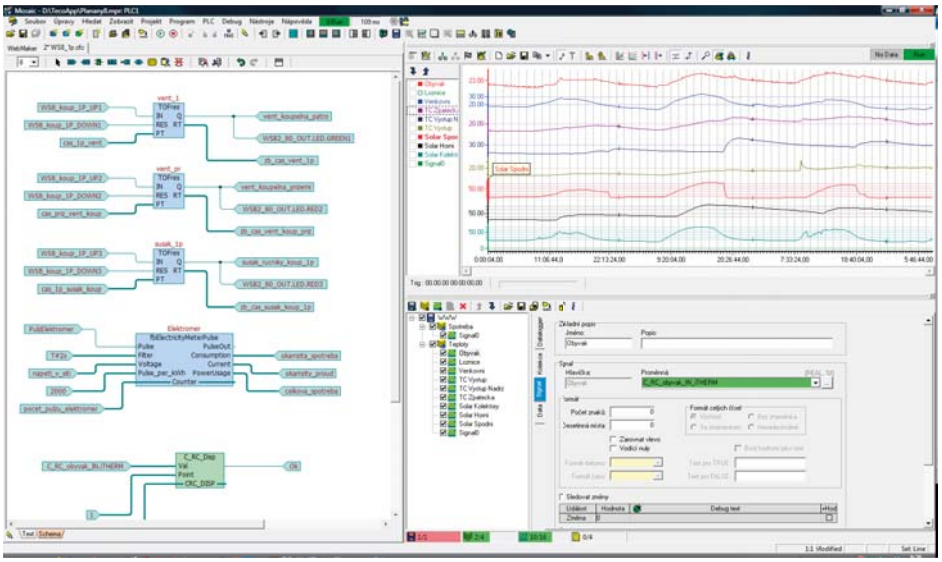
Who installed new vision of Mosaic in half year 2011, found inside the beta version of new editor in programming language CFC (Continuous Function Chart). Again it is a language of function blocks, each blocks you may placed, in contrast of editor FBD language, freely over the surface and the connections may be done horizontal and vertical. Function blocks are available in editors toolbar. Links you may input by click on connecting points and you may branch and wrap them. The programm may be redesigned, you may move function block with links by puting them with connections and creation of the programm is more easy and well-arranged. Values of variables are during programm tuning are shown like in other languages and lighted links show status of binary variables. New editor will definitely make the programmers work more comfortable..

Datalogger

Very important news in Mosaic is addition of datalogger. Tecomat systems allowed store measured data into files on memory card even in the past, but it was necessary to create special programm with function blocks from library FileLib. Datalogger tool allows to set the variables and conditions, that are stored, very simply by a dialog, Datalogger generates configuration file and the rest is provided by internal function of the system. Data are stored into CSV file. The tool is available even in Mosaic Lite version, but takes off one module in system configuration. Please remember it, when you create the programm without HW key (maximum 3 modules). Have a look at the tool in details.

Data are separated into collections, these are set of signals and its values have to be stored in to text file. Datalogger may contains up to 4 collections, each one may contains up to 16 signals. Each log is completed with time mark. Data may be recorded periodicaly – the period is set up the same for all collection, or unperiodicaly – on basis of control variable collection change. The third kind is signal collection – the recording is running only in case of predefined statuses of event for each signal. The signal may be any variable of user programm. For each signal we may define a format of stored file and there is an option to define the event, that cause the logging into file. That event may be the change of variable value or paging the value of variable over the defined value. At signal collections we may specify for each signal a set of additional variables, that are stored together with the signal values. Datalogger support in central module provide putting the information about logging into user file, from which we may control the logging process. Datalogger in PLC restore the data in memory every 10 minuts. Frequency of restoring in CSV files may be controlled from user programm. Data stored in CSV files may be visualized by GraphMaker. Final values we may visualize direct in Mosaic software..





Communication between PLCs through network variables

Into Tecomat systems we built in new support of mutual communication through network variables sharing. After network support PLCnet switching on we may in configuration dialog share each variables and offer them to other PLC in the group.

Communication in PLCnet is peer to peer, what means independently among each pair. It is suitable for low data volume transmission and in cases, where every PLC requires from its neighbour different data. In case of big amount of PLC the communication is more slow then in PLC mode. PLC mode of communication is going also to the PLC that do not need it. But in case of sending big volume of data this way of communication is better, and especially when we need to send the same data to all PLCs.

The advantage of network PLCnet communication is that in case of variables moving in memory it is not necessary to redefine communication zone and save the programm into all PLCs in network. Programm is changing only in the PLC, where the moving has been done. If we want to change the list of variables in target PLC, we save programm only into that PLC and not in all PLCs.

Multistatus pictures, animation in webpage

By addition of multistatus picture into WebMaker tool we have a possibility to use animated pictures in Tecomat website. Simple animation we create by cyclic picture changing, managed from user programm.

Languages support on website

By adding Language manager we may manage the website in more languages. In language manager you may define texts for each language versions (up to 15 languages) and choose the active one. During translation are generated webpages with texts in active language.

Graph visualization in the website

Frequent requirement is graph visualization direct in the website. The task is not easy, because we need for it the scripts and running the scripts depends on internet browser. Our solution with library support WebGraphLib is based on cyclic use of column graph element to show required variables course. This solution do not need the scripts. Values of variables are sequensely stored into stack with predefined number of samples

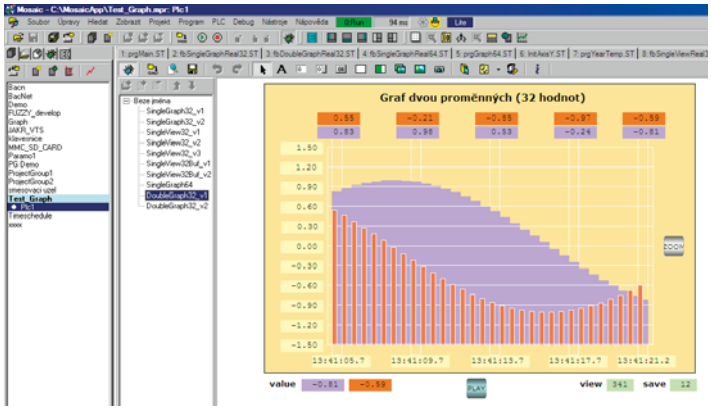
and this stack is under function block, that fill the graph on website with data. Graph may run as floating, showing the last value, we may stop it and move back or forward by buttons and then go back in online mode.

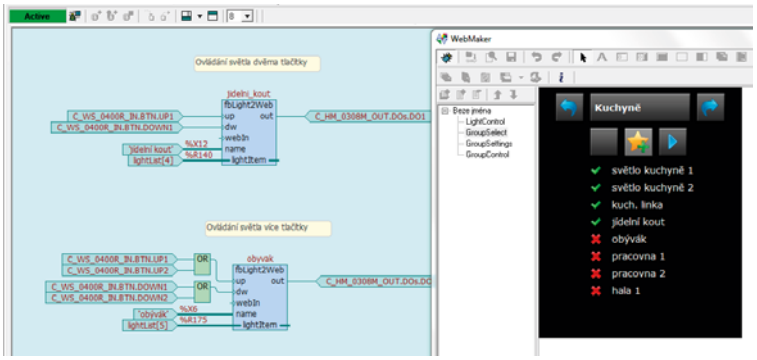
New libraries in Mosaic

We continuously add new libraries into Mosaic. In connection with energy consumption metering we prepare library EnergyLib, that allows reading values from electricity meter, connected through opto-head and calculated energy consumption on the base of S0 impulses from the meter.

Libraries DMX512Lib and DALIlib allows us controlling the lights (switching, dimming) and light scene creation (RGB, LED belts) with using above mentioned protocols.

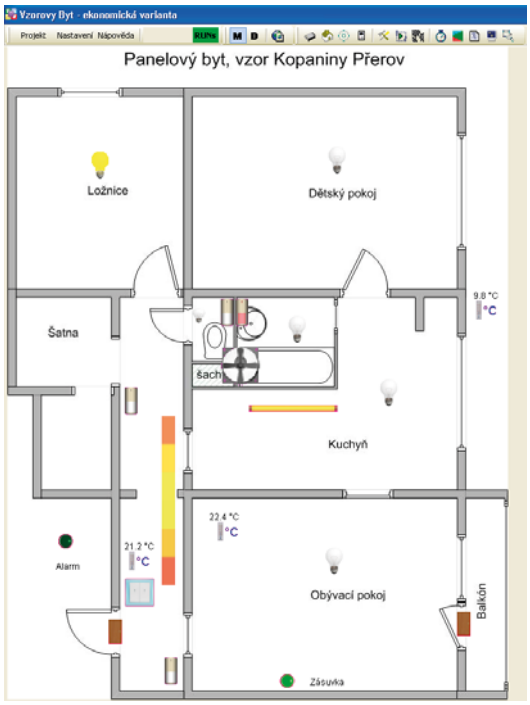
Library GIOM3000Lib is determined for connection of meteostation of the same name and send the data from meteostation to the user programm. Library AstroLib calculates the Sun location (azimuth and declination) on the sky for the time and geographical coordinates and time of sunrise and sunset. The last added library is XMLLib determined for data processing in XML files and we may use it for a different communications between device, where we use XML format files. ■





FoxTool – Smart tool for Smart house

In previous articles we showed a lot about advantages of Foxtrot and its function possibilities. To be able to perfectly fit your needs, we have to programm their system well. Only well done programm let the system work right. Teco offers two software for programming the system. First one is software Moisaic, that let you free programm all our systems – Tecomat Foxtrot and Tecomat TC-700 and others. It is a perfect tool for proffesional programmers. On the contrary, sofware FoxTool is determined for non-programmers, users or integrators without experience with programming. With FoxTool it´s possible to create the programm without knowledge of programming languages, but you have to have any basic knowledge about automation.



FoxTool generate programm for central module according to actions and events, defined by user. As a first, in device manager, we specify the hardware configuration of the system (manually or automaticly from central module, if the installation is assembled). After that for each input of any device we define events (push button, reach or reach over the defined temperature, disruption space, guarded by presence sensor, card attached to the card reader etc.). For each event we may in event manager define, what will system do for any event. System may react by setting any outputs and may inform you by SMS message. For each event you may set more commands, so one push button may put down the blinds, switch any light for any level, switch on the TV and set pleasant temperature for relaxing. Time event manager let you to plan the events for the future, Time programm manager let you to automate many functions like automate heating and lights according to any scenario. FoxTool contains Designer. With Designer you may create simple web page of the house for controlling the house. Background of the web page may be plan of your house, that is complete with icons of active elements. The icons shows status of sensors, lights, fans, locks, Windows contacts, values of temperature, selected heating mode etc.

During programm compilation the software creates web pages and save them on memory card. If you connect central module to internet, you may use these web pages not only for visualization of the house, but also for house control from any place. Entry to your web server is secured by user name and password.

FoxTool is determined for central modules CP-1000 and CU2-01M. Other central modules are programmable only through software Mosaic. Right central module you choose in separate window after project opening. Software FoxTool is a new vision of previous software IDM[1]) and is fully compatible with projects from IDM. Software FoxTool is free. ■

[1]) IDM is registered trademark of ELKO EP, s.r.o.

Tecomat TC700 controls oil terminal Black Sea Terminal in Georgia

Control system Tecomat TC700 has been chosen to control Black Sea Oil Terminal in Georgia. The Oil Terminal is an important node for Azerbaijan Oil, diesel and heating oil from Caspian Sea. Technology of the Terminal is prepared for pumping oil derivatives transported between Azerbaijan and Georgia via railway to high capacity tanks and then to sea tankers. The owner of the Terminal is company SOCAR – Azerbaijan state oil company, one of the largest oil companies in the world.

Image: For controlling the whole Terminal we realized two-screen dispatching with SCADA Reliance

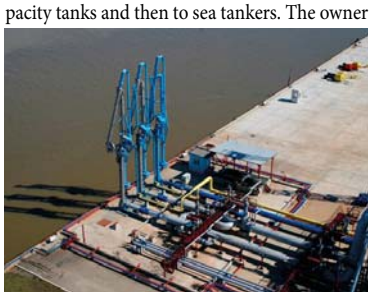


Image: Special feeders have to balance decline in tanker up to 18 meters. Capacity of berth for refueling is from 8 to 12 thousand cubic meters per hour.

Control system has been implemented by our engineers together with our local integrator, company OOO Kontur Avtomatika.

Construction of the Terminal in Kulevi at city Poti at Black Sea shore was important milestone in Georgia economy, that´s why the Grand Opening of Terminal has begun by Georgia´s prime minister Artur Rasizade.

The area of the Terminal is around 4 square kilometers. The capacity of the tanks is 320.000 tons, there is an expandation in preparation up to 380.000 tons. Refueling capacity of Terminal is 10 mio tons per year: 3 mio tons oil, 3 mio tons diesel and 4 mio tons heating oil. At present they fill in tankers roughly 250.000 tons monthly. The highest monthly record is 353.787 tons in May 2011. The Terminal has another highest record in December 2010, they fully filled in 100.000 tons tanker in 18hours 45 minutes instead of the usual 34 hours.

For this terminal our company Teco a.s. has delivered in 2006 complete control system distributed into 17 nodes, connected by optical network. In the main dispatching all nodes are connected and centralized into SCADA system Reliance. ■

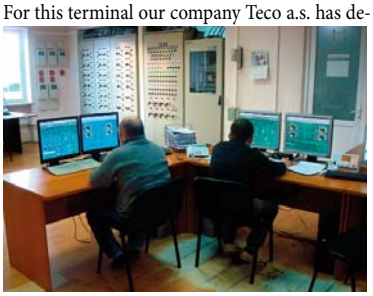


Image: Dispatching room with 2 screens, switchboard with control system Tecomat TC700 from our company Teco a.s.

Image: Empty tanker

Image: Products trail running between tanks at storage

Image: Typical configuration of 2 switchboards for 4 tanks and relevant group of automatically controlled valves.

Control system of Office Building PAZ-2 in Ramat Gan Center, Tel Aviv – Israel

Tecomat Foxtrot control system has been implemented to control air-conditioning, machine cooling and fire dampers in Office Building PAZ-2. The building is placed in Trade Center Ramat Gan in Tel Aviv. Here we may find the highest buildings in Israel and also one of the most famous diamond exchange of the world.

During reconstruction of the building PAZ-2, there were added extra floors. For extension of building management system – air-conditioning, machine cooling and fire dampers – has been chosen control system Tecomat Foxtrot with central module CP-1005.

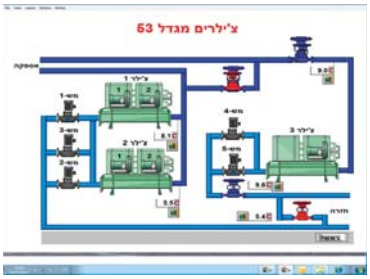
Image: Visualization of machine cooling.

The project has been implemented by our customer – Israel integrator company S.P.G. Ltd.Into the existing control system of the building, the new Foxtrots are connected via Modbus.

Project has more then 350 inputs and outputs. For remote inputs we use bus CIB. These remote inputs are used for connecting fire dampers of air-conditioning units. The visualization of the system has been done in Wizcon and we may see, it is in Hebrew language. In the tables they may set up required values for each parts of the building and for appropriate season, so they may meet the parameters of the air-conditioning system and reach the savings in energy consumption.

Image: Office Building PAZ-2 is marked yellow on the left side of the picture. On the right side there is Moshe Aviv Tower – the highest building in Israel.

In technical department there are 5 cooling compressors Trein, 3 of them are for 300 tons, 2 of them for 500 tons of refrigerant. Foxtrot controls all of them. ■



Visualization of air-conditioning

Image: One of the visualization. windows

With Foxtrot on yachts

Control system Tecomat Foxtrot has entered recently thanks to our Netherland partner – company B@R Design B.V. – into ocean yacht control. For control they has chosen central module CP-1016 and it has been completed with user friendly platform for control of all device on board for yachts of middle size (10 to 25 m length). Module CP-1016 takes care about all processes called "domotic" – LED light control, heating system, air-conditioning, but also via protocols like NMEA 0183 and NMEA 2000 controls and visualizes all ship equipment, for instance status of engine, batteries, power generator etc. With this integrated solution the customer has full control of any devices on the board. Via web pages of all yacht, created in WebMaker and web soluton they may monitor and control all at his panel PC, tablet, iPad, iPhone or devices with operation system Android. With using UMTS/3G we may even monitor the yacht from any place in the world and with using IP cameras we may even watch the board or lower deck. ■

Thanks to company Capi2 the Foxtrot comes as yacht control system to manufacturers and yacht dealers worldwide and yachts equipped with Foxtrot begins to sail all world oceans and seas. It is really possible that you meet it during your next Holiday.

Image: example of yacht control and visualization witch system Tecomat Foxtrot

Monitoring experiments in the Tunnel Joseph

Image: Technical University Liberec shows a test.

In 2007, there was put into the operation the unique underground training center UEF Joseph there in the Czech Republic, close to Slapy Dam. UEF Josef means Underground Educational Facility Joseph. UEF Josef center is situated in the former reconnaissance tunnel Joseph. The tunneling of Joseph has been associated with the gold-bearing geological survey.

The workplace is there not only for study reasons, but also for research purposes in collaboration with business sphere.
Thanks to Centralized Development Project in 2010 entitled: "Inter-university cooperation in the development of an underground laboratory Joseph on field of storing hazardous substances and gases", it was founded SP71 in Mokrsko-west "Inter-university Underground Laboratory" (Interlab). The project was done jointly by the Faculty of Civil Engineering and the Faculty of Nuclear Sciences and Physical Engineering from the CVUT Prague (Czech Technical University in Prague), the Chemical and Technology University in Prague, Masaryk University in Brno and the Technical University of Liberec.
The workers of the Technical University in Liberec placed into the Interlab Foxtrot system to monitor on-line two experiments:
1. rocks warming
2. water level
Among the other things, just on this use of Foxtrot we may see its hidden benefits. A device, that fits together with MCB, RCD, and a small power supply into a small box with a high proof, perform both measurement and control of the experiment. It also contains the internal web server interpreting web pages stored on the internal SD card. Then just a simple plugging into a standard LAN with connected IP cameras connected to the Internet as here in the Joseph tunnel, or in the other cases directly to the router connected to the Internet wirelessly through the network GPRS/EDGE/3G.
Here Foxtrot operates as an autonomous telemetry station with a visual control, independent on the other web servers and data servers than its own built-in server.
In this case it is a PWM – pulse wide modulation of 2kW heating coil control. Subsequently there are measured temperatures at a different distances from the source of the heat. Foxtrot automatically saves the measured values to files .csv. They are whenever ready for download by one click and then we may visualize and analyze them in MS Excel. ■

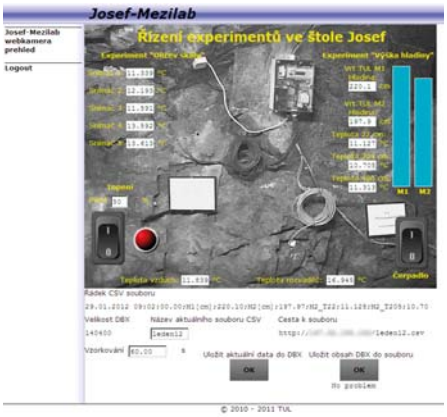


Image: The main page of both experiments. The background is created by picture from IP camera pointed at switchboard with Foxtrot.

Image: Preparation of the experiment in UEF Joseph.

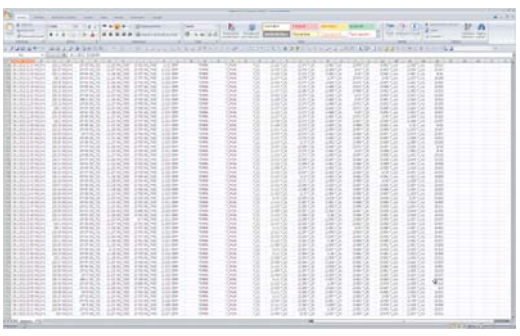


Image: Data file in .csv format generated by Foxtrot, downloaded by one click in web browser and then opened by MS Excel.

Portal with operation information at highway R35 close to Liberec city, Czech Republic

Other telematics application controlled by Tecomat system has been put into operation at highway R35 in Liberec city area, close to Chrastava. The application was implemented by Proteco company. Variable sign and text table placed at portal inform drivers with 3 rows text information about present situation on way ahead of them. Information is coordinated from National Traffic Information Center (NDIC).

For two ways information exchange has been standardized XML messages transferred by TCP/IP protocol. XML messages are processed in NCID directly without any interlinks from PLC Tecomat Foxtrot, connected through Fast Ethernet into VPN network. Connection with NDIC is realized by satellite connection.

Control system: Tecomat Foxtrot, ID-18

Software: Application profile Traffox, WEB server

Foxtrot is monitoring and controling basic functions of switchboard, like power supply, protection, door opening and internal temperature. Foxtrot provides all maintenance and diagnistic functions in comfortable way at graphic touch panel direct in switchboard and also at web interface in Foxtrot cenral module.

Foxtrot by XML_line and XML_Compose functions reads (parse) and conversely creates XML messages for direct communication with NDIC. Direct and the shortest communication with NDIC is provided by TCP/IT protocol in VPN

Via serial channel Foxtrot provides communication and diagnostic of text table and variable signs placed above traffic lanes.

Present status at text table and variable sign is available at internet at www. dopravniinfo.cz

Control system of the facades lighting system in Chodov Shopping Center – Prague, Czech Republic

Chodov Shopping Center in Prague is the biggest and largest shopping mall in Czech Republic. It offers to customers an unique possibilities for both shopping and fun. Shortly before Christmas 2011 the Center has been completed with facades lighting system, that creates color effects on the frontage of the building. Changing color effects are a nice attraction for all who are going around pass the D1 highway (the main Czech higway from Prague to Brno).

Our control system Tecomat Foxtrot and LED lights has been implemented during December 2011 by company KOMPAR to the frontage of the Center building. During the night and dusk the articulated facades are emphasized as well as 7 high columns.

The operator of the shopping center has possibilities as an user to change the colors as well as timing of transition between colors.

Control system: KOMPAR CP-1004

LED tubes control: C-DM-0006M-ULED

LED light control: DMX512

Software: Mosaic, integrated WebMaker

Great-grandfather of Foxtrot has been controlling the singing fountain in Marianske Lazne (Marien Bad) for more then 25 years

Machine room of fountain in Marianske Lazne

Have you known, that control system NS905, what have been implemented on 30th April 1986 on the first singing fountain in former Czechoslovakia and that is still working without any maintenance, is a real great-grandfather of popular Tecomat Foxtrot system? In family tree there is further Tecomat NS950 as granfather and Tecomat TC700 as father.

Interesting article about singing fountain has been published by editor of Blesk magazine in 2009. From this article we use the images and we notice only the information regarding control system. The system is NS905, manufacturing since 1984 in Tesla Kolin as first microprocessor controlled PLC in former Eastern block. It was modular system, contained power supply and central module and module of inputs and outputs. The size of system has been determined by available electronic components and function integration. For example, to create 32 kB memory EPROM was necessary to place on PCB 16 big ceramic housings.

Programming has been done from a special programming case NS906. For a younger generation let´s mention that in that time personal computer has been old only 2 years, without hard disc, only with tewo floppy discs.

Name: Control system of singing fountain in Marianske Lazne (Marien Bad)

Implementation: Sigma Olomouc, Tesla Kolin (predecessor of our company)

Date of implementation: 1986

Control system: NS905

Software: mnemo code NS906

Control system NS905 accompanied by Audio device of singing fountain

Mr. Rudolf Petrak from company Lecebne lazne Marianske Lazne at control system of fountain based at NS905 – it is that one with blue and red industrial connectors

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