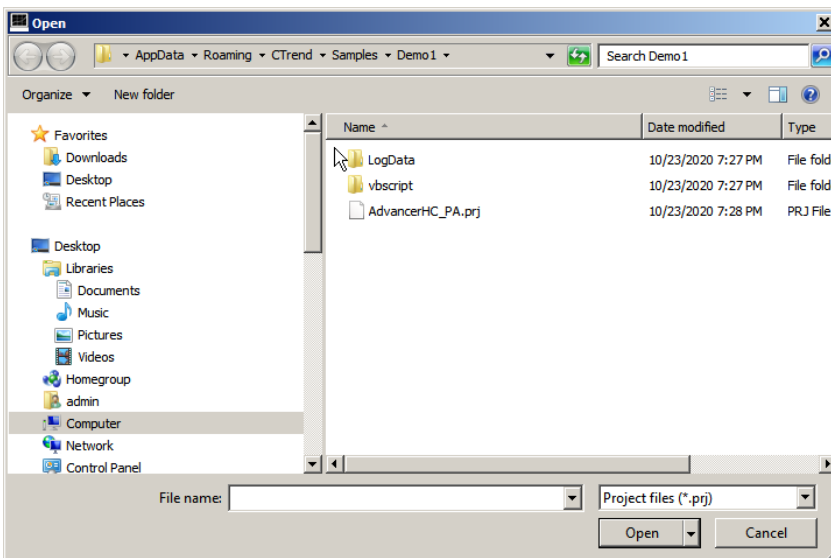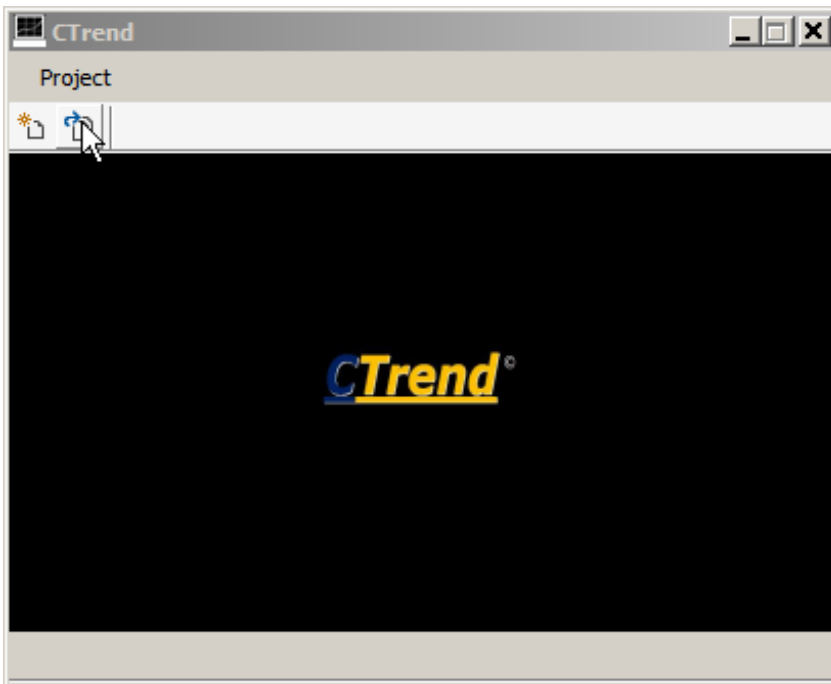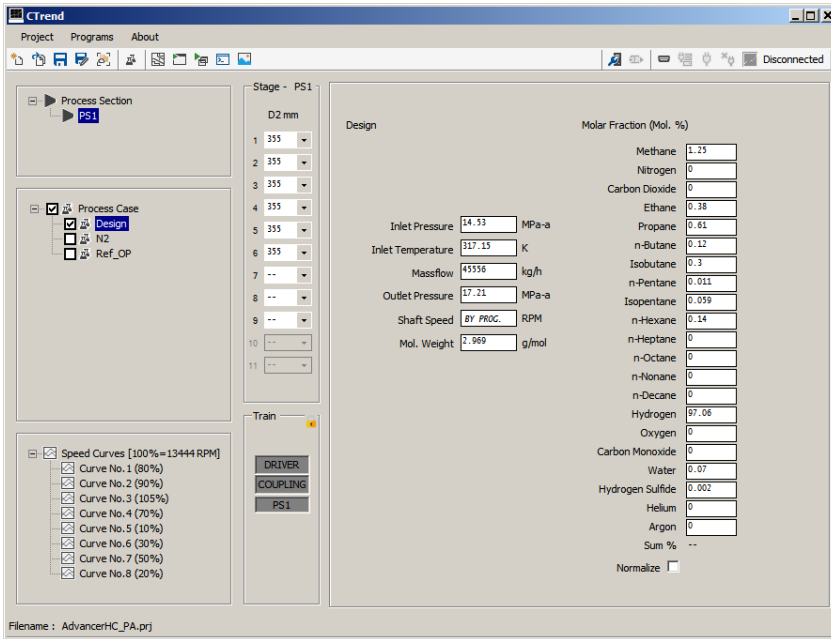# Quick Tutorial 'Demo1'

Objective

Run a pre-configured sample case for multistage centrifugal compressor performance monitoring.

The analog inputs will be simulated via Modbus simulator tool (Modbus server) and read by CTrend.
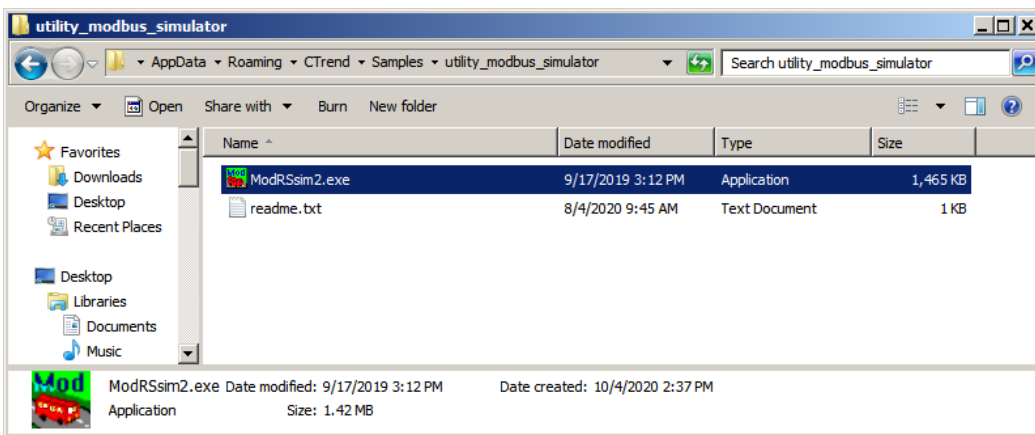
Technical Documentation

- *Compressor performance curves (expected or as tested)*
- *Compressor process and mechanical datasheets*
- *Modbus I/O list*
- *Flow Measurement Device (FMD) specification (datasheet and transmitters calibration ranges)*

- Launch CTrend Software
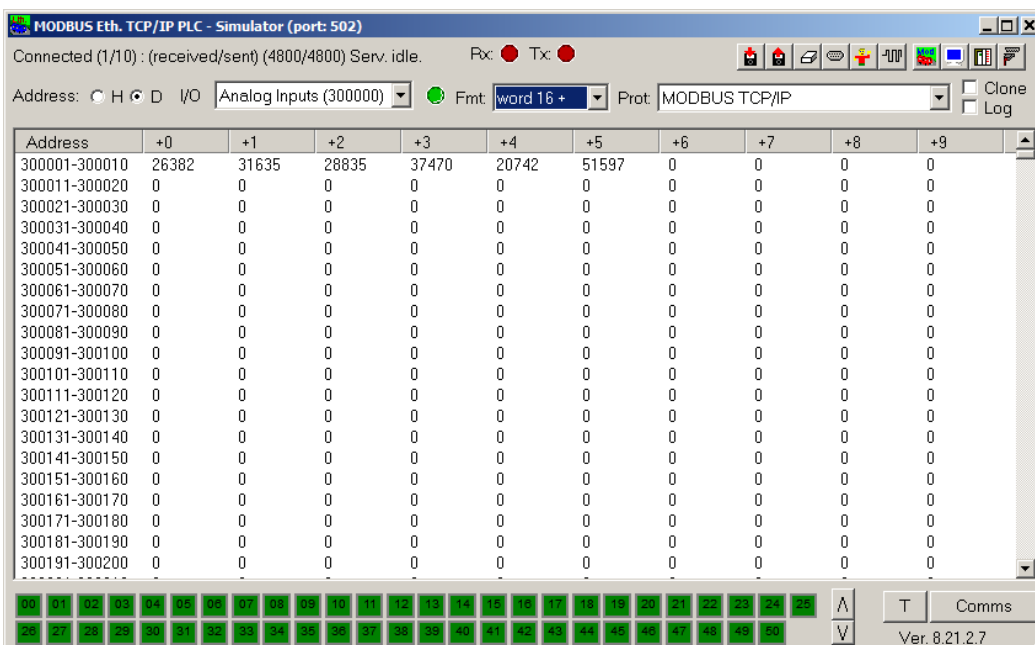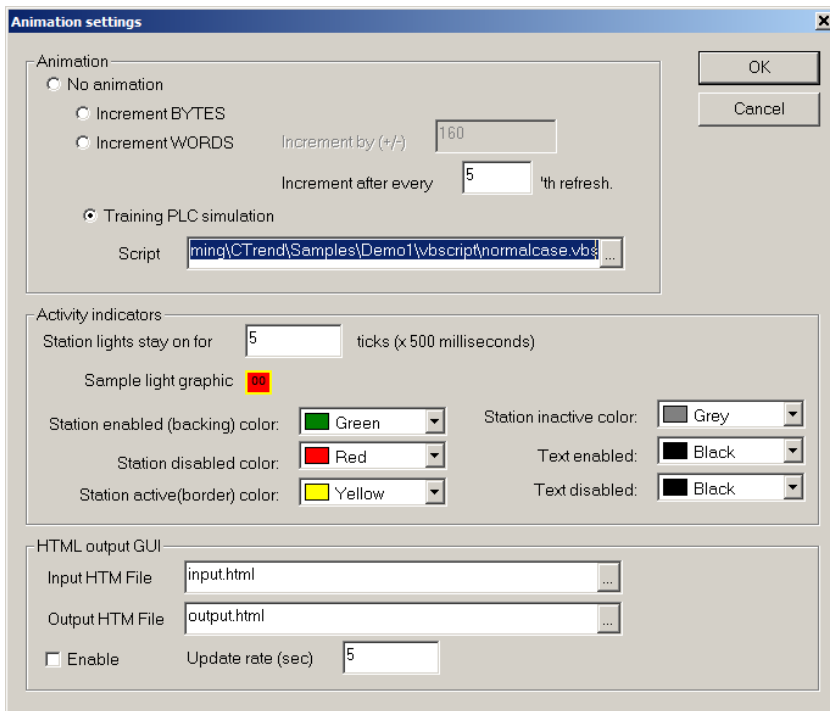- Open project "AdvancerHC_PA.prj" in sample folder 'CTrend\Samples\Demo1'

- In folder: 'CTrend\Samples\utility_modbus_simulator' run the file 'ModRSsim2.exe' (Modbus Server)
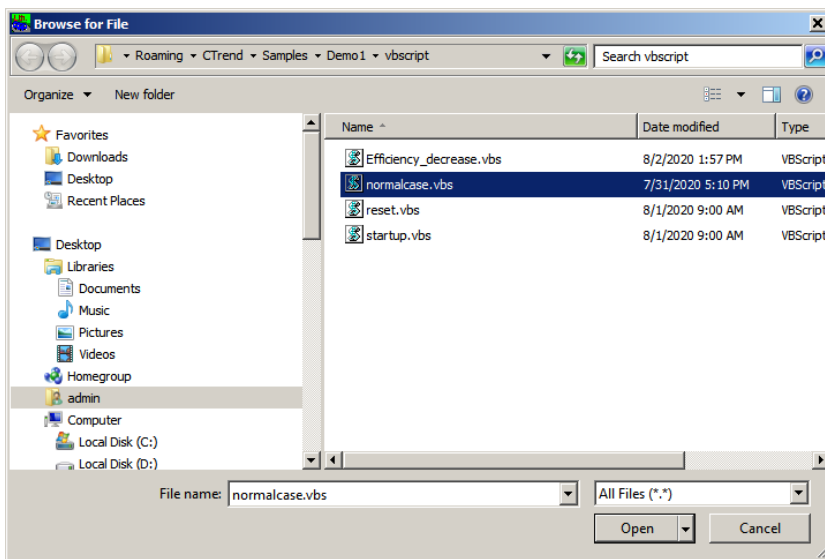

- Select 'Analog Inputs' for I/O, 'word 16+' for format and select 'Modbus TCP/IP' for protocol

- Click on animation settings button
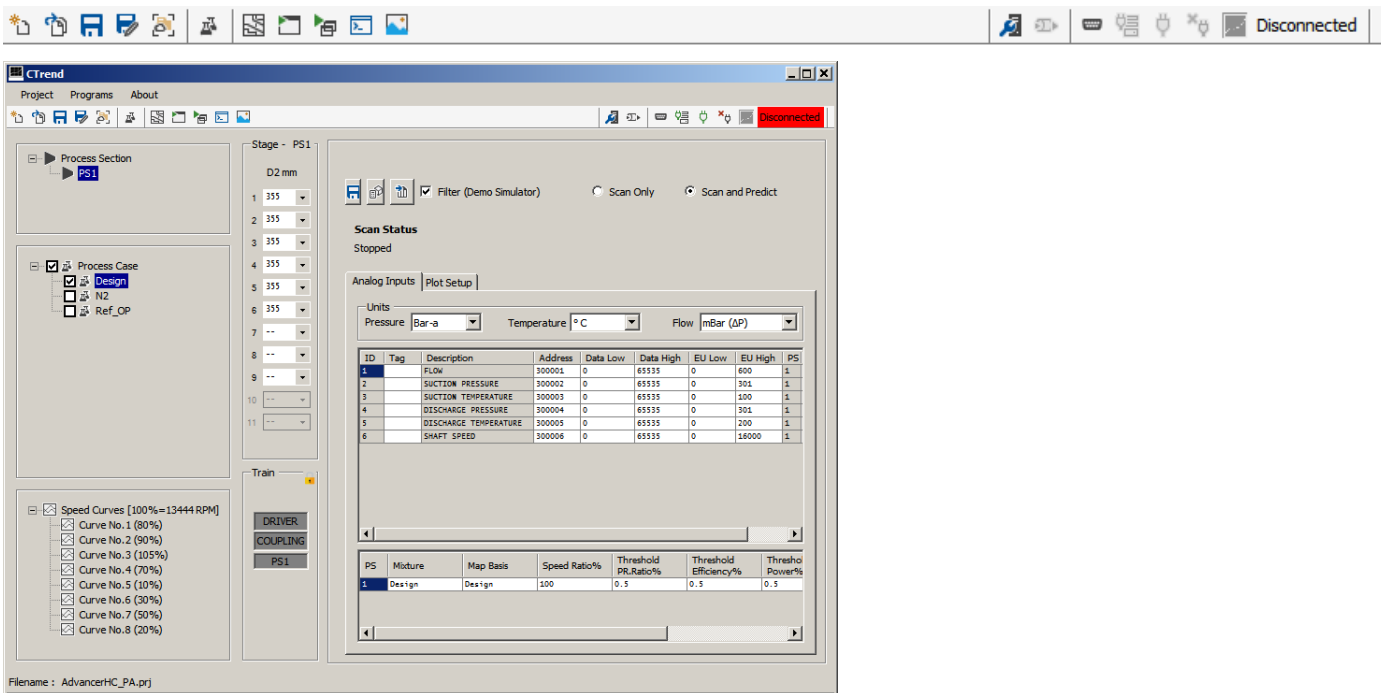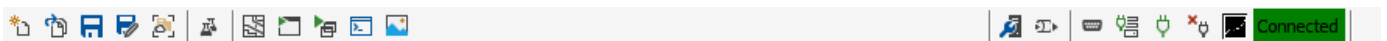

- Check 'Training PLC simulation' radio button and select script in 'CTrend\Samples\Demo1\vbscript\normalcase.vbs'
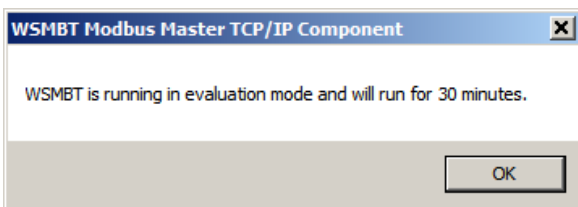
- In CTrend software click on 'Trend Analysis' button

- Click on 'Connect to Server' button

- Click on 'Scan' button then confirm the message box

WSMBT Modbus Master TCP/IP Component

WSMBT is running in evaluation mode and will run for 30 minutes.

OK

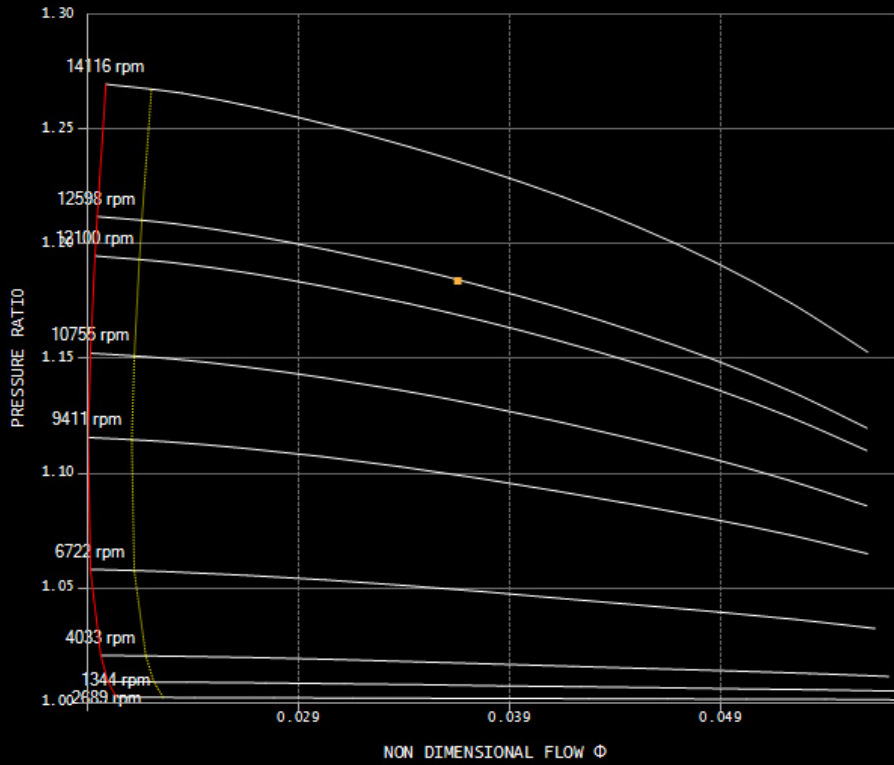|	PR. RATIO	EFFICIENCY	GAS POWER	TEMP. OUT	FLOW
(1-ACT/PRED) %	0.0	0.0	0.0	0.0	0.0
Δ (ACT-PRED)	0.000	-0.005 %	0 kW	0.00 ' C	13 kg/h
HEALTH-STATE	↑↑↑	↑↑↑	↑↑↑	↑↑↑	↑↑↑
THRESHOLDS	SHOW	SHOW	SHOW	SHOW	SHOW

*C*Trend ®

SCAN   PAUSE   STOP

START TIME   10/24/2020 1:53:03 AM
CURRENT SEC.   104.10
END TIME   10/24/2020 1:54:47 AM
POINT STATUS   FLOSPO

TREND   <<   SECTION 1   >>

CONTROL LINE   10 %
+/- SCALE DEV.   -   +   100 %

Chart:
- Y-axis: PRESSURE RATIO (1.00 to 1.30)
- X-axis: NON DIMENSIONAL FLOW Φ (0.029, 0.039, 0.049)
- Speed lines: 14116 rpm, 12598 rpm, 12100 rpm, 10755 rpm, 9411 rpm, 6722 rpm, 4033 rpm, 1344 rpm, 2689 rpm

ACTUAL PERF.		SIGNAL DATA
SPEED	RPM	12597
FLOWMETER (FMD)	mBar (ΔP)	241.5381
PRESSURE IN	Bar-a	145.2985
TEMPERATURE IN	' C	44.00
PRESSURE OUT	Bar-a	172.0984
TEMPERATURE OUT	' C	63.30
MOL. WEIGHT	g/mol	2.969
INLET VOL. FLOW	Am3/h	3015
NORMAL FLOW	Nm3/h	343910
MASS FLOW	kg/h	45555
ABS. GAS POWER	kW	2654
HEAD POL.	kJ/kg	168.62
EFFICIENCY POL.	%	80.400

DEVIATION/MAP	Ref_OP	CLEAN
PRESSURE IN	%	0.00
TEMPERATURE IN	%	0.00
MOL. WEIGHT	%	0.00