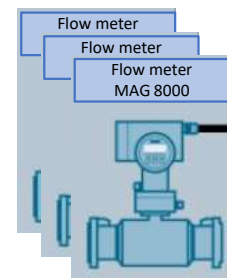


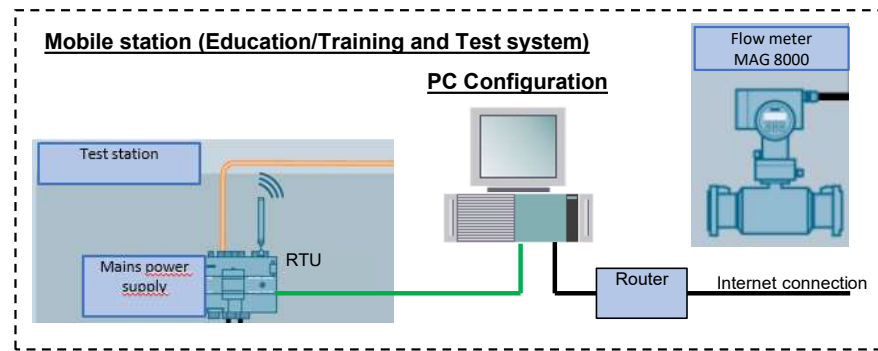
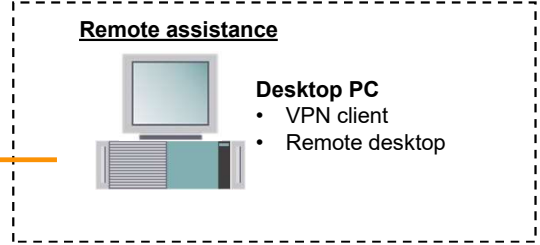
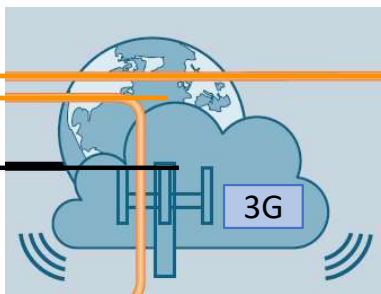
Measuring stations

- RTU**
- 3/4G modem
 - Datalogger
 - Analog inputs
 - Flow meter
 - Pressure meter
 - Digital inputs
 - Pulse (flow)



Measuring stations

- MAG 8000**
- 3G modem
 - Datalogger
 - .csv-file transmission to FTP server



Industrial PCs Engineering station, Connect server, WinCC station



SIMATIC IPC647D

The SIMATIC IPC647D is a very rugged, high-performance industrial PC in 19" rack design (2 U) with excellent industrial functionality.

It offers:

- Extreme compactness
- Extreme ruggedness
- Intel® Core® i/Xeon technology 4th generation



19" Rack Cabinet for IPC

- Holding three IPC (3x2U)
- 18 U high offer possibilities for expansion
- Including PC screen, keyboard and mice

Engineering station



Engineering station

- HW: IPC647D
- SINEMA RC
- Telecontrol
- WinCC

The Engineering station (ES)

The engineering software run on this hardware. The software licenses provided for the engineering system will be used for configuration and maintenance of included runtime SW SINEMA RC, Telecontrol and WinCC. The ES keep all of the original project configuration in one place, always up-to-date for remote assistance.

SINEMA Remote Connect Server



Connect Server

- HW: IPC647D
- SINEMA RC
- Includes its own operating system, based on Ubuntu 16.04 LTS

SINEMA Remote Connect Server

The SINEMA RC Server provides end-to-end connection management of distributed networks via the Internet. This also includes secure remote access to underlying networks for maintenance, control and diagnostics purposes. The communication between SINEMA RC Server and the remote participants is via a VPN tunnel taking into account the stored access rights. The connection is established encoded using IPsec or OpenVPN. The SINEMA RC Server can be configured via the Web Based Management (WBM). The connection to the WBM via the Internet/WAN takes place over the HTTPS protocol. To establish a connection to the WBM of the server, users must log in by entering a user name and password or with a smartcard

Data Acquisition server



Process value data Acquisition and Archiving

- HW: Industrial PC IPC647D
- Telecontrol Server Basic for communication with RTU
- TCSB include OPC UA Server
- WinCC for monitoring, alarms and process value archive
- SQL-database for archived process values
- Trend windows for historical data (Flow and Pressure)

OPC UA

OPC stands for Open Platform Communications and is one of the most important communication protocols for Industry 4.0 and the IoT. With OPC, access to machines, devices and other systems in the industrial environment is standardized and enables similar and manufacturer-independent data exchange.

WinCC for monitoring, alarms and process value archive

Example from site in Borlänge Sweden

TS TRYCKSTEGRINGAR
Översikt

Flöden/Tryck mm

- TS1 Trend 1
- TS1 Trend 5

Vattenförbrukning

- TS1 Trend 6
- TS1 Trend 7

Elförbrukning

- TS1 Trend 8
- TS1 Trend 9

88 1 2020-07-16 07:47:16 +/- A_Larm LV Testknapp A-Larm intryckt Testlarm Nimbus Larmserver

Lokal station: LV-HKOP128 Server: TVSERVER1

Temp Lite: 20,6 °C Produktion Tot: 1090 m³/h Borlänge: 473 m³/h Falun: 618 m³/h

SIEMENS SIMATIC WinCC

WinCC for monitoring, alarms and process value archive

Example from site in Borlänge Sweden

TS530 KALLES VÄG
Skräddarbacken
Tryckstegring

Normaldrift
 Flöde
 Tryck
 Verkfäll

Temp inomhus: 21,2 °C
 Temp utomhus: 21,1 °C

Trender
 TS1 Trend 31
 TS1 Trend 35

Från Borlänge Lågzon

Nivå i Högreservoar
 Maxnivå Högreservoar: 90,0 %
 Nivåvärde vid signalbortfall Högreservoar: 81,0 %
 CL3781: 75,5 %

HR SKRÄDDARBACKEN
 RR108
 +0,00 [moh]
 Högreservoar Skräddarbacken
 Bräddning: +xxx.xx
 Golvnivå: +xxx.xx
 Volym Bräddnivå: 2x300 m3

Nivå/Flöde: 75,5 / 21,6

VATTENFÖRBRUKNING
 ELFÖRBRUKNING

Larm och Övervakning
 Larm, Kraftfördelning GH5501
 Larm, Apparatskåp GH5511
 Övervakning Kommunikation

Belysning
 Övervakning Belysning
 Belysning
 Önskad tid, Larmfördröjning belysning: 60 min
 Återstående tid, Larmfördröjning belysning: 60 min

UPS 24Vdc: 25,3 V UPS

Kraftfördelning
 Nätkraft
 Reservkraft
 NB TIII
 NB EJUtöst
 GB TIII
 GB EJUtöst
 OSP EJUtöst

Processstopp
 Processstopp aktiverat
 Kvittering

Tryckövervakning Sugsida
 Min: 1,80 Bar
 NEDSTYRNING

Driftbegäran
 1

Tryckövervakning Tryksida
 Max: 7,50 Bar
 NEDSTYRNING

Flödesövervakning
 Max: 60,0 m³/h
 NEDSTYRNING

Pump 1: AP3711
 Minifrekvens omriktare: 45 Hz
 Frekvens flödesgräns: 48 Hz
 Min BV flöde Pump: 10 m³/h
 Max BV flöde Pump: 48 m³/h

Pump 2: AP3712
 Minifrekvens omriktare: 45 Hz
 Frekvens flödesgräns: 48 Hz
 Min BV flöde Pump: 10 m³/h
 Max BV flöde Pump: 48 m³/h

Pump 3: AP3713
 Minifrekvens omriktare: 45 Hz
 Frekvens flödesgräns: 48 Hz
 Min BV flöde Pump: 10 m³/h
 Max BV flöde Pump: 48 m³/h

Start/Stop TS Kalles Väg

Tryckstegrings Pumpar
 Fast ranking
 Alternande ranking

 P1 > P3 > P2
 Önskad tid mellan pumpväxling: 8 tim
 Aktuell återstående tid för Pumpväxling: 6 tim

Reglering
 Flöde
 Max: 60,0 m³/h
: 21,6 m³/h
: 10,0 m³/h
: 21,0 m³/h
 Tryck
 Maxbegr tryck TS: 7,50 Bar
 Minbegr tryck SS: 1,80 Bar

88 | 1 | 2020-07-16 | 07:47:16 | +/- | A_Larm LV | Testknapp A-Larm intryckt | Testlarm Nimbus Larmsserver

Lokal station: LV-HKOP128 | Server: TVSERVER1 | DAGBOK: - | SMS AKTIV | SMS: BLOCK | NIMBUS Larmrutt | NIMBUS Mottagare | Temp Ute: 19,8 °C | Produktion Tot: 1105 m³/h | Borlänge: 470 m³/h | Falun: 636 m³/h | Driftöversikt: = Röd (Se B-Larm) | A-Larm | B-Larm

SIEMENS SIMATIC WinCC

WinCC for monitoring, alarms and process value archive

Example from site in Borlänge Sweden

OVERSIKT 2 3 KALLES VÄG 4 MEDVÄGA 5 GOLBACKSBRÄNN 6 UVBERGET 7 RIMBERG/BRÄNN 8 NORR AMSBERG 9 FOLK 10 FOLK 11 FOLK 12 FOLK 13 FOLK 14 FOLK 15

TS530 KALLES VÄG
Skräddarbacken

Normaldrift

TS1, TS530 KALLES VÄG, TREND 31

Ready

Namn	Värde	Datum	Tid	Arkiv / Tag Namn
1 BCF862, Totalt Flöde Utgående TS Kalles Väg	29.94	2020-07-15	19:16:44	TS_LangtidTS530_PLC1_GKB12_BCF862_MV_ING
2 CL3781, Nivå HR Skräddarbacken	72.92	2020-07-15	19:16:44	TS_LangtidTS530_PLC1_RR108_GKB12_CL3781_PVMV_ING
3 CP3725, Tryck Sugsida	2.18	2020-07-15	19:16:44	TS_LangtidTS530_PLC1_GKB12_CP3725_PVMV_ING
4 CP3726, Tryck Trycksida, Pump AP3711	6.62	2020-07-15	19:16:44	TS_LangtidTS530_PLC1_GKB12_CP3726_PVMV_ING
5 CP3727, Tryck Trycksida, Pump AP3712	6.56	2020-07-15	19:16:44	TS_LangtidTS530_PLC1_GKB12_CP3727_PVMV_ING
6 CP3728, Tryck Trycksida, Pump AP3713	6.62	2020-07-15	19:16:44	TS_LangtidTS530_PLC1_GKB12_CP3728_PVMV_ING
7 CT3775, Temp Utgående Vatten	9.24	2020-07-15	19:16:44	TS_LangtidTS530_PLC1_GKB12_CT3775_PVMV_ING
8 AP3711, Hz Tryckstegringspump 1	0,00 [i.]	2020-07-15	19:16:34	TS_Frekvensomriktare_UtsignalTS530_PLC1_GKB12_AP3

88 1 2020-07-16 07:47:16 +/- A_Larm LV Testknapp A-Larm intryckt Testlarm Nimbus Larmserver

Lokal station: LVHKOP128 Server: TVSERVER1

DAGBOK

SMS AKTIV SMS BLOCK

NIMBUS Larmrut NIMBUS Mottagare

Temp Ute: 19,6 °C Produktion Tot: 1113 m³/h Borlänge: 476 m³/h Falun: 637 m³/h

Driftidsövervakning = Röd (Se B-Larm)

A-Larm B-Larm

SIEMENS SIMATIC WinCC

START LV TV TS1 TS2 VMB NÄT

Logga In Logga Ut

A-LARM B-LARM C-LARM

HÄNDELSE HÄNDELSE PopUp

Onik