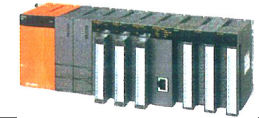
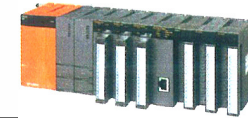
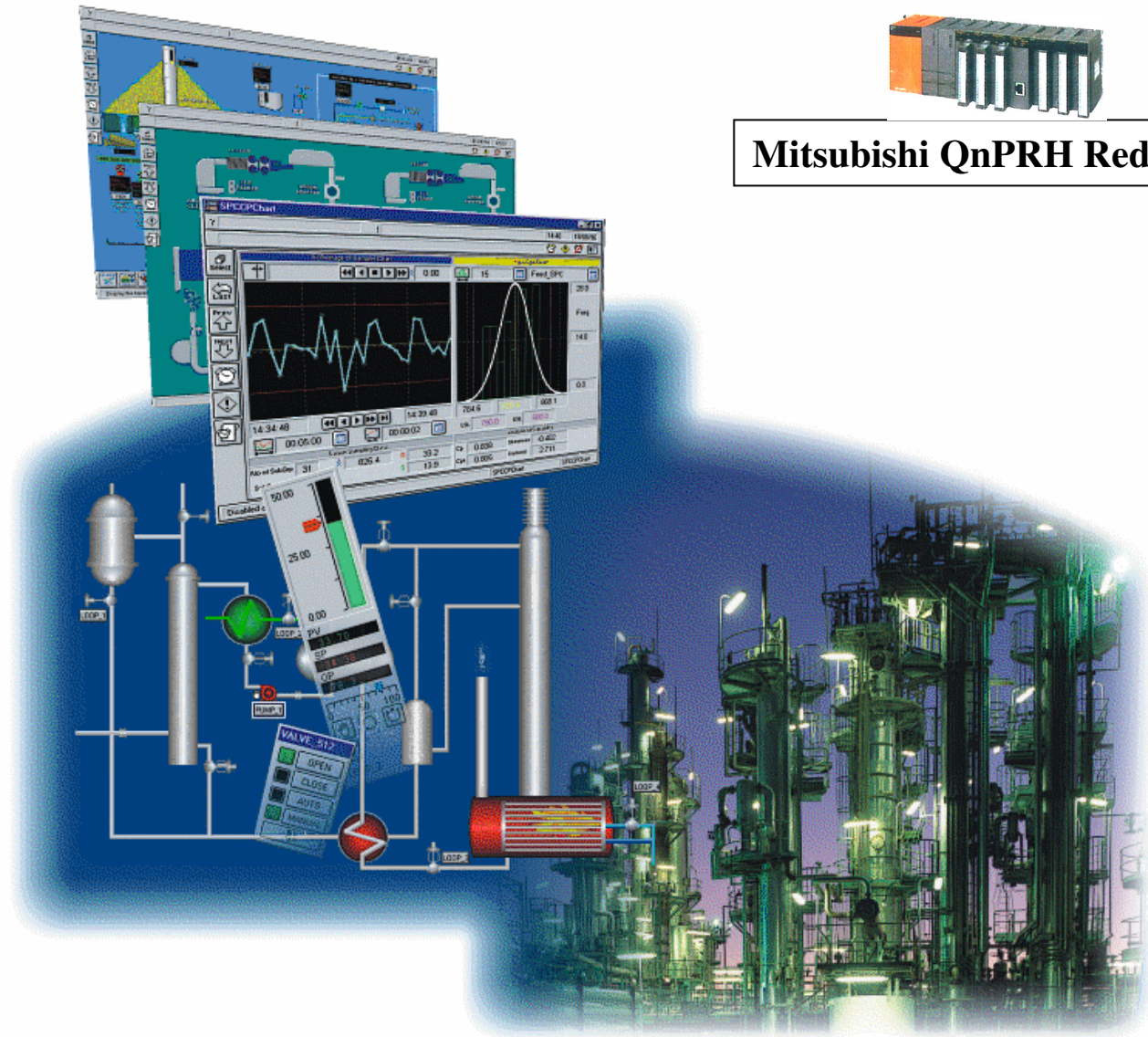


Chemical plant, AZOT, Severodonetsk



Mitsubishi QnPRH Redundant solution

Automatic Control System for Acetic Acid and CO Production

Customer – OOO «AZOT»

Contractor – Ltd «CSC-Automation»

Application (automation objects)

- Acetic acid production
- Carbonic acid production
- Absorption plant

System objectives – Automatic Process Control System is designed to perform automatic control and monitoring, as well to provide collecting data, logging and recording historical files, produce real-time and historical reports.

Soft and hardware

- Mitsubishi programmable logic controllers
- Operator Interface based on Citect SCADA
- Plant2Business – a plant wide reporting tool

System components

- Redundant systems Q25PRH
- Remote data collecting stations switching over from control to the full hot standby system
- Industrial fibre – optic network MELSECNET
- Operator display clients
- Plant2Business – a plant wide reporting tool
- Remote I/O Modules for Plant Manager and Plant Floor Operator
- Ethernet LAN

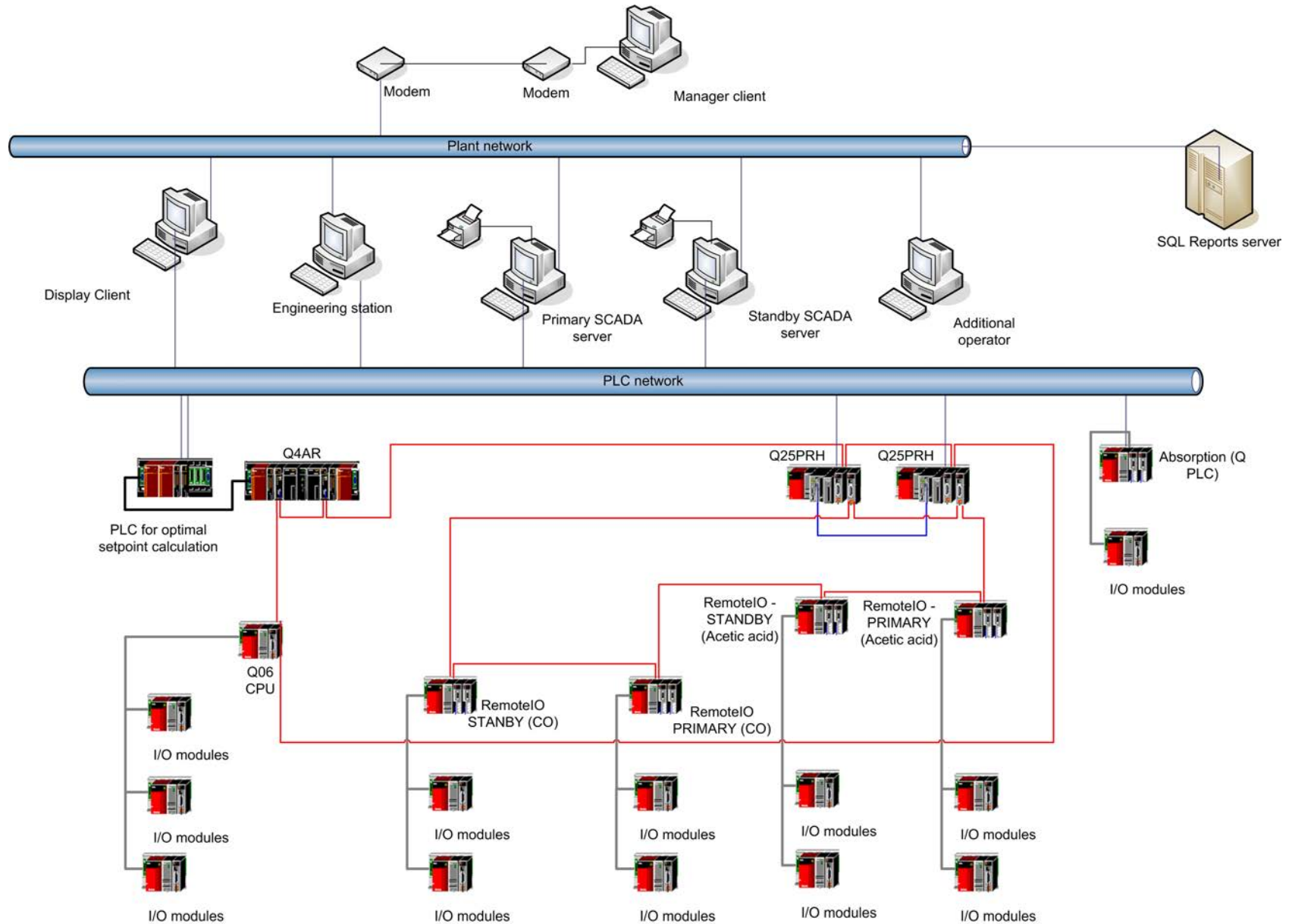
Project Statistics

Number of I/O analog points - 280
Number of I/O digital points – 64
Number of control loops - 108
Implementation period – 6 months
Commissioning date 1st stage – 01.03.2005
Commissioning date 2nd stage – 01.05.2005

The benefits of the implemented solution to the customer

- Real-time tracking of the automation objects.
- Replacement of the failed I/O modules for duplicated units and changing controller algorithms without stopping operation.
- Making easier for operators to summarize the use of raw materials and analyze the product turnover in each cycle automatically.
- On-line creating reports for manager of different levels, as well as geographically – remote site and devices monitoring
- Monitoring to prevent personnel from performing faulty or unauthorized operations
- Achievement of high level maintenance procedures by improving both quality and operator utilization
- Being alerted to alarm immediately
- Collecting the details of each alarm occurrence and error-free running time

General system structure

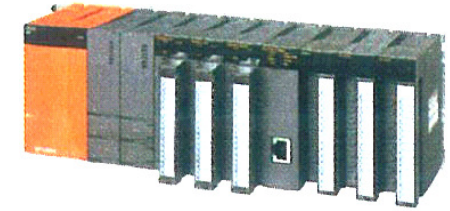


Mitsubishi PLC System

The low structured subsystem on the base of Mitsubishi PLCs with the high-end redundant system Q25PRH is designed for monitoring continuous processes and creating control- and blocking systems of high complexity.

The GX Developer and PX Developer packages are software technologies specially used to design the control system running from the engineering environment.

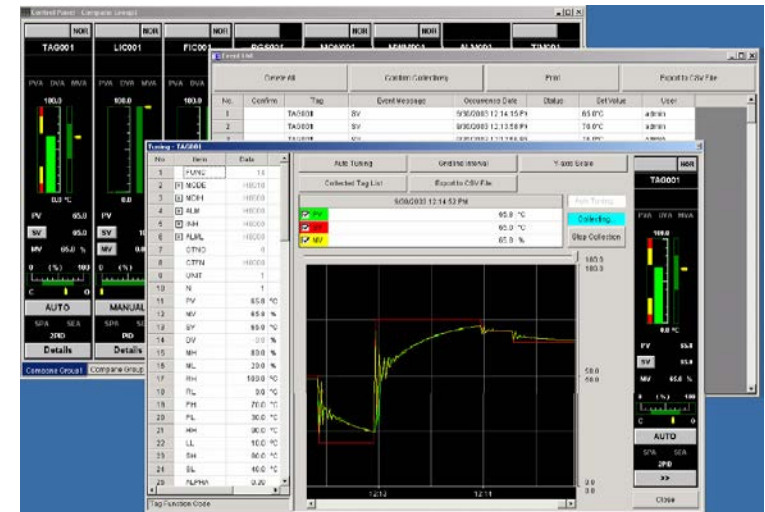
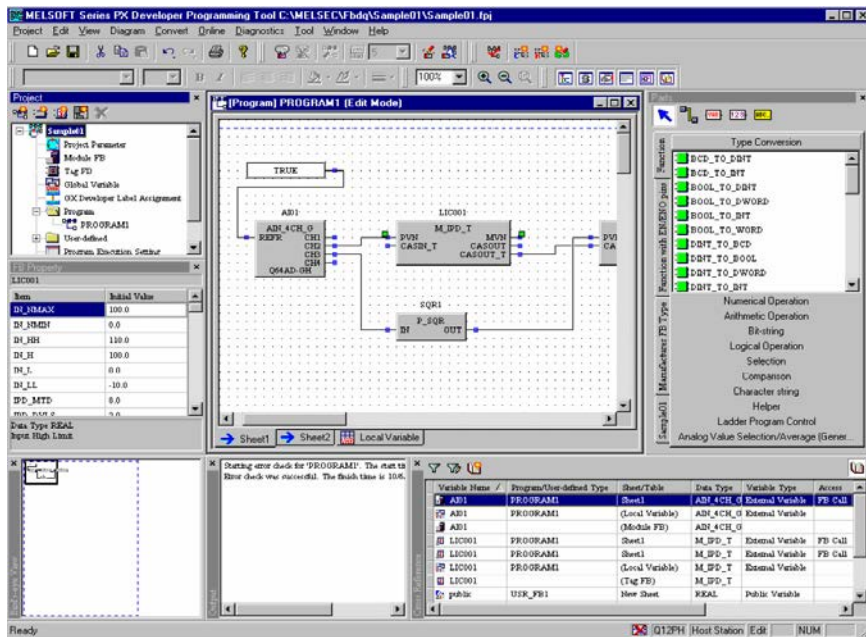
The GX Developer package is an engineering tool using a set of well – established controller programming standards.



For today this package is considered to be the leading programming software technology for PLC life applications based on QPH и QPRH Series (redundant systems).

The package PX Developer ensures an intuitive design (powerful offline simulation) of loop and cascade controls, monitoring of the algorithm routine, as well as control loop debugging tools (control factor setting).

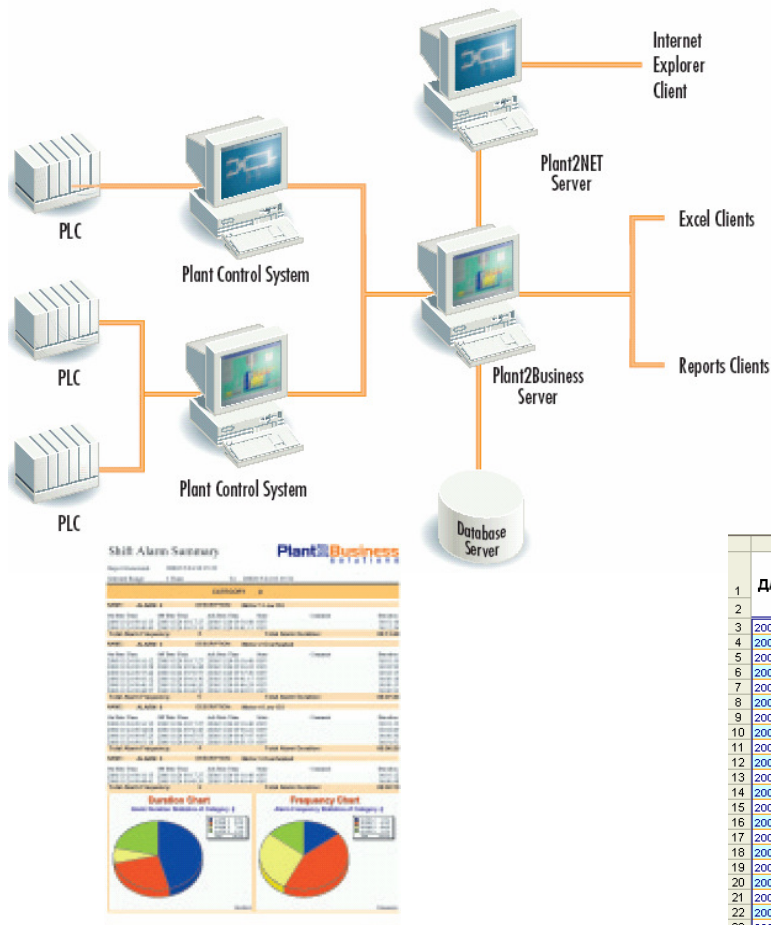
The use of the PX Developer package can change existing algorithms and add new PID control loops without disrupting control system operations.



Reporting system

To create report files ranging from shifts reports to balances of product storage tanks or other report forms, the system can use the information portal based on the Citect Plant2Business reporting tool.

As a database server is used Microsoft SQL Server 2000. Currently the system enables the connection of up to 50 Clients. The reports are created on request simple using Crystal Reports and can be viewed through Excel or Reports templates or directly by means of a standard browser Internet Explorer.



Microsoft Excel - Парки.xls

02/02/2005 15:39									
Конденсат			Бензин			Высокооктановый			
Резервуар	Наполнение, т	Признак	Резервуар	Наполнение, т	Признак	Резервуар	Наполнение, т	Признак	
P-017	1266,6	Конд	P-102	24,1	A-76	P-103	54,0	A-92	
P-018	1321,5	Конд	P-032	656,0	A-76	P-104	3,6	A-92	
P-019	632,4	Конд	P-033	634,8	A-76	P-105	3,3	Риформат	
P-020	441,0	Конд	P-035	35,4	A-76	P-106	402,9	Риформат	
P-026	95,9	Конд	P-039	355,7	Прям бенз	P-107	657,0	Риформат	
P-027	533,2	Конд	P-040	408,1	Прям бенз	P-108	-0,8	Риформат	
P-028	-0,9	Конд	P-128	124,8	Прям бенз	P-109	4,3	A-95	
P-029	-19,0	Конд	P-121	7,3	Прям бенз	P-110	229,8	A-95	
P-030	3,8	Конд	P-122	96,0	Прям бенз				
P-031	-1,1	Конд	P-123	359,1	Прям бенз				

А	В	С	Д	Е	Г	Н	И	К	Л	М			
ДАТА ВРЕМЯ	Конденсат		Прямой бензин		А-76		А-92		А-95		Уайт спирт		
	+	-	+	-	+	-	+	-	+	-	+	-	
2005.02.01 09:00:00	0,5	81,19971	0	21,3999	3,8999	1,49988	0,85002	0,11005	0,30005	13,59998	0,12	1,37	
2005.02.01 10:00:00	33,19971	40,5	2,8999	20,8999	0,09998	100,4	0,64008	0,07007	0	42,80005	0,18	1,51	
2005.02.01 11:00:00	0,09981	111,2993	124,5998	5	2,80005	51,19995	0,83	0,15997	0	106	0,2	1,48999	
2005.02.01 12:00:00	60,19971	0,8999	145	0	0	166,7001	0,73004	0,17004	0,80005	0,40002	0,36	1,26	
2005.02.01 13:00:00	58,40039	5,90039	138,7002	0	0	157,2	0,13989	0,79993	0,40002	0,70007	0,04	1,5	
2005.02.01 14:00:00	42,59981	4,09981	133,2998	0,69971	0	149,6	0,04999	0,47003	2,19995	0,3999	0,10999	1,25999	
2005.02.01 15:00:00	44,09981	2,19971	0	0	19,7998	13,80042	0,70044	0,06	0,37	0,09998	0,09998	0,18999	0,81999
2005.02.01 16:00:00	43,19971	1,69971	0	0	18	7,80002	0,40002	0,1601	0,1601	0,19995	0,09998	0,12	1,3
2005.02.01 17:00:00	55,2998	0	0	0	20,3999	3,69995	5,59998	0,20013	0,25012	0,49998	0,3999	0,13999	1,23999
2005.02.01 18:00:00	64,40039	0	0	0	19,8999	0,3999	0,8999	0,06	0,31	0	0,08998	0,03	1,27
2005.02.01 19:00:00	55,89941	1,2998	0	0	18,30029	0,5	121,8001	0,11005	0,23004	0,19995	0,08998	0,16	0,87
2005.02.01 20:00:00	69,80029	0	0	0	19,59981	0	156,2	0,12982	0,2298	0,49988	0,3999	0,30999	1,16999
2005.02.01 21:00:00	73,5	1,1001	124,9004	0,90039	0	158,2	132,86	0,14996	186,00012	0,1001	0,17001	1,54	
2005.02.01 22:00:00	62,7998	0	124,8002	0,40039	0,09985	139,7	255,96	0	383,87	0	0,21999	1,23	
2005.02.01 23:00:00	60,7002	0	62,30005	12,8001	0,2002	64,00024	0,83	0,02002	1,4101	0,11005	0,23001	0,80001	1,4
2005.02.02 00:00:00	57,7998	0	0	0	17	0,69995	0,3999	0,37	0,09	0,21985	0,0799	0,09	1,47001
2005.02.02 01:00:00	65,7998	13,09981	0	0	21,3999	139,59985	0,49976	104,63	0	99,01007	0,11005	0,08001	0,71001
2005.02.02 02:00:00	57,7998	0	0	0	22,5	376,79993	0	206,999	0	10,89994	0,12994	0,04	1,4
2005.02.02 03:00:00	66,2002	3,7002	0	0	20,8999	14,59998	0,90002	0,809	0,108	0,47009	0,25006	0,15998	1,01998
2005.02.02 04:00:00	59,5	0	0	0	18,7002	1,3999	0,8999	0,577	0,33	0,74011	0,55011	0,05	1,8
2005.02.02 05:00:00	61,7998	0	0	0	19,19995	1,40015	1,20007	0,42599	0,34399	0,82007	0,80005	0,06	1,2
2005.02.02 06:00:00	59,7002	0	0	0	18,69995	2	1,19995	0,387	0,4	0,66003	0,68005	0,07999	1,12999
2005.02.02 07:00:00	52,2002	0,40039	0	0	16,3999	0,90015	1,1001	0,344	0,124	0,36005	0,24005	0,05	0,39001
2005.02.02 08:00:00	58,30029	0	0	0	15,7002	1,2998	1,09985	0,443	0,196	0,48993	0,23993	0,06	1,09
Итого	1252,8	267,4	846,6	348,4	572,1	1281,4	707,8	5,1	689,9	168,4	3,2	28,9	
Баланс	985,4		498,2		-709,3		702,7		521,5	168,4		-25,7	

