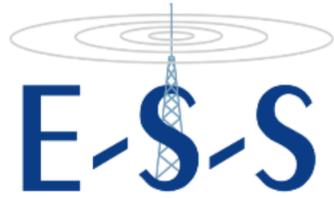


RTU is Compatible with SCADA-OPC



OPC is standard in most SCADA systems and integration with SCADA is simple to implement

SIEMENS



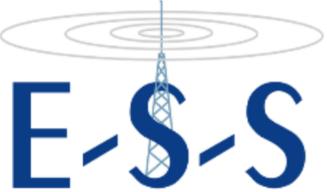
InTouch

Honeywell

Citect



RTU with ESS Monitor & Control Software

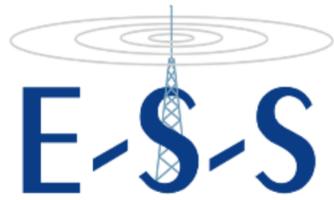


RS232



The "ESS OPC Server" is a software application that runs in the background on the SCADA computer

ESS OPC-Server Software



OPC Server Software residing on SCADA computer.

ESS OPC Server V1.1.31

Status **Setup**

Running Time: 1 day(s) 25 h 47 m 57 s

Number of connected clients: 0

Event Log

Msg from : 655001799158179
:DINLHHHHHHHHHHHHHHHHHHHHLLLL,DFLLLLLLLLLLLLLLLLLLLL,AIN00090002153100040000000000000000
SNMP : SNMP : North -
Plant status Unknown
SNMP : SNMP : Plant ?
G80 status Unknown
Time received : 12/Oct/2016 15:57:57
Msg from : 655001799158004
:DINLHHHHHHHHHHHHHHHHHHHHLLLL,DFLLLLLLLLLLLLLLLLLLLL,AIN00100004170700440000000000000000
SNMP : SNMP : Admin WT -
Plant status Unknown
SNMP : SNMP : Plant -
South status Unknown
Time received : 12/Oct/2016 15:58:28
Msg from : 655001799158005
:DINLHHHHHHHHHHHHHHHHHHHHLLLL,DFLLLLLLLLLLLLLLLLLLLL,AIN00083270165100080000000000000000

GSM IMEI: 358696040557319 | COM3 | Signal: 0031 dBm | About

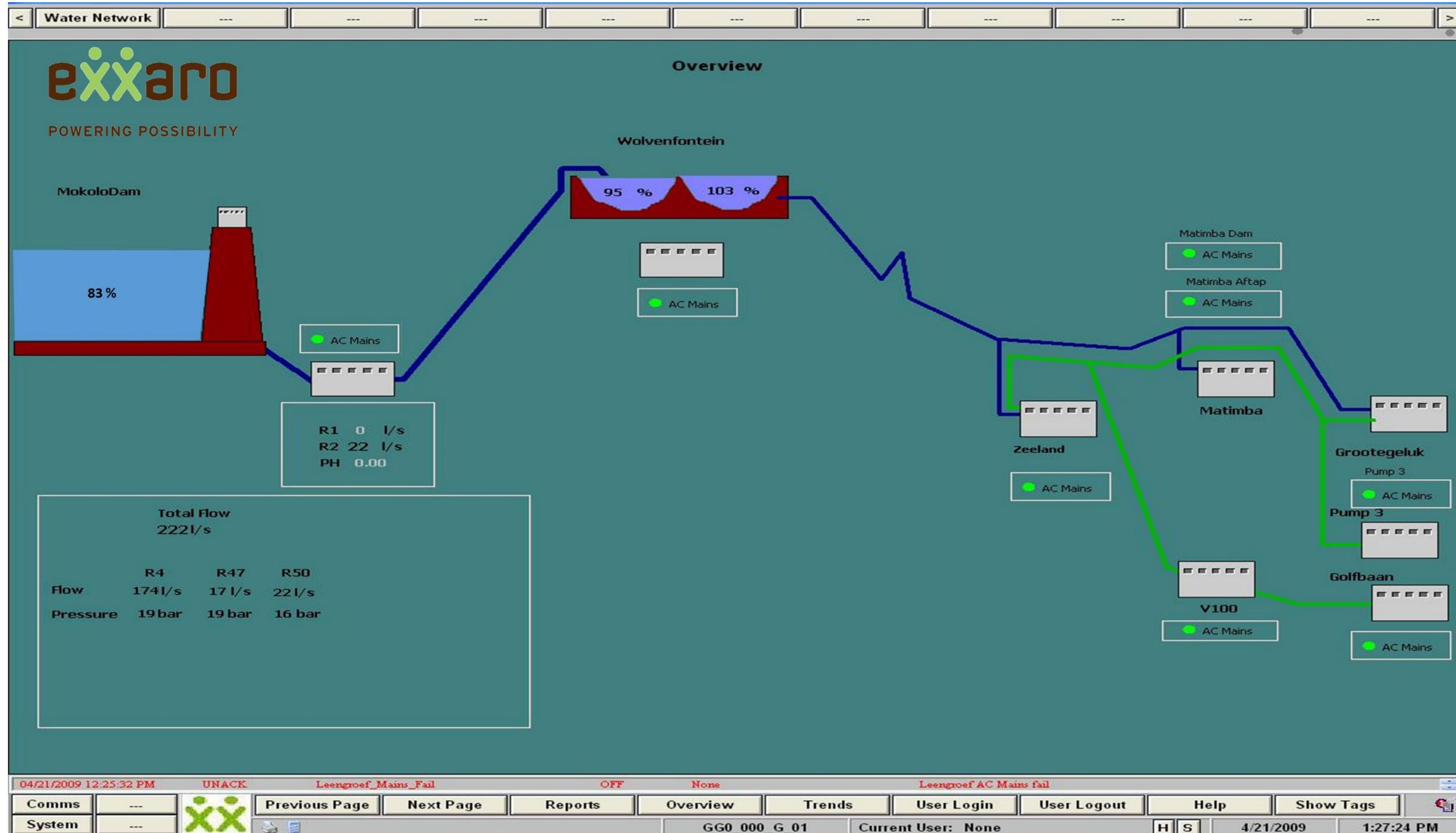
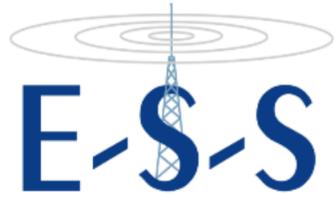
TETRA Address: 655001701650130 | COM1 | Signal: -087 dBm | **TMO** | DMO

IP Address: 10.99.158.2 Port 1122 | rx | tx

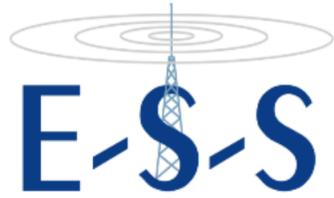
TETRA Radio Connection



Coal Mine SCADA View via ESS-RTU's & OPC Driver



ESS-OPC-Server connection with Matrikon OPC-Client



ESS-OPC-Server

ESS OPC Server V1.1.31

Running Time: 1 day(s) 25 h 47 m 57 s

Number of connected clients: 1

Event Log

GSM IMEI: 358696040557319

TETRA Address: 655001701650130

IP Address: 10.99.158.2 Port 1122

Connected to OPC-Client

Matrikon OPC-Client

MatrikonOPC Explorer - [Untitled*]

ESS.OPC

OPC Server Connection Options

Supported OPC Interfaces: DA, HXA, XE, SECURITY

OPC Security: **OPC SECURITY CHECK**

Caution: Potential Security Risk Detected.

Explanation: This OPC Server does not support the OPC Security Specification.

Solution: If security is a concern then protect your existing OPC Server with the MatrikonOPC Security Gateway.

Server Status

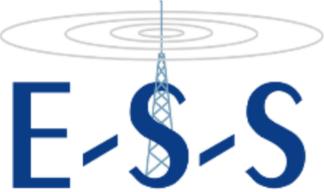
Server: ESS.OPC

Connected: Yes

State: Running



Matrikon OPC-Client Software

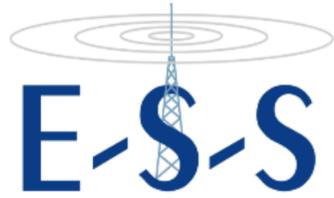


ESS OPC Server

The screenshot shows the Matrikon OPC Explorer interface. On the left, a tree view shows the local host 'WHPLAB' with 'ESS.OPC' selected and circled in red. A red dotted line points from the text 'ESS OPC Server' to this selection. The main panel displays 'Matrikon OPC' with several sections:

- OPC Server Connection Options:** Includes 'Disconnect', 'Add Tags', and 'Add Alarms' buttons.
- Supported OPC Interfaces:** Shows 'DA' selected and circled in red, with 'H/A', 'A/E', and 'SECURITY' crossed out with red X's.
- Matrikon OPC Configuration Options:** Includes 'OPC Server', 'OPC Security', and 'Licensing' buttons.
- Server Status:** Shows 'Server: ESS.OPC', 'Connected: Yes', and 'State: Running'.
- OPC Security:** Features a red X icon and the text 'OPC SECURITY CHECK'. Below it, a 'Caution' message states: 'Potential Security Risk Detected. Explanation: This OPC Server does not support the OPC Security Specification. Solution: If security is a concern then protect your existing OPC Server with the Matrikon OPC Security Gateway. For more information on the Matrikon OPC'.
- Server Info:** Located at the bottom left, it lists: 'Server: ESS.OPC', 'Connected: Yes', 'State: Running', 'Groups: 0', 'Total Items: 0', 'Current Local Time: 04/04/2018 9:14:22.531 AM', and 'Update Local Time: n/a'.
- Did you know? Explorer Tip #5:** A blue banner at the bottom center with a lightbulb icon, stating: 'OPC Explorer can add all items in your browse tree at once. Click For Details'.

Matrikon OPC-Client Software



Item ID:

Data Type: Create Active

Access Path:

Filter: Data Type Filter:

Write Access Read Access Branches Items

Available Items in Server 'ESS.OPC':

- 655001100000201
- DigitalInputs
- DigitalFeedbacks
- DigitalOutputs
- AnalogInputs
- 655001100000202
- 655001100000205
- 655000404505015
- 655001799158097
- 655000404505058
- 655000404505045

Available Tags

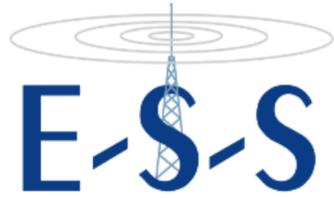
Tags to be added:

Click on a grouping to view the Items it contains

RTU Radio Address

RTU IO. This is automatically populated

Matrikon OPC-Client Software



The screenshot shows the Matrikon OPC Explorer (G-001.b7c5e) interface. The 'Tag Entry' section on the left contains the following fields and options:

- Item ID: 65500110000222/DigitalFeedback
- Data Type: Empty/Default
- Access Path: (empty)
- Filter: (empty)
- Data Type Filter: Empty/Default
- Write Access: Read Access: Branches: Items:

The 'Available Items in Server 'ESS.OPC'' tree view shows a hierarchy of folders, with 'DigitalFeedback' selected under the folder '65500110000222'. Below this, the 'Available Tags' list includes:

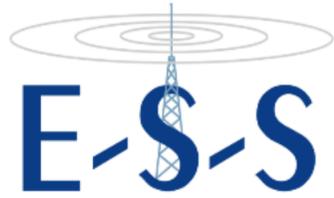
- DF01
- DF02
- DF03
- DF04
- DF05
- DF06
- DF07
- DF08
- DF09
- DF10
- DF11
- DF12

The 'Tags to be added:' section on the right, highlighted with a red border, displays a grid of tag icons (TAG) with the following text below them:

655001100... 655001100... 655001100... 655001100... 655001100... 655001100... 655001100... 655001100...
655001100... 655001100... 655001100... 655001100...

Select RTU-IO tags and add

Matrikon OPC-Client Software



RTU Analogue
Input values
12 bit (0 – 4096)

MatrikonOPC Explorer - [RTU_04042018.xml*]

File Server Group Item View Help

G-001.b7c5e Contents of 'G-001.b7c5e'

Item ID	Access Path	Value	Quality	Timestamp	Status
655001100000222/AnalogInputs/AIN01		2842	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/AnalogInputs/AIN02		2826	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/AnalogInputs/AIN03		2798	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/AnalogInputs/AIN04		2822	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/DigitalFeedbacks/DF01		False	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/DigitalFeedbacks/DF02		True	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/DigitalInputs/DIN01		False	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/DigitalInputs/DIN02		False	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/DigitalInputs/DIN03		False	Good, non-specific	04/04/2018 9:41:18.234 AM	Active
655001100000222/DigitalInputs/DIN04		False	Good, non-specific	04/04/2018 9:41:18.234 AM	Active

RTU Output 1 is OFF
RTU Output 2 is ON

RTU DIN are OFF