System (Component)	Origin (Component)	Is DB Entry? (Store to DB?)	Signal Information	Signal processing @ PANDA	Signal Specifications	Interface | Field BUS	Location of Interface	Priority x Importance x Reliability	Max Delay (repetition rate)	Goal / Function	Contact person
What wants or needs The signal? (Which component needs The signal or is it For offline analysis)	*Where does the information come from? (Component where the signal Is emitted and distributed)*	*In case of offline analysis or Low importance / large latencies DB access might be sufficient YES|NO|? (YES|NO|?)*	*What information does it carry? ON/OFF or more?*	*How is it processed within PANDA? Saved in a DB | Signal – Slot | Direct link (for shortest delays)| ...*	*100Ohm differential -5V +5V | Analog 0V – 15V | Digital (protocol) on RG 59 | ...*	*DB entry | RG59 | BNC | RS232 | USB | Optical link | ...*	*beam area (detector | coordinates) | assembly area (coordinates) | E10 supply area | E20 | E30 | DCS DB | ...*	*Min | Low | Normal | High | Max*	*negative values = Signal prior to event (optional: Expected repetition rate the signal should be emitted or Information will be requested)*	*Feel free to explain what you intend to do with the signal*	*Whom to contact For details Or Who wrote this entry?*
LMD (LSM state machine)	**Target (?)**	NO(NO)	"I'm ready to go. Are you?"	Epics state machine	Digital (not specified)	not specified	E10 supply area	Normal	~ 5s (1Hz)	Target want's to start, are we ready to determine the luminosity. Are the detector halves inserted? -> Report a "WAIT FOR ME"	Prometeusz Jasinski jasinski@kph.uni-mainz.de
Target (?)	**LMD (?)**	NO(NO)	"I'm ready to go. Are you?"	Epics state machine	Digital (not specified)	not specified	E10 supply area ?	Normal	~ 5s (1Hz)	Target want's to start with beam. Do we have to wait for the LMD?	Prometeusz Jasinski jasinski@kph.uni-mainz.de
PANDA DAQ (control)	**Target (?)**	NO(YES)	"Target ON"	epics DCS	Epics State	Epics State	E20 ?	Normal	~ 1s	We have beam and can record physics	Prometeusz Jasinski jasinski@kph.uni-mainz.de
PANDA DAQ (control)	**LMD (?)**	NO(YES)	"DAQ running"	epics DCS	Epics State	Epics State	E20 ?	Normal	~ 1s	LMD is running, so luminosity can be determined	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (DAQ)	**Target (?)**	NO(YES)	ON/OFF	Epics state machine	Epics State	Epics State	E20 ?	Normal	~ 1s	Target is ON -> Do we see data? We don't see data! -> Is the target OFF?	Prometeusz Jasinski jasinski@kph.uni-mainz.de
Target (?)	**LMD (?)**	NO(YES)	Count rate	Direct link	Digital (not specified)	Optical link ?	E10 supply area?	Max	~ 500ms (1Hz)	Increase the target density to keep the LMD rate constant -> Constant instantanious Luminosity	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (Offline analysis)	**HESR (dipole current supply)**	YES	Current	DB		DB request	DB	Normal	offline	particle propagation requires precise knowledge on field maps. One source of information are magnet currents from HESR.	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (Offline analysis)	**HESR (solenoid current supply)**	YES	Current	DB		DB request	DB	Normal	offline	particle propagation requires precise knowledge on field maps. One source of information are magnet currents from HESR.	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (Offline analysis)	**HESR (?)**	YES	beam momentum	DB		DB request	DB	Max	offline	If determined by HESR, momentum must be stored in our DB	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (Offline analysis)	**PANDA (Hall Probes)**	YES	magnetic flux	DB		DB request	DB	Max	offline	particle propagation requires precise knowledge on field maps. One source of information are magnet currents from HESR.	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (Offline analysis)	**Target (?)**	YES	target beam position	DB		DB request	DB	High	offline	Should be correlated with the LMD determined Luminosity	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (Offline analysis)	**Target (?)**	YES	target thickness (pellet rate)	DB		DB request	DB	High	offline	Should be correlated with the LMD determined Luminosity	Prometeusz Jasinski Jasinski@kph.uni-mainz.de
LMD (Offline Analysis)	**HESR (?)**	YES	beam current	DB		DB request	DB	High	offline	Should be correlated with the LMD determined Luminosity	Prometeusz Jasinski Jasinski@kph.uni-mainz.de
LMD (LSM control)	**HESR (DCS)**	?	Overall state: Filling, Cooling, Ramping, Ready for Physics, Cooling, OFF	Direct link	Digital (IP-based)	Ethernet?	E20	High	~ 1s (when state changes) **Best would be: ~60s!**	We must decide when to move the detector halves in and out. We must configure our detector during beam preparation. Maybe we can agree on some kind of countdown in advance to important changes in the HESR state?	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (FE-FPGA board)	**HESR (?)**	NO(NO)	Burst Number	via SODA	SODA	Optical link	E20	Max	~1µs or well specified (~500 kHz)	Like all detectors we need to correlate the recorded events with The burst number.	Prometeusz Jasinski jasinski@kph.uni-mainz.de
LMD (FE-FPGA board)	**HESR (beam current converter?)**	NO(NO)	Burst Structure (ON/OFF gate signal?)	Direct link	digital or analogue	Optical link / ECL / ...	beam area (LMD)	Max	~1µs or well specified (~500 kHz)	Fast Reset of gray counters on our sensors needs the knowledge Of the burst structure or at least the gap position to trigger on it.	Prometeusz Jasinski jasinski@kph.uni-mainz.de