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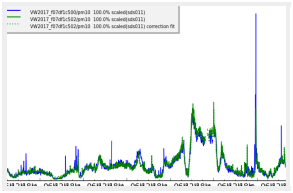
Summary of correlations of sensor kits and sensor modules

Sensorkits: VW2017_f07df1c500 VW2017_f07df1c502
Report generated on: Mon Jan 1 20:40:52 CET 2018

R-square and statistical summary

Measurement PM10 correlation key values

Correlation 1 - **PM10** - kit VW2017_f07df1c500 sensor type **SDS011** with kit VW2017_f07df1c502 sensor type **SDS011**:

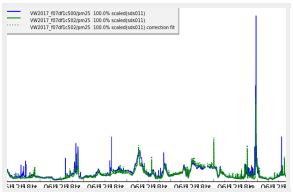


nr samples 1663, min= 1.20, max=86.20
avg=15.52, std dev=13.71
R-squared:
0.8463

Best fit polynomial coefficients:
[2.014e+00, 8.868e-01]

Measurement PM2.5 correlation key values

Correlation 2 - **PM2.5** - kit VW2017_f07df1c500 sensor type **SDS011** with kit VW2017_f07df1c502 sensor type **SDS011**:

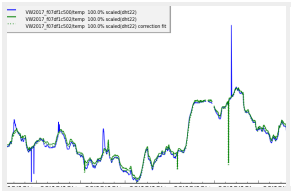


nr samples 1663, min= 1.10, max=67.30
avg= 6.13, std dev= 4.40
R-squared:
0.6058

Best fit polynomial coefficients:
[6.608e-01, 1.082e+00]

Measurement TEMP correlation key values

Correlation 3 - **TEMP** - kit VW2017_f07df1c500 sensor type **DHT22** with kit VW2017_f07df1c502 sensor type **DHT22**:

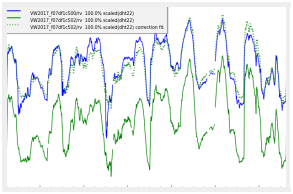


nr samples 1633, min= 0.60, max=15.50
avg= 7.11, std dev= 3.43
R-squared:
0.9740

Best fit polynomial coefficients:
[-4.599e-01, 1.024e+00]

Measurement RH correlation key values

Correlation 4 - **RH** - kit VW2017_f07df1c500 sensor type **DHT22** with kit VW2017_f07df1c502 sensor type **DHT22**:



nr samples 1627, min=53.00, max=85.00
avg=67.60, std dev= 7.24
R-squared:
0.8906

Best fit polynomial coefficients:
[2.942e+01, 7.821e-01]

Sensor sds011@VW2017_f07df1c500 with sensor sds011@VW2017_f07df1c502

correlation report for pm10 (raw) measurements

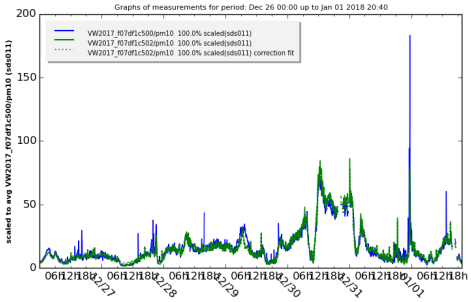
Correlation details of project VW2017 sensor kit ID f07df1c500 with project VW2017 sensor kit ID f07df1c502
Date of correlation report: Mon Jan 1 20:40:44 CET 2018
From date 2017-12-26 upto 2018-01-01 20:40
Origin of measurement time serie data from InFluxDB host: elx8
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011
Graphs based on data MYSQL from luchtmetingen on server elx8 as user teus:
Auto interval samples is (re)set to 601 (avg+2*stddev)
Database table VW2017_f07df1c500 sensor (column) pm10: 1689 db records, deleted 0 NaN records.
Auto interval samples is (re)set to 490 (avg+2*stddev)
Database table VW2017_f07df1c502 sensor (column) pm10: 1822 db records, deleted 0 NaN records.
Collected 1663 values in sample time frame (8m/10s) for the graph. Skipped 26 db records, could not find any value(s) in same sample interval.

Samples period: Dec 26 00:00 up to Jan 01 2018 20:40, interval timing 8m:10s.

Data from table/sheet VW2017_f07df1c502, sensor (column) pm10:



number 1663, min= 1.20, max=86.20

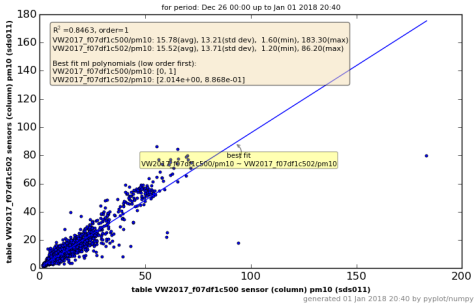
avg=15.52, std dev=13.71

R-squared (R²) with VW2017_f07df1c502/pm10: 0.8463

Best fit linear single polynomial regression curve ($A_0*X^0 + A_1*X^1$):

VW2017_f07df1c500/pm10 (sds011)-> best fit coefficients:

2.014e+00, 8.868e-01



Statistical summary linear regression for VW2017_f07df1c500/pm10 with ['VW2017_f07df1c502/pm10']:

OLS Regression Results

Dep. Variable:	VW2017_f07df1c500/pm10	**R-squared:**	0.846
Model:	OLS	**Adj. R-squared:**	0.846
Method:	Least Squares	**F-statistic:**	9148.
Date:	Mon, 01 Jan 2018	**Prob (F-statistic):**	0.00
Time:	20:40:49	**Log-Likelihood:**	-5094.9
No. Observations:	1663	**AIC:**	1.019e+04
Df Residuals:	1661	**BIC:**	1.020e+04
Df Model:	1		

	coef	**std err**	**t**	**P>|t|**	**[95.0% Conf.**	**Int.]**
VW2017_f07df1c502/pm10	2.0137	0.192	10.489	0.000	1.637	2.390

Omnibus:	2486.819	**Durbin-Watson:**	1.693
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	1723465.354
Skew:	8.605	**Prob(JB):**	0.00
Kurtosis:	159.769	**Cond. No.**	31.3

Sensor sds011@VW2017_f07df1c500 with sensor sds011@VW2017_f07df1c502

correlation report for pm25 (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c500 with project VW2017 sensor kit ID f07df1c502
Date of correlation report: Mon Jan 1 20:40:53 CET 2018
From date 2017-12-26 upto 2018-01-01 20:40
Origin of measurement time serie data from InFluxDB host: elx8
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): sds011
Graphs based on data MYSQL from luchtmetingen on server elx8 as user teus:
Auto interval samples is (re)set to 601 (avg+2*stddev)
Database table VW2017_f07df1c500 sensor (column) pm25: 1689 db records, deleted 0 NaN records.
Auto interval samples is (re)set to 490 (avg+2*stddev)
Database table VW2017_f07df1c502 sensor (column) pm25: 1822 db records, deleted 0 NaN records.
Collected 1663 values in sample time frame (8m/10s) for the graph. Skipped 26 db records, could not find any value(s) in same sample interval.

Samples period: Dec 26 00:00 up to Jan 01 2018 20:40, interval timing 8m:10s.

Data from table/sheet VW2017_f07df1c502, sensor (column) pm25:

number 1663, min= 1.10, max=67.30

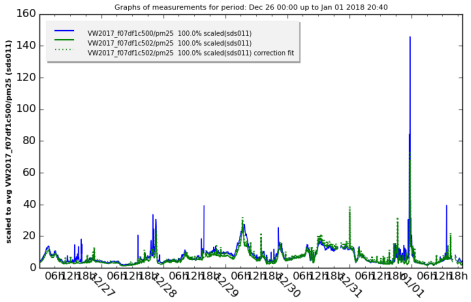
avg= 6.13, std dev= 4.40

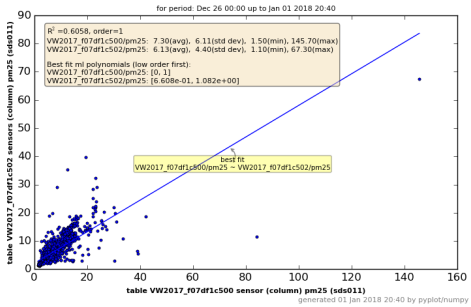
R-squared (R^2) with VW2017_f07df1c502/pm25: 0.6058

Best fit linear single polynomial regression curve ($A_0*X^0 + A_1*X^1$):

VW2017_f07df1c500/pm25 (sds011)-> best fit coefficients:

6.608e-01, 1.082e+00





Statistical summary linear regression for VW2017_f07df1c500/pm25 with ['VW2017_f07df1c502/pm25']:

OLS Regression Results

Dep. Variable:	VW2017_f07df1c500/pm25	**R-squared:**	0.606
Model:	OLS	**Adj. R-squared:**	0.606
Method:	Least Squares	**F-statistic:**	2553.
Date:	Mon, 01 Jan 2018	**Prob (F-statistic):**	0.00
Time:	20:40:53	**Log-Likelihood:**	-4596.9
No. Observations:	1663	**AIC:**	9198.
Df Residuals:	1661	**BIC:**	9209.
Df Model:	1		

	coef	**std err**	**t**	**P>|t|**	**[95.0% Conf. Int.]**	
VW2017_f07df1c502/pm25	0.6608	0.162	4.089	0.000	0.344	0.978

Omnibus:	2498.009	**Durbin-Watson:**	1.742
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	1734918.805
Skew:	8.686	**Prob(JB):**	0.00
Kurtosis:	160.277	**Cond. No.**	13.1

Sensor dht22@VW2017_f07df1c500 with sensor dht22@VW2017_f07df1c502

correlation report for temp (raw) measurements

Correlation details of project VW2017 sensor kit ID f07df1c500 with project VW2017 sensor kit ID f07df1c502
Date of correlation report: Mon Jan 1 20:40:55 CET 2018
From date 2017-12-26 upto 2018-01-01 20:40
Origin of measurement time serie data from InFluxDB host: elx8
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22
Graphs based on data MYSQL from luchtmetingen on server elx8 as user teus:
Auto interval samples is (re)set to 613 (avg+2*stddev)
Database table VW2017_f07df1c500 sensor (column) temp: 1674 db records, deleted 15 NaN records.
Auto interval samples is (re)set to 515 (avg+2*stddev)
Database table VW2017_f07df1c502 sensor (column) temp: 1796 db records, deleted 26 NaN records.
Collected 1633 values in sample time frame (8m/35s) for the graph. Skipped 41 db records, could not find any value(s) in same sample interval.

Samples period: Dec 26 00:00 up to Jan 01 2018 20:40, interval timing 8m:35s.

Data from table/sheet VW2017_f07df1c502, sensor (column) temp:

number 1633, min= 0.60, max=15.50

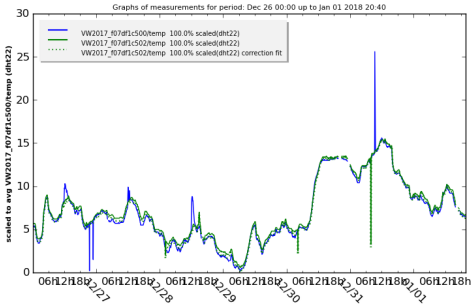
avg= 7.11, std dev= 3.43

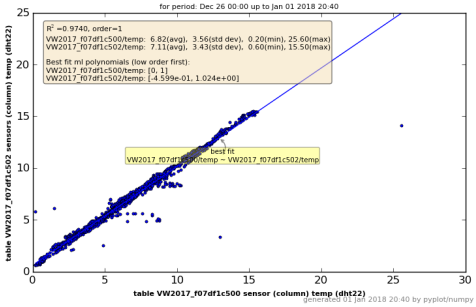
R-squared (R²) with VW2017_f07df1c502/temp: 0.9740

Best fit linear single polynomial regression curve ($A_0*X^0 + A_1*X^1$):

VW2017_f07df1c500/temp (dht22)-> best fit coefficients:

-4.599e-01, 1.024e+00





Statistical summary linear regression for VW2017_f07df1c500/temp with ['VW2017_f07df1c502/temp']:

OLS Regression Results

Dep. Variable:	VW2017_f07df1c500/temp	**R-squared:**	0.974
Model:	OLS	**Adj. R-squared:**	0.974
Method:	Least Squares	**F-statistic:**	6.113e+04
Date:	Mon, 01 Jan 2018	**Prob (F-statistic):**	0.00
Time:	20:40:56	**Log-Likelihood:**	-1408.6
No. Observations:	1633	**AIC:**	2821.
Df Residuals:	1631	**BIC:**	2832.
Df Model:	1		

	coef	**std err**	**t**	**P>|t|**	**[95.0% Conf. Int.]**	
VW2017_f07df1c502/temp	-0.4599	0.033	-14.066	0.000	-0.524	-0.396

Omnibus:	2551.997	**Durbin-Watson:**	1.169
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	2121452.432
Skew:	9.353	**Prob(JB):**	0.00
Kurtosis:	178.581	**Cond. No.**	18.4

Sensor dht22@VW2017_f07df1c500 with sensor dht22@VW2017_f07df1c502

correlation report for rh (raw) measurements

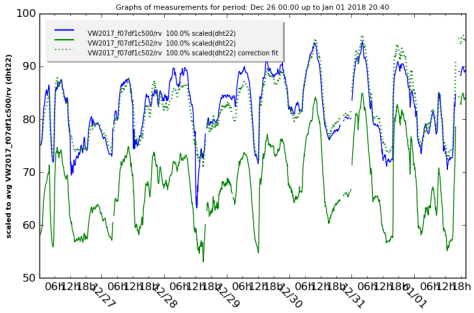
Correlation details of project VW2017 sensor kit ID f07df1c500 with project VW2017 sensor kit ID f07df1c502
Date of correlation report: Mon Jan 1 20:40:57 CET 2018
From date 2017-12-26 upto 2018-01-01 20:40
Origin of measurement time serie data from InFluxDB host: elx8
Report generated by MyRegression.py (GPL V4) (user teus)

General statistical information for the measurements graphs

Regression best fit calculation details for sensor type(s): dht22
Graphs based on data MYSQL from luchtmetingen on server elx8 as user teus:
Auto interval samples is (re)set to 617 (avg+2*stddev)
Database table VW2017_f07df1c500 sensor (column) rv: 1670 db records, deleted 19 NaN records.
Auto interval samples is (re)set to 517 (avg+2*stddev)
Database table VW2017_f07df1c502 sensor (column) rv: 1793 db records, deleted 29 NaN records.
Collected 1627 values in sample time frame (8m/37s) for the graph. Skipped 43 db records, could not find any value(s) in same sample interval.

Samples period: Dec 26 00:00 up to Jan 01 2018 20:40, interval timing 8m:37s.

Data from table/sheet VW2017_f07df1c502, sensor (column) rv:



number 1627, min=53.00, max=85.00

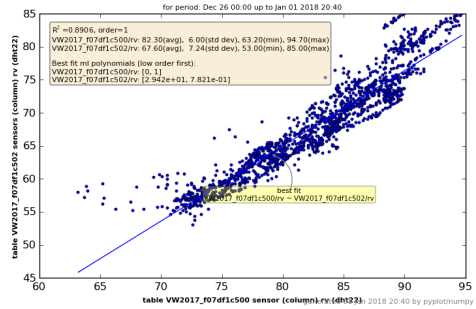
avg=67.60, std dev= 7.24

R-squared (R^2) with VW2017_f07df1c502/rv: 0.8906

Best fit linear single polynomial regression curve ($A_0*X^0 + A_1*X^1$):

VW2017_f07df1c500/rv (dht22)-> best fit coefficients:

2.942e+01, 7.821e-01



Statistical summary linear regression for VW2017_f07df1c500/rv with ['VW2017_f07df1c502/rv']:

OLS Regression Results

Dep. Variable:	VW2017_f07df1c500/rv	**R-squared:**	0.891
Model:	OLS	**Adj. R-squared:**	0.891
Method:	Least Squares	**F-statistic:**	1.323e+04
Date:	Mon, 01 Jan 2018	**Prob (F-statistic):**	0.00
Time:	20:40:58	**Log-Likelihood:**	-3423.3
No. Observations:	1627	**AIC:**	6851.
Df Residuals:	1625	**BIC:**	6861.
Df Model:	1		

	coef	std err	t	P>|t|	[95.0% Conf. Int.]	
VW2017_f07df1c502/rv	29.4234	0.462	63.634	0.000	28.516	30.330

Omnibus:	343.386	**Durbin-Watson:**	0.063
Prob(Omnibus):	0.000	**Jarque-Bera (JB):**	1121.048
Skew:	-1.035	**Prob(JB):**	3.69e-244
Kurtosis:	6.500	**Cond. No.**	639.