

Industrial Raw Water Treatment



Raw Water Treatment Plant BRADLEC

ŠKO-ENERGO is an operating company established in 1995 that supplies energy and broad range of services such as raw water treatment and waste liquidation for the company ŠKODA AUTO, a.s. ŠKO-ENERGO is also a supplier of heat for 12 000 homes and more than 200 business entities and institutions in the city of Mladá Boleslav in Czech Republic.

In 2013, ŠKO-ENERGO installed a new control system in the water treatment plant in Bradlec incorporating latest trends in the field of operators control.

On the visualization level, the customer required a secure and flexible SCADA system with advanced visualization based on vector graphic providing for flexible scaling as requirements increase. The HMI was installed on operators PCs as well as on iPad that is used as a mobile operator's panel in field.

To get the maximum use of the plant production data ŠKO-ENERGO required remote 24/7 access, data logging, trends analysis & reporting, complex alarm system and online data acquisition. All these requirements were met by installing one single device – mySCADA Box 3G into the control system.



Customer: ŠKO-ENERGO, s.r.o.
Country: Czech Republic
Year of implementation: 2013



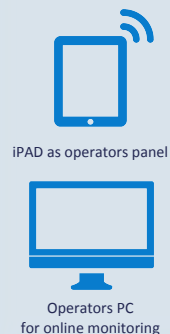
mySCADA Box

- advanced HMI interface
- multiple PLC protocols
- data logging up to 28mio of records
- complex alarm system
- trends, reports, data analysis
- secure user access
- visual programming
- box side scripts
- integrated secure web server
- advanced routing options
- 3 types of VPN tunnels
- remote access
- integrated 3G/4G modem
- CISCO VPN compatible

HARDWARE PARAMETERS

Dual core 1.0 GHz CPU (Cortex A9 with ULP GeForce GPU)
512 MB DDR RAM, 1GB industrial NAND Flash
up to 3x10/100 Mbit Ethernet interface
up to 4xRS232 and 2xRS485 serial ports
micro SD card
3G/4G modem with dual SIM option
12-48 VDC
Industrial temperature range on request

HMI



SCADA

VISUALIZATION
REMOTE ACCESS
DATA LOGGING
ALARMS & TRENDS



mySCADA Box

AUTOMATION

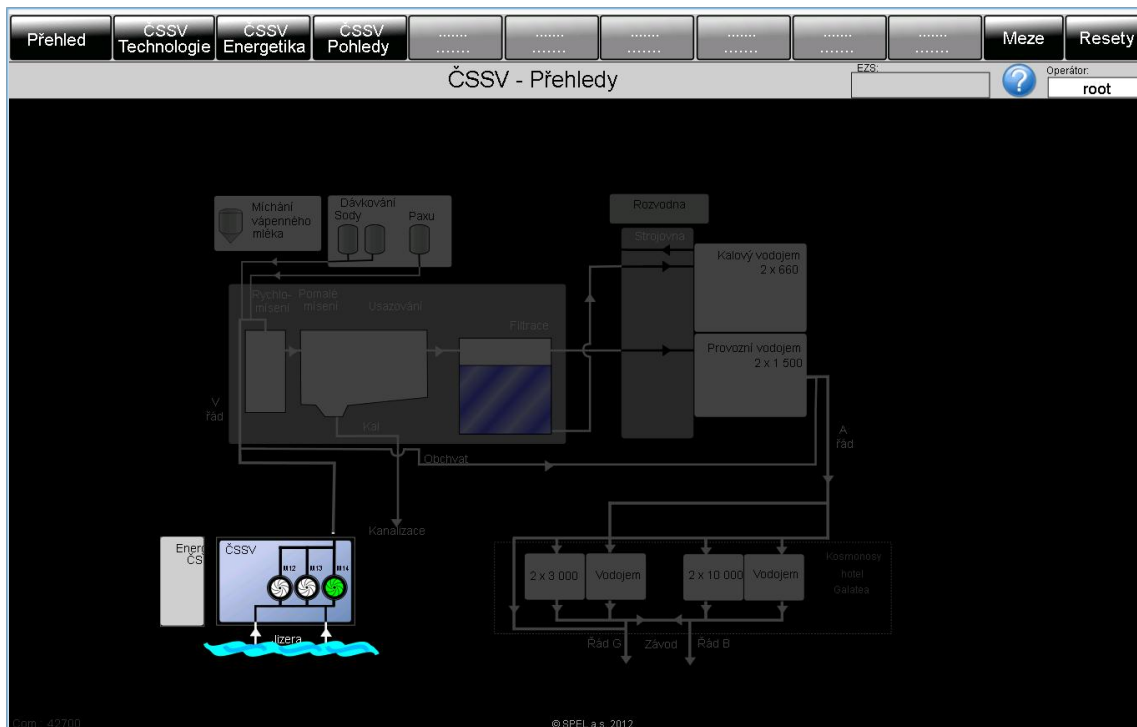
PROGRAMMABLE
CONTROLLER



Siemens S7 1200

Ethernet

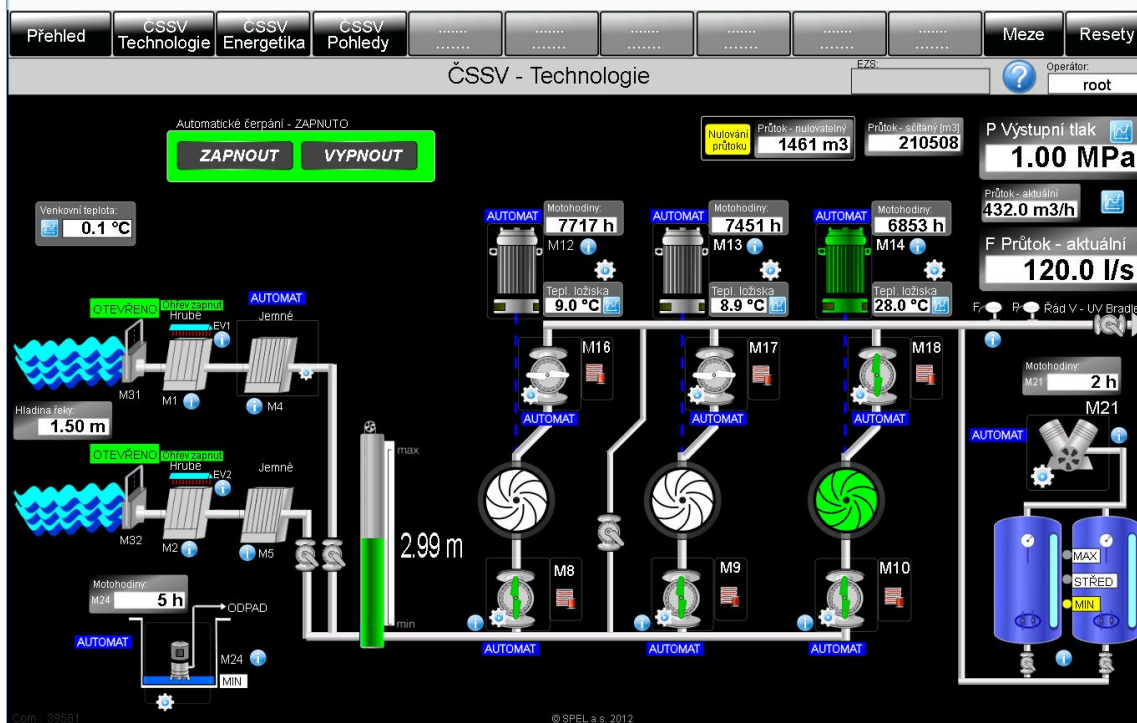
Wastewater plant technology



Technology Overview

This screen shows the entire technology of the water plant Bradlec.

In the left bottom corner of this screen is highlighted the technology shown in next screen.



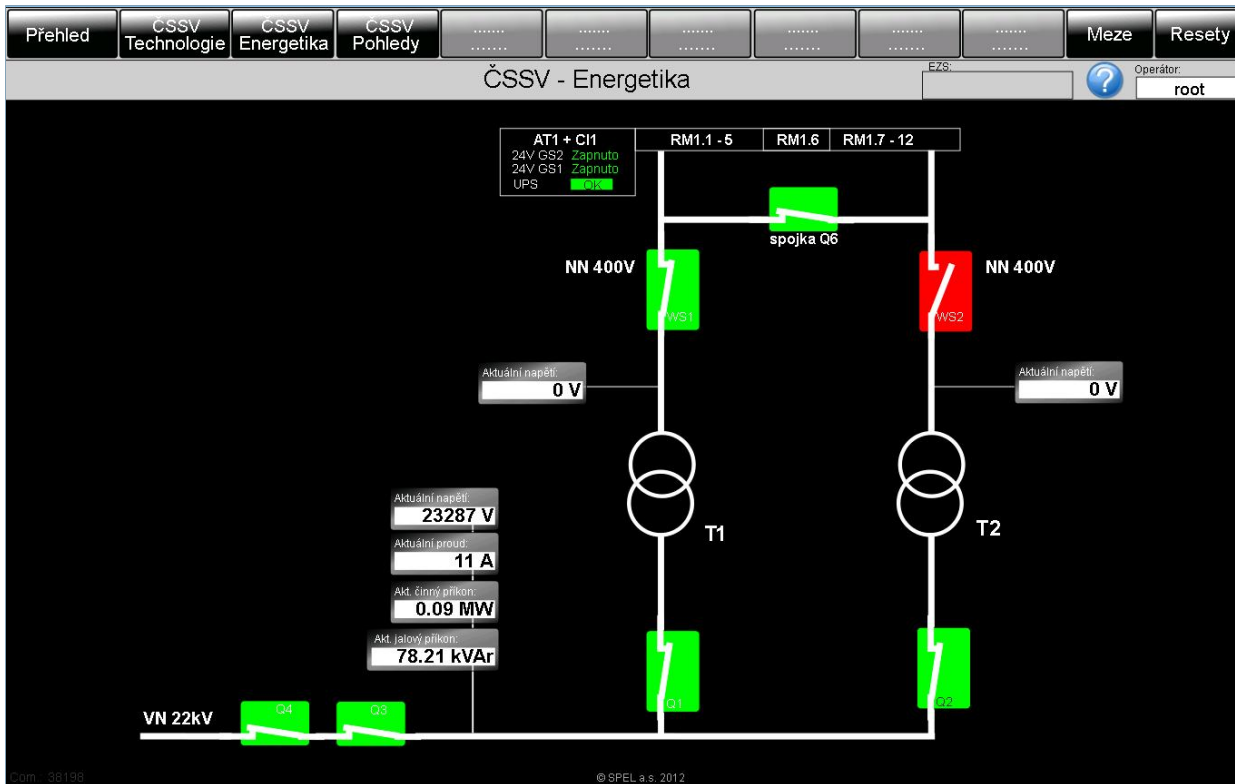
Technology ČSSV

This screen shows the technology status of the water inflow pump station and its individual parts.

RESULT

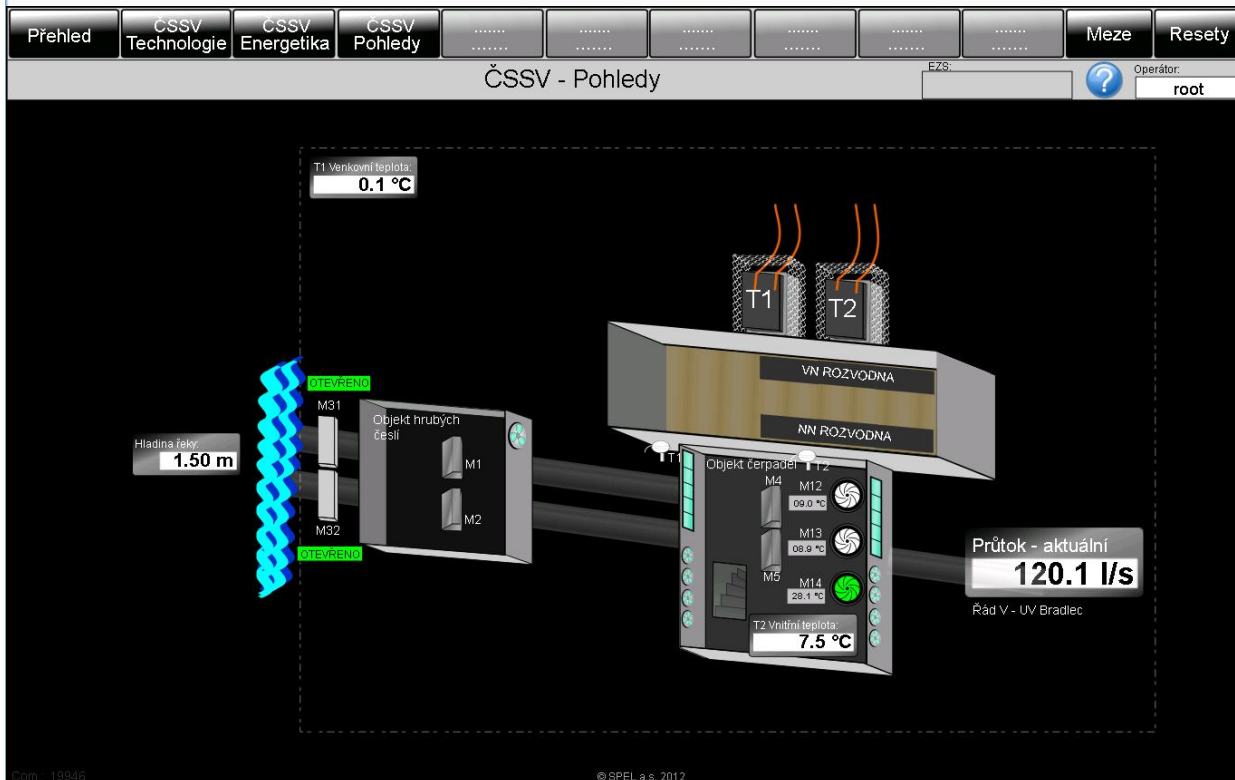
The core parts of the new control system are the controller Siemens S7 1200 and mySCADA Box 3G. The plant system visualization created in the software mySCADA Editor runs on mySCADA Box and supports the operating personnel on all levels with clear and panoramic views. The operators PC connect remotely via web-browser, iPad runs native mySCADA application, which connects directly to S7 1200.

The integrated mySCADA Box 3G met all requirements of the customer. The plant operating personnel is supported by the modern scalable SCADA system enabling effective data processing that is deployed on mobile iPads as well as on operators PCs at a remote office. The required production data can be retrieved on request at any time from anywhere and used to make the right management decisions maximizing production efficiency, saving redundant costs and guaranteeing the water quality criteria.



Energetics – Power Supply

This screen monitors the status of energy circuits and its individual parts.



Views

This screen monitors the status and temperature of water inflow, and the status of T1 and T2 transformers.

SEZNAM TAGŮ ALARMY HISTORIE ALARMŮ ZÁSAHY

Údaje získány od 02/14/2013 09:57:18, [Obnovit stránku](#)

Čas	Tag / Proměnná	Text	Hodnota	Text hodnoty	Uživatel
02/14/2013 06:29:16 807ms	MB24.0@CPU1214CDC	Automatické čerpání - Zapnutí	1	-	slechta
02/13/2013 20:32:14 266ms	MB10.3@CPU1214CDC	Resetování průtoku	1	-	dohled
02/13/2013 18:54:56 586ms	MB24.1@CPU1214CDC	Automatické čerpání - Vypnutí	1	-	dohled
02/13/2013 17:00:54 440ms	MW44@CPU1214CDC	Čerpadlo M14	3	AUTOMAT	dohled
02/13/2013 17:00:33 55ms	MW42@CPU1214CDC	Čerpadlo M13	3	AUTOMAT	dohled
02/13/2013 12:52:53 35ms	MB24.0@CPU1214CDC	Automatické čerpání - Zapnutí	1	-	dohled
02/13/2013 12:52:37 960ms	MW40@CPU1214CDC	Čerpadlo M12	3	AUTOMAT	dohled
02/13/2013 12:49:18 388ms	MW44@CPU1214CDC	Čerpadlo M14	2	Vypnout	dohled
02/13/2013 12:49:05 597ms	MW42@CPU1214CDC	Čerpadlo M13	2	Vypnout	dohled
02/13/2013 12:46:21 252ms	MW40@CPU1214CDC	Čerpadlo M12	2	Vypnout	dohled
02/13/2013 12:43:12 852ms	MW40@CPU1214CDC	Čerpadlo M12	1	Zapnout	dohled
02/13/2013 12:38:40 592ms	MW40@CPU1214CDC	Čerpadlo M12	2	Vypnout	dohled
02/13/2013 12:37:12 567ms	MW40@CPU1214CDC	Čerpadlo M12	1	Zapnout	dohled
02/13/2013 12:32:34 740ms	MW42@CPU1214CDC	Čerpadlo M13	3	AUTOMAT	dohled
02/13/2013 12:31:36 553ms	MW126@CPU1214CDC	Šoupátko M16	3	AUTOMAT	dohled
02/13/2013 12:29:54 47ms	MB38.7@CPU1214CDC	Ventil M17 - Reset	1	-	dohled
02/13/2013 12:29:52 153ms	MB38.7@CPU1214CDC	Ventil M17 - Reset	1	-	dohled
02/13/2013 12:29:51 905ms	MB38.7@CPU1214CDC	Ventil M17 - Reset	1	-	dohled
02/13/2013 12:28:46 378ms	MW42@CPU1214CDC	Čerpadlo M13	2	Vypnout	dohled
02/13/2013 12:25:45 943ms	MW42@CPU1214CDC	Čerpadlo M13	1	Zapnout	dohled
02/13/2013 12:25:23 815ms	MW40@CPU1214CDC	Čerpadlo M12	3	AUTOMAT	dohled
02/13/2013 12:24:55 512ms	MW40@CPU1214CDC	Čerpadlo M12	2	Vypnout	dohled
02/13/2013 12:24:30 426ms	MW126@CPU1214CDC	Šoupátko M16	3	AUTOMAT	dohled
02/13/2013 12:22:20 499ms	MW40@CPU1214CDC	Čerpadlo M12	1	Zapnout	dohled
02/13/2013 11:44:23 818ms	MB37.7@CPU1214CDC	Ventil M9 - Reset	1	-	dohled
02/13/2013 11:44:22 558ms	MB38.7@CPU1214CDC	Ventil M17 - Reset	1	-	dohled
02/13/2013 11:44:21 397ms	MB35.7@CPU1214CDC	Ventil M8 - Reset	1	-	dohled
02/13/2013 11:44:19 341ms	MB38.7@CPU1214CDC	Ventil M16 - Reset	1	-	dohled
02/13/2013 06:45:50 298ms	MB10.3@CPU1214CDC	Resetování průtoku	1	-	dohled
02/12/2013 22:03:58 841ms	MB24.1@CPU1214CDC	Automatické čerpání - Vypnutí	1	-	dohled
02/12/2013 15:21:56 350ms	MB24.0@CPU1214CDC	Automatické čerpání - Zapnutí	1	-	dohled
02/12/2013 14:43:53 947ms	MW46@CPU1214CDC	Kalové čerpadlo - M24	3	AUTOMAT	dohled
02/12/2013 14:43:21 774ms	MW46@CPU1214CDC	Kalové čerpadlo - M24	2	Vypnout	dohled
02/12/2013 14:21:04 891ms	MW46@CPU1214CDC	Kalové čerpadlo - M24	3	AUTOMAT	dohled
02/12/2013 14:20:52 427ms	MW46@CPU1214CDC	Kalové čerpadlo - M24	2	Vypnout	dohled
02/12/2013 14:20:36 803ms	MW46@CPU1214CDC	Kalové čerpadlo - M24	2	Vypnout	dohled

OPERATORS'
ACTIONS

All operators actions are logged into mySCADA Box and can be retrieved at any time.

Přehled CSSV Technologie CSSV Energetika CSSV Pohledy

Nastavené meze

EZS: ?

Operátor:

Nepotvrzený alarm !!!

Venkovní teplota:
Alarmová mez: -6.0 °C

M12 Teplota ložiska:
Alarmová mez: 80 °C

M13 Teplota ložiska:
Alarmová mez: 80 °C

M14 Teplota ložiska:
Alarmová mez: 80 °C

Teplota v místnosti čerpadel:
Alarmová mez: 40 °C

Hladina v jizeře:
Alarmová mez vysoká: 5 m

Vysoký tlak výstupní vody:
Alarmová mez: 1.5 MPa

Nizký průtok výstupní vody:
Alarmová mez: 400 m3/h

VN napětí nízké napětí:
Alarmová mez: 18 000 V

Hladina v jizeře:
Alarmová mez nízká: 1 m

Hladina v sací jírně:
Alarmová mez nízká: 1 m

Čas přejezdu klapky: M16,17,18, 8, 9, 10
Alarmová mez: 3 min

Čas chodu kalovky: M24
Alarmová mez: 10 min

Čas chodu kompresoru: M21
Alarmová mez: 30 min

Com : 28941

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DYNAMIC ALARM
LIMITS

On this screen the operator can set the upper and lower bound alarm limit values. Changes are reflected in real-time.