CHOOSING A DATA PLAN FOR SYMPHONIE SERIES DATA LOGGERS

INTRODUCTION

In 2002, Renewable NRG Systems introduced the Symphonie Data Logger, which has become a standard in the renewable energy industry for performing resource assessment studies. In 2015, RNRG launched the next generation SymphoniePRO Data Logger, with many new features including more flexible configurations and options for two-way direct communication. All Symphonie series data loggers are compatible with the Symphonie iPackGPS communications and power module [note: the iPackGPS needs a (free) firmware update applied in order to work with the SymphoniePRO]. It is important to understand how the loggers operate prior to field installation so an appropriate wireless plan can be selected.

CURRENT DATA LOGGER MODELS

SymphoniePLUS3

SymphoniePLUS3 is a 15 channel data logger that uses email for all remote communications to and from the logger. The logger will send an email containing the collected data to the user on a defined schedule. The logger provides 10 minute averaged data, and the data file is always the same size regardless of how many sensors are connected to the logger. If the user wishes to remotely make a configuration change to the SymphoniePLUS3, an email can be sent to the logger, which will apply the changes. For SymphoniePLUS3, the primary driver for choice of wireless plan is frequency of data delivery (e.g., a weekly delivery schedule versus a daily delivery schedule).

SymphoniePRO

The 26 channel SymphoniePRO Data Logger retains the ability to email data to the user, however the data file is now variable, scaling in size to fit the specific configuration. File size depends on the number of active logger channels, choice of statistical averaging interval (1, 2, 5, 10, 60 minute), and the type of data recorded (statistical vs. statistical + 1 Hz sample data). In particular, the option to record the 1 Hz sample data for one or more channels generates relatively large amounts of data. The SymphoniePRO software has a built-in data file size estimator that updates in real-time during the configuration process, which enables users to see the projected file size before deploying the logger.

Also, the user can freely interact with the logger in an ad-hoc manner using MetLink, which consumes additional bandwidth proportionately with the usage of this feature.

About MetLink (SymphoniePRO)

SymphoniePRO adds the MetLink protocol which allows direct connectivity between a logger and a PC over a variety of transport mechanisms including TCP/IP and USB. MetLink can be used to:

- retrieve data

- update logger site information, channel, and schedule configurations

- view live data in real-time

- apply firmware updates to SymphoniePRO data loggers

- apply firmware updates to iPackGPS devices

MetLink Connections (SymphoniePRO)

SymphoniePRO enables MetLink connections via both "logger initiated" and "logger listening" modes. For "logger listening" connections, which are initiated by the user at his or her PC, SymphoniePRO needs to be located at a reachable IP address. This is typically accomplished by the wireless provider assigning a "Static IP" to the device plan. For "logger initiated" connections, the user needs to have the PC located at a reachable IP address (such as a sub-domain like symprodata.mycompany.com). It is possible to allow both types of connection methods (as well as email), which creates a very flexible system.

When considering a wireless plan, it is important to consider how the logger will be configured to record data and how you intend to interact with the data logger. For example, will you want a static IP address assigned for each logger? For a typical met mast with 12 active channels set for 10 minute averages, the basic WindLinx plan is appropriate (a static IP is included). It is recommended to use the software file size estimator and discuss the intended use with your wireless provider when:

- using 1 or 5 minute averaging intervals

- using 1 Hz sample data collection on one or more channels

- routinely retrieving data from the same data logger via redundant methods (i.e., email + automated MetLink Logger Initiated connections)

- allowing for multiple clients to download the same data directly from the logger

- using more than 12 channels

- viewing live data for extended periods of time each day

For additional information, please see the SymphoniePRO manual ("Appendix C"), which has detailed information about possible communication methods – it is strongly recommended to read this prior to deploying your system.

COMMON CONFIGURATION SCENARIOS

Included below is a table of a few common configuration scenarios for reference. As mentioned above, SymphoniePRO Desktop Application has a built-in data file size estimator which updates in real-time during the configuration process, so a user can see the projected file size before deploying the logger. If you have a configuration not listed, it is easy to make the configuration in the software and see how much data will be recorded per day.

Common Configuration Scenarios for SymphoniePLUS3 and SymphoniePRO

Data Logger Model	Scenario	No. of channels	No. of channels also recording 1 Hz sample data*	Statistical averaging interval	Amount of data recorded per day
SymphoniePLUS3	WRA Met Mast (typical)	12	N/A	10 minutes (fixed)	14 KB
SymphoniePRO	WRA Met Mast (typical)	12	0	10 minutes	40 KB
SymphoniePRO	WRA Met Mast (typical +)	16	0	10 minutes	49 KB
SymphoniePRO	WRA Met Mast (advanced turbine siting study)	16	3	10 minutes	633 KB
SymphoniePRO	SRA Met Mast (typical)	10	0	5 minutes	59 KB
SymphoniePRO	SRA Met Mast (typical +)	10	0	1 minutes	276 KB
SymphoniePRO	SRA Met Mast (advanced ramp rate study)	12	2	1 minutes	681 KB

* Each SymphoniePRO channel set to record one second sample data will record 202 KB of additional data per day.

Summary of Communication Features for SymphoniePLUS3 and SymphoniePRO

Feature	SymphoniePLUS3	SymphoniePRO
SMTP email (for data delivery)	yes	yes
POP email (for logger updates)	yes	no
Remotely view live data in real-time	no	yes
Ability to record 1 Hz sample data	no	yes
Variable data file size reflecting number of active channels	no	yes
Remotely update settings in real time	no	yes
Remotely update logger firmware	no	yes
Remotely update iPackGPS firmware	yes	yes