

Nobody wants to have multiple HMI screens on their press. Wintriss has addressed this issue by enabling the SmartPAC PRO Press Automation Controller to host 3rd party HMIs created in the Wonderware Development Environment.

The Wonderware option enables the SmartPAC PRO to run HMIs that were created in the Wonderware development environment (not included). The main purpose of the feature is to allow the SmartPAC PRO to replace the user interface for ancillary equipment, thus eliminating the need to put additional screens on the press. In other words, the Wonderware-equipped SmartPAC PRO can act as the touch-screen interface for 3rd party automation, provided the HMI for the 3rd party automation was created in Wonderware. Also, Wintriss may elect to utilize Wonderware as part of a custom panel automation request.

In addition to hosting the HMI, the option enables SmartPAC PRO to provide over 120 data tags consisting of information that may be used by Wonderware and any of the external hardware controlled by it. For example, if a pick-and-place robot is only supposed to operate when the press is stopped and the die is open, Wonderware can use SmartPAC PRO's "Input Check Status" tag to ensure the clutch valve is de-energized, and the "Crankshaft Angle" tag to determine the position of the ram, and incorporate these variables into the programming for the robot.

The Wonderware option includes the "InTouch Machine Edition Runtime License" with a driver for one type of device. Additional drivers (at an additional cost) might be required if the application requires Wonderware to communicate with several different manufacturers' devices.

In order to make use of this option, the end user is responsible for the Wonderware HMI development along with any hardware that is needed to control/interface with the ancillary automation. Wintriss does not supply the Wonderware development environment, nor training on how to use Wonderware.

Here are three examples that describe typical (successful) uses of the SmartPAC Pro Wonderware Option:

Example 1 – Integrator-Supplied Automated Die Clamping System

An end user is working with an integrator to update the controls on a press. As part of the project, the integrator is going to design and install a PLC-controlled automated die clamping system. Rather than use a separate touch screen, the integrator will create the HMI for the PLC using his Wonderware development environment, and then host the HMI on the SmartPAC PRO.

The integrator will take advantage of some of the data tags that the SmartPAC PRO makes available to Wonderware, including input check status (tag address 402021) to determine when the press is stopped, and crankshaft angle (tag address 402015) to ensure that the press is close enough to BDC to initiate the clamping/unclamping sequence.

In this case, the integrator is supplying the PLC, the PLC program, the Wonderware development environment, and the programming expertise to put it all together.

Example 2 – Wintriss Custom Console

A metal stamper has ordered a SmartPAC PRO in a custom console from Wintriss. Instead of traditional front-panel indicator lights, buttons, and switches, the user would like include graphical versions of these items accessible via the SmartPAC PRO's touch screen.

Wintriss will accomplish this using a small PLC to replace the switch contacts, and Wonderware to create a custom HMI to control the PLC and provide the necessary on-screen indications. In this case, Wintriss will include the PLC and programming services as part of the custom console quote.

Example 3 - Bearing Temperature Monitor on a New Press

A press manufacturer built a new press that was equipped with a SmartPAC PRO. Rather than a using separate touch panel to display bearing temperature, the builder created a display screen for a temperature monitor using Wonderware, and hosted it on the SmartPAC PRO. Wonderware's graphics capability enabled the builder to display a realistic diagram of the press on the SmartPAC PRO screen, areas of which would change color based on the temperature measured by the system's sensors. The press builder was able to justify the development cost in part because they will be able to use the same system on a variety of different presses.

Prerequisites

In order to utilize the Wonderware Option, prospective users should be proficient with the Wonderware development environment. Also, any external devices that will be controlled by Wonderware (PLCs, motion controllers, servo drives, etc.) should be configured and programmed as needed for the project.

Limitations

While the Wonderware option may seem to give the SmartPAC PRO limitless capabilities, there are some applications for which it is not well suited. Although the Wonderware HMI is hosted on the SmartPAC PRO, it is accessed separately from the existing SmartPAC PRO programming screens. The only direct communication between the internals of SmartPAC PRO and the Wonderware HMI is through the included data tags (see attached list). As a result, Wonderware cannot be used to customize the existing SmartPAC PRO interface. For example, it would not be possible to use Wonderware to add additional tonnage monitor capability, or to change the way that the SmartPAC Pro interprets its sensor inputs.

The Wonderware option cannot be used to control existing proprietary systems unless the system supplier is willing to reconfigure their HMI to run in Wonderware (assuming a suitable driver for the existing control hardware is available).

Below is a list of the SmartPAC PRO data tags that are available to Wonderware:

Tag Name	Address	Data Type	Client Access	Description
Counters_Strokes_Count	402001	DWord	RO	Counters Strokes Count
Counters_Strokes_Preset	402003	DWord	RO	Counters Strokes Preset
Counters_GoodParts_Count	402005	DWord	RO	Counters GoodParts Count
Counters_GoodParts_Preset	402007	DWord	RO	Counters GoodParts Preset
Counters_Non_Resetable_Strokes_Count	402009	DWord	RO	Counters Non Resetable Strokes Count
Counters_Non_Resetable_GoodParts_Count	402011	DWord	RO	Counters Non Resetable GoodParts Count
Counters_Non_Resetable_Scrap_Count	402013	DWord	RO	Counters Non Resetable Scrap Count
Press_ShaftAngle	402015	Word	RO	Press ShaftAngle
Press_ShaftRPMProductionRate	402016	Word	RO	Press ShaftRPMProductionRate
DiProPAC_StatusBits_Input	402017	Word	RO	DiProPAC StatusBits Input
ProCamPAC_StatusBits_Output	402018	Word	RO	ProCamPAC StatusBits Output
Rts_MachineStatus	402019	Word	RO	Rts MachineStatus
Rts_MachineStateReason	402020	Word	RO	Rts MachineStateReason
Rts_InputCheckStatus	402021	Word	RO	Rts InputCheckStatus
Rts_ModeSelectorInputStatus	402022	Word	RO	Rts ModeSelectorInputStatus
RamPAC_CounterBalance_Actual	402023	DWord	RO	RamPAC CounterBalance Actual
RamPAC_CounterBalance_SetPoint	402025	DWord	RO	RamPAC CounterBalance SetPoint
RamPAC_Cushion_Actual	402027	Word	RO	RamPAC Cushion Actual
RamPAC_Cushion_SetPoint	402028	Word	RO	RamPAC Cushion SetPoint
RamPAC_ShutHeight_Actual	402029	Word	RO	RamPAC ShutHeight Actual
RamPAC_ShutHeight_SetPoint	402030	Word	RO	RamPAC ShutHeight SetPoint
RamPAC_ShutHeight_Units	402031	Word	RO	RamPAC ShutHeight Units
TonnageMonitor_TotalForwardLoad	402032	Word	RO	Tonnage Monitor Total Forward Load
Press_StopTime_Actual	402033	Word	RO	Press StopTime Actual
Press_StopTime_Limit	402034	Word	RO	Press StopTime Limit
Press_StartTime_Actual	402035	Word	RO	Press StartTime Actual
Press_StartTime_Limit	402036	Word	RO	Press StartTime Limit
Production_Operator_Number0	402037	DWord	RO	Production Operator Number0
Production_ToolString_Current	402039.16L	String	RO	Production ToolString Current
Production_JobString_Current	402047.14L	String	RO	Production JobString Current
Production_PartString_Current	402054.26L	String	RO	Production PartString Current
Counters_Batch1_Count	402080	DWord	RO	Counters Batch1 Count
Counters_Batch1_Preset	402082	DWord	RO	Counters Batch1 Preset
Counters_Batch2_Count	402084	DWord	RO	Counters Batch2 Count
Counters_Batch2_Preset	402086	DWord	RO	Counters Batch2 Preset

Tag Name	Address	Data Type	Client Access	Description
Counters_Batch2_Preset	402086	DWord	RO	Counters Batch2 Preset
Counters_Batch3_Preset	402090	DWord	RO	Counters Batch3 Preset
Counters_TotalHits_Count	402092	DWord	RO	Counters TotalHits Count
Counters_TotalHits_Preset	402094	DWord	RO	Counters TotalHits Preset
System_Info_SerialNumber	402100	DWord	RO	System Info SerialNumber
System_Info_Versions_RTS	402102	Word	RO	System Info Versions RTS
System_Info_Versions_Main	402103	Word	RO	System Info Versions Main
Press_CurrentCommandSpeed	402104	Word	RO	Press CurrentCommandSpeed
Press_Speed_Min	402105	Word	RO	Press Speed Min
Press_Speed_Max	402106	Word	RO	Press Speed Max
TonnageMonitor_Press_Capacity	402107	Word	RO	TonnageMonitor Press Capacity
TonnageMonitor_StartupCounter	402108	Word	RO	TonnageMonitor StartupCounter
TonnageMonitor_SamplePeriod	402109	Word	RO	TonnageMonitor SamplePeriod
TonnageMonitor_Input1_ForwardTonnage	402110	Word	RO	TonnageMonitor Input1 ForwardTonnage
TonnageMonitor_Input2_ForwardTonnage	402111	Word	RO	TonnageMonitor Input2 ForwardTonnage
TonnageMonitor_Input3_ForwardTonnage	402112	Word	RO	TonnageMonitor Input3 ForwardTonnage
TonnageMonitor_Input4_ForwardTonnage	402113	Word	RO	TonnageMonitor Input4 ForwardTonnage
TonnageMonitor_Input1_ReverseTonnage	402114	Word	RO	TonnageMonitor Input1 ReverseTonnage
TonnageMonitor_Input2_ReverseTonnage	402115	Word	RO	TonnageMonitor Input2 ReverseTonnage
TonnageMonitor_Input3_ReverseTonnage	402116	Word	RO	TonnageMonitor Input3 ReverseTonnage
TonnageMonitor_Input4_ReverseTonnage	402117	Word	RO	TonnageMonitor Input4 ReverseTonnage
TonnageMonitor_Percentage_HighSetPoint	402118	Word	RO	TonnageMonitor Percentage HighSetPoint
TonnageMonitor_Percentage_LowSetPoint	402119	Word	RO	TonnageMonitor Percentage LowSetPoint
TonnageMonitor_Percentage_RepSetPoint	402120	Word	RO	TonnageMonitor Percentage RepSetPoint
TonnageMonitor_TotalHighSetPoints_Inputs1Thru4	402121	Word	RO	Tonnage Monitor High Setpoints
TonnageMonitor_TotalLowSetPoints_Inputs1Thru4	402122	Word	RO	Tonnage Monitor Low Setpoints
TonnageMonitor_TotalRepSetPoints_Inputs1Thru4	402123	Word	RO	Tonnage Monitor Repeatability Setpoints
TonnageMonitor_Input1_HighSetPoint	402124	Word	RO	TonnageMonitor Input1 High SetPoint
TonnageMonitor_Input2_HighSetPoint	402125	Word	RO	TonnageMonitor Input2 High SetPoint
Tag Name	Address	Data Type	Client Access	Description

Tag Name	Address	Data Type	Client Access	Description
TonnageMonitor_Input3_HighSetPoint	402126	Word	RO	TonnageMonitor Input3 High SetPoint
TonnageMonitor_Input4_HighSetPoint	402127	Word	RO	TonnageMonitor Input4 High SetPoint
TonnageMonitor_Input1_LowSetPoint	402128	Word	RO	TonnageMonitor Input1 Low SetPoint
TonnageMonitor_Input2_LowSetPoint	402129	Word	RO	TonnageMonitor Input2 Low SetPoint
TonnageMonitor_Input3_LowSetPoint	402130	Word	RO	TonnageMonitor Input3 Low SetPoint
TonnageMonitor_Input4_LowSetPoint	402131	Word	RO	TonnageMonitor Input4 Low SetPoint
TonnageMonitor_Input1_RepSetPoint	402132	Word	RO	TonnageMonitor Input1 Rep SetPoint
TonnageMonitor_Input2_RepSetPoint	402133	Word	RO	TonnageMonitor Input2 Rep SetPoint
TonnageMonitor_Input3_RepSetPoint	402134	Word	RO	TonnageMonitor Input3 Rep SetPoint
TonnageMonitor_Input4_RepSetPoint	402135	Word	RO	TonnageMonitor Input4 Rep SetPoint
Production_Write	W402200.200L	String	R/W	Production Write
WPC_Mode_Bits	402301	Word	RO	WPC Mode Bits
WPC_OpStation_Bits	402302	Word	RO	WPC OpStation Bits
WPC_PressOrFlywheelSpeed	402303	Word	RO	WPC Press Or Flywheel Speed
WPC_ZeroCorrectAngle	402304	Word	RO	WPC Zero Corrected Angle
WPC_Status_Bits	402305	Word	RO	WPC Current Status Bits
WPC_SpacCurrErrNum	402306	Word	RO	Current Error Number
RemoteMouseDetected	402307	Word	RO	Remote Mouse Detected
RTS_CurrHelpScreenNumber	402308	Word	RO	Current Screen Number
Client_KeepAlive	402309	Word	R/W	Client Keep Alive
RTS_CurrLanguage	402310	Word	RO	RTS Current Language Code

The following tags only apply if PLC Ethernet Option is present				
Tag Name	Address	Data Type	Client Access	Description
PLC_Tool_Long00	402311	DWord	RO	PLC_Tool_Long00
PLC_Tool_Long01	402313	DWord	RO	PLC_Tool_Long01
PLC_Tool_Long02	402315	DWord	RO	PLC_Tool_Long02
PLC_Tool_Long03	402317	DWord	RO	PLC_Tool_Long03
PLC_Tool_Long04	402319	DWord	RO	PLC_Tool_Long04
PLC_Tool_Long05	402321	DWord	RO	PLC_Tool_Long05
PLC_Tool_Long06	402323	DWord	RO	PLC_Tool_Long06
PLC_Tool_Long07	402325	DWord	RO	PLC_Tool_Long07
PLC_Tool_Long08	402327	DWord	RO	PLC_Tool_Long08
PLC_Tool_Long09	402329	DWord	RO	PLC_Tool_Long09
PLC_Tool_Long10	402331	DWord	RO	PLC_Tool_Long10
PLC_Tool_Long11	402333	DWord	RO	PLC_Tool_Long11
PLC_Tool_Long12	402335	DWord	RO	PLC_Tool_Long12
PLC_Tool_Long13	402337	DWord	RO	PLC_Tool_Long13
PLC_Tool_Long14	402339	DWord	RO	PLC_Tool_Long14
PLC_Tool_Long15	402341	DWord	RO	Contains the numeric Tool Number
PLC_Tool_Float00	402343	Float	RO	PLC_Tool_Float00
PLC_Tool_Float01	402345	Float	RO	PLC_Tool_Float01
PLC_Tool_Float02	402347	Float	RO	PLC_Tool_Float02
PLC_Tool_Float03	402349	Float	RO	PLC_Tool_Float03
PLC_Tool_Float04	402351	Float	RO	PLC_Tool_Float04
PLC_Tool_Float05	402353	Float	RO	PLC_Tool_Float05
PLC_Tool_Float06	402355	Float	RO	PLC_Tool_Float06
PLC_Tool_Float07	402357	Float	RO	PLC_Tool_Float07
PLC_Tool_Float08	402359	Float	RO	PLC_Tool_Float08
PLC_Tool_Float09	402361	Float	RO	PLC_Tool_Float09
PLC_Tool_Float10	402363	Float	RO	PLC_Tool_Float10
PLC_Tool_Float11	402365	Float	RO	PLC_Tool_Float11
PLC_Tool_Float12	402367	Float	RO	PLC_Tool_Float12
PLC_Tool_Float13	402369	Float	RO	PLC_Tool_Float13
PLC_Tool_Float14	402371	Float	RO	PLC_Tool_Float14
PLC_Tool_Float15	402373	Float	RO	PLC_Tool_Float15
PLC_Status_Msg	W402400.100L	String	R/W	PLC Status Message