



PUCK



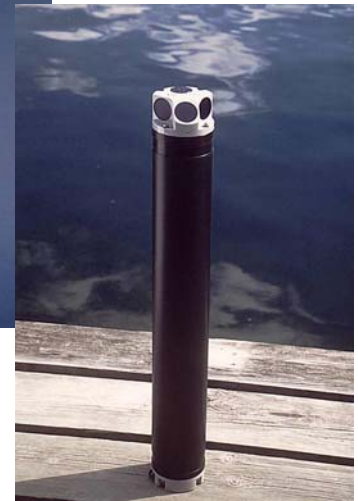
18. April 2006

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Based on a presentation by
Tom O'Reilly, MBARI

Plug'n Play in oceanography?

- **Why?**
 - Ease of use for integrators
 - Switch instruments
 - Data linked to instrument (metadata)
- **Challenges**
 - Serial interface
 - Hard to define common standard
 - Legacy
 - Long life time
 - Low volume



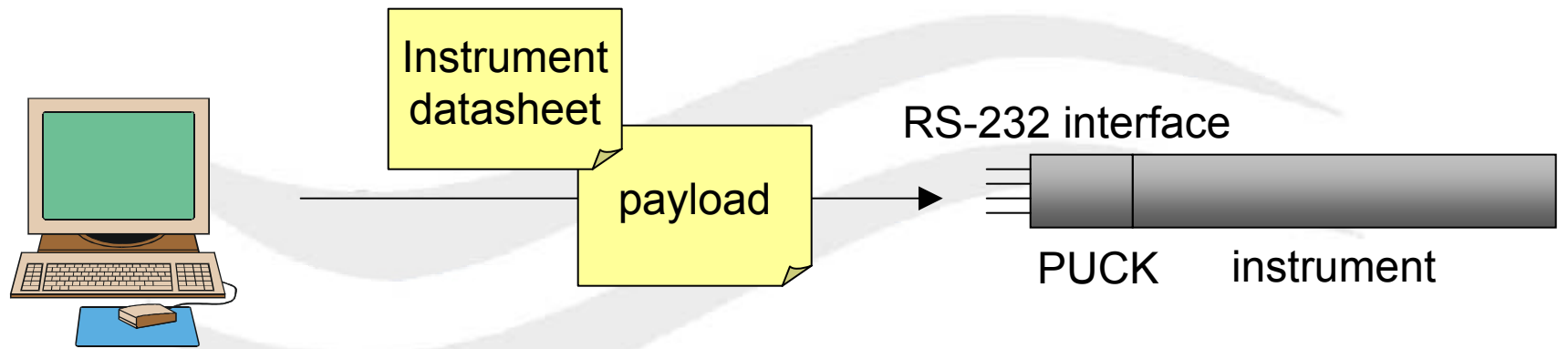


What is PUCK?

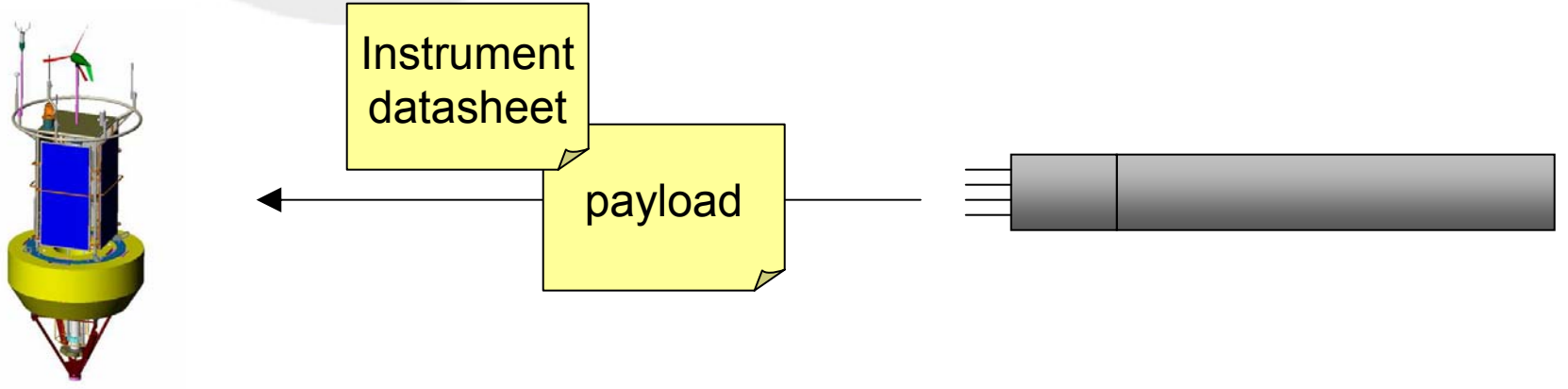
- **PUCK** - Programmable Underwater Connector, with Knowledge
- Physically stores instrument-related information with the instrument itself
- Observing system can automatically retrieve and utilize the information through instrument's serial interface, using *PUCK protocol*, thereby providing *plug-and-work* functionality
- Intended to simplify installation and configuration process, ensure proper association of metadata with instrument science data
- Hidden from users that do not need it
- Simple

How PUCK is used

1 - Technician configures PUCK in lab prior to deployment



2 - Instrument host retrieves and utilizes information from PUCK when device plugged in



What information is stored?

- **Fixed format instrument datasheet**
 - Universal unique identifier
 - Make, model, serial number
- **Payload (optional)**
 - Completely flexible format and content
 - Examples include “driver” code, XML instrument description... many other possibilities

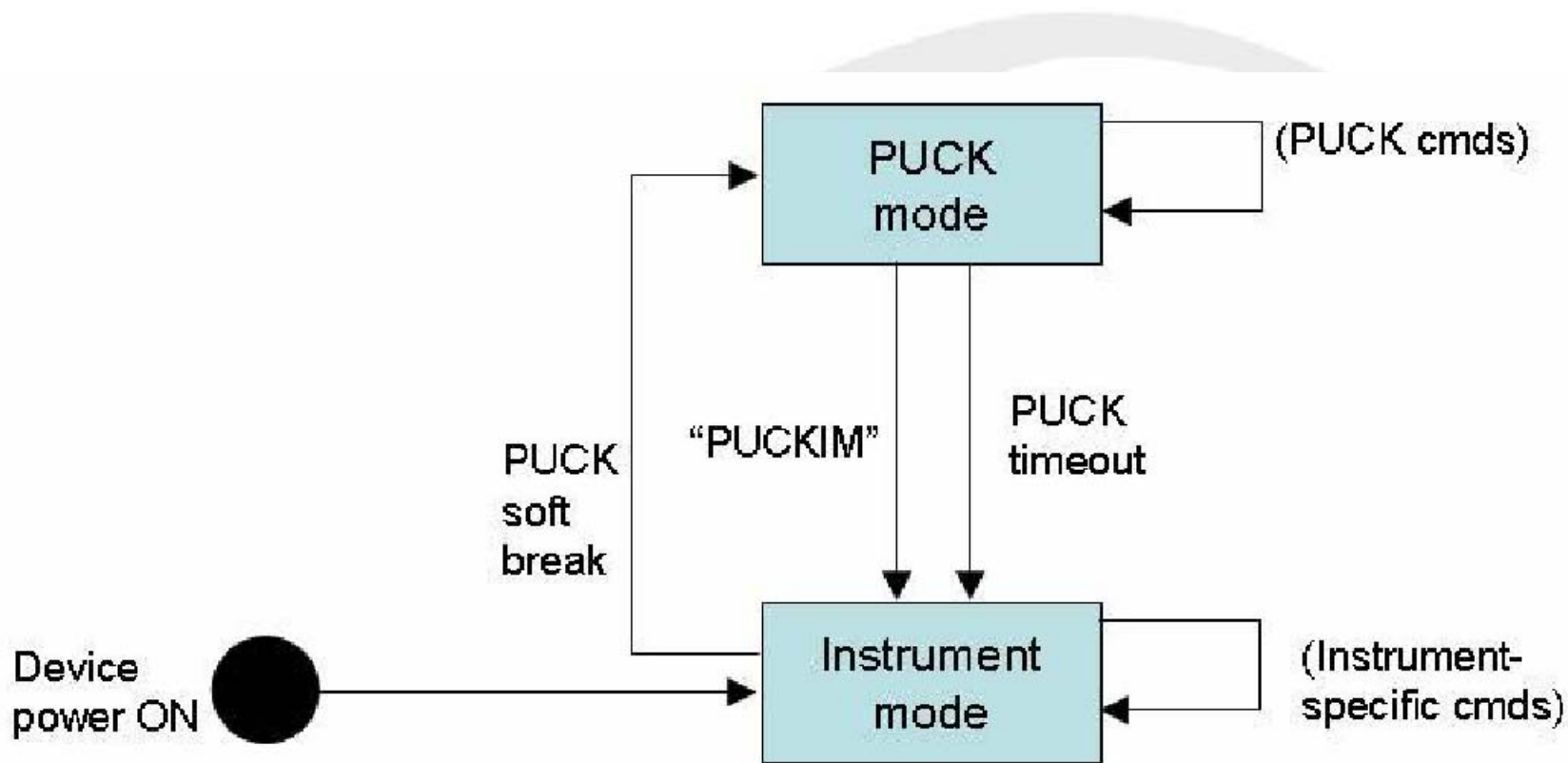


The PUCK datasheet

Description	Size	Format
UUID for instrument	16	UUID
Version of instrument datasheet	2	U16
Datasheet size	2	U16
Manufacture ID	4	U32
Manufacture model	2	U16
Manufacture version	2	U16
Serial number	4	U32
Instrument name	64	CHAR ARRAY



How it works



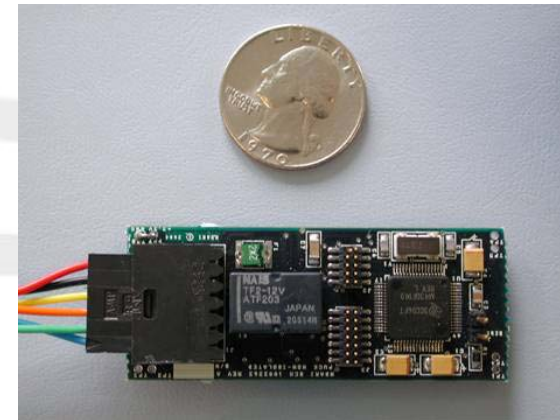


How it works

- Flat datafile
- Softbreak
 - "@@@@@@"
 - (wait 750 milliseconds)
 - "!!!!!!"
 - (wait 500 milliseconds)
- Commands
 - PUCK??
- Still have to probe baudrates

External PUCK implementation

- **Can be attached to any existing RS-232 instrument to enable plug-and-work**
- **Best if installed within instrument's pressure housing**
 - External mount requires additional cables, connectors, housing



Embedded PUCK implementation

- **Modify instrument's "native" firmware to conform with PUCK specification**
- **No need for additional cables or connectors**
- **PUCK protocol lives alongside native instrument protocol**





PUCK developer's toolkit

- Provided to developers and users at no charge
- PUCK verification tool
 - Verifies device compliance with PUCK specification/protocol
- PUCK "reference implementation"
 - Written in Posix 'C' – implementers may find this useful
- Tools to read and write PUCK contents



PUCK

- **Currently supported by**
 - Seabird
 - Nortek
 - Wet Labs
- **Website at www.mbari.org/pw**
 - Technical documents, presentations, PUCK toolkit
 - Includes discussion group – 75+ potential users and implementers signed up