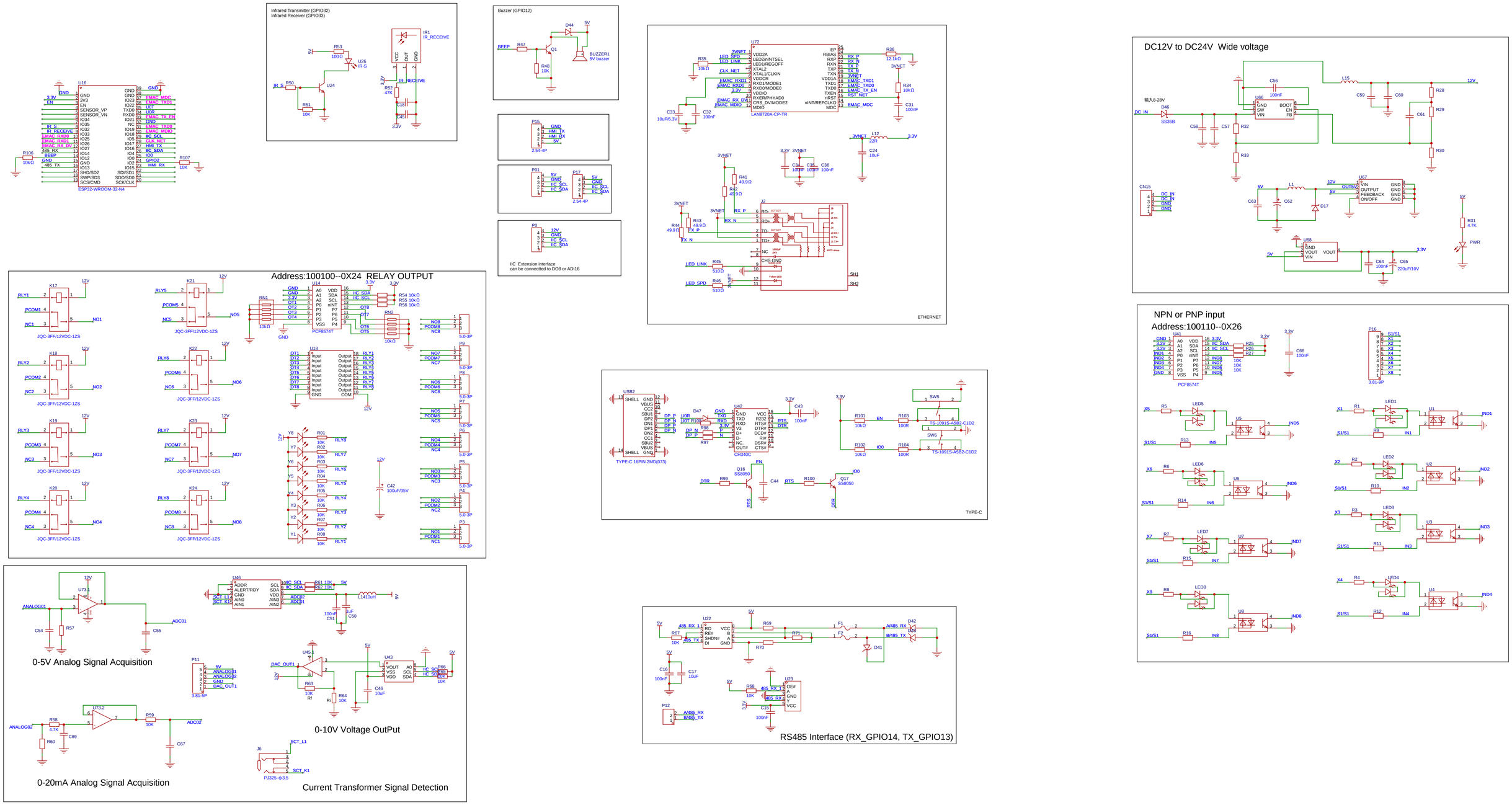

Here's the hardware functional summary translated into concise English descriptions:

1. **0-20mA Analog Signal Acquisition**
   Supports analog input ranging from 0-20mA for precise current measurement in industrial applications.

2. **0-5V Analog Signal Acquisition**
   Captures analog voltage signals between 0-5V, suitable for low-range sensor integration.

3. **0-10V Voltage Output**
   Provides a configurable analog voltage output from 0-10V for controlling external devices or calibration purposes.

4. **Current Transformer Signal Detection**
   Monitors AC current via a current transformer, enabling power consumption or fault detection in electrical systems.

5. **IIC Expansion Interface**
   I²C bus interface for connecting external peripherals \(e.g., sensors, memory modules\) with SDA on GPIO4 and SCL on GPIO5.

6. **SHT3X Sensor Detection Interface**
   Dedicated I²C port for SHT3X-series temperature and humidity sensors, ensuring accurate environmental monitoring.

7. **Ethernet Interface**
   Enables wired network connectivity for data transmission, remote control, or cloud integration.

8. **RS485 Interface (RX_GPIO14, TX_GPIO13)**
   Serial communication interface for long-distance, multi-drop industrial networks (e.g., Modbus RTU).

9. **HMI Serial Port (RX_GPIO15, TX_GPIO16)**
   UART interface for connecting to Human-Machine Interface displays or terminals.

10. **Infrared Transmitter (GPIO32)**
    Controls an infrared LED for remote control or IR-based communication.

11. **Infrared Receiver (GPIO33)**
    Detects incoming infrared signals for remote control or data reception.

12. **Buzzer (GPIO12)**
    Generates audible alerts or tones for system feedback.

13. **8-Channel Relay Output (IIC SDA-GPIO4, SCL-GPIO5)**
    I²C-controlled relay array for switching high-power loads (e.g., motors, solenoids).

14. **8-Channel NPN/PNP Signal Inputs (IIC SDA-GPIO4, SCL-GPIO5)**
    I²C-based digital input module supporting both NPN and PNP sensors for industrial automation.

原理图	HKL-EA8-V1	更新日期	2025-03-04
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图页	HKL-EA8-V1	物料编码	
绘制	MA.YP	HKL-EA8-V1	
审阅			
	版本	尺寸	页 1 共 1
嘉立创EDA	V1.0	A4	HANKERILA